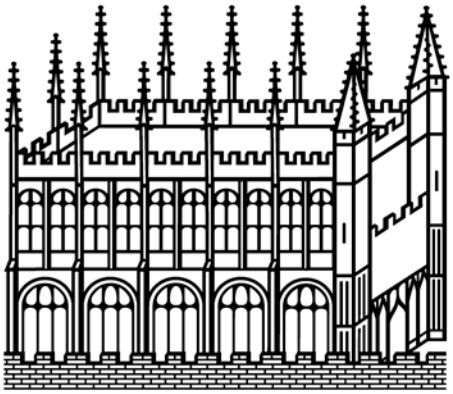


Bodleian Libraries

UNIVERSITY OF OXFORD

This book is part of the collection held by the Bodleian Libraries and scanned by Google, Inc. for the Google Books Library Project.

For more information see:

http://www.bodleian.ox.ac.uk/dbooks

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 2.0 UK: England & Wales (CC BY-NC-SA 2.0) licence.

600049912V

Librarian's Upper Study.

[1926] . 345)

BIBLIOTECA NACIONAL

THE

LONDON ENCYCLOPÆDIA.

A, is the first letter, and first vowel of the alphabet in all the modern, and in most of the ancient languages. In English, some grammarians have given it three sounds, the broad, open, and slender; others have even added to these; but, in fact, it has regularly only two sounds peculiar to itself, a short and a long one; all the other sounds being irregular, varying according to its combination with other letters.

The broad sound, resembling that of the German *a*, is found in many of our monosyllables, as *all, wall, malt, salt;* in which *a* is pronounced as *au* in *cause*, or *aw* in law. Many of these words were anciently written with *au*, as *fault, waulk;* which happens to be still retained in *fault*.

A open, not unlike the *a* of the Italians, is found in *father, rather*, and more obscurely in *fancy, fast*, &c.

A, slender, or close, is the peculiar *a* of the English language, resembling the sound of the French *e* masculine, or diphthong *ai* in *païs;* or perhaps a middle sound between them: to this the Arabic *a* is said nearly to approach. Of this sound we have examples in the words *place, face, waste;* and all those that terminate in *ation*, as *relation, nation, generation*.

A is short, as *glass, grass;* or long, as *glaze, graze:* it is marked long, generally by an *e* final, *plane;* or by an *i* added, as *plain*. The short *a* is open, the long *a* close.

1. A, taken materially, or for itself, is a noun; as, a great *A*, a little *a*.

Truly were I great *A*, before I would be willing to be so abused, I should wish myself little *a*, a thousand times. *Wallis's Correction of Hobbes.*

2. A, an article set before nouns of the singular number; *a* man, *a* tree, denoting the number *one;* as *a* man is coming, that is, *no more than one;* or an indefinite indication, as, *a* man may come this way, that is, *any* man. This article has no plural signification. Before a word beginning with a vowel, it is written *an;* as, *an* ox, *an* egg, of which *a* is the contraction.

3. A is placed before a participle, or participial noun; and is considered by Wallis, as a contraction of *at*, when it is put before a word denoting some action not yet finished; as, I am *a* walking. It also seems to be anciently contracted from *at*, when placed before local surnames; as, Thomas *a* Becket. In other cases, it seems to signify *to*, like the French *à*.

A hunting Chloe went. *Prior.*

They go *a* begging to a bankrupt's door. *Dryden.*

May peace still slumber by these purling fountains!
Which we may every year
Find, when we come *a* fishing here. *Wotton.*

Now the men fell *a* rubbing of armour, which a great while had lain oiled. *Wotton.*

He will knap the spears *a* pieces with his teeth. *More's Antid. Athm.*

Another falls *a* ringing a Pescennius Niger, and judiciously distinguishes the sound of it to be modern. *Addison on Medals.*

4. A is used in burlesque poetry, to lengthen out a syllable, without adding to the sense.

For cloves and nutmegs to the line-*a*
And even for oranges to China. *Dryden.*

5. A is sometimes in familiar writings, put by a barbarous corruption for *he;* as, will *a* come, for will *he* come.

6. A, in composition, seems to have sometimes the power of the French *a* in these phrases, *a droit, a gauche*, &c. and sometimes to be contracted from *at;* as, *aside, aslope, afoot, asleep, athirst, aware*.

I gin to be *a weary* of the sun;
And wish the state of th' world were now undone.
Shakspeare's Macbeth.

And now a breeze from shore began to blow,
The sailors ship their oars, and cease to row;
Then hoist their yards *a-trip*, and all their sails
Let fall, to court the wind, and catch the gales.
Dryden's Ceyx and Alcyone.

A little house with trees *a* row,
And like its master very low. *Pope, Hor.*

7. A is sometimes redundant; as, *arise, arouse, awake;* the same with rise, rouse, wake.

A, with the addition of the two Latin words *per se*, meaning *by itself*, is used by our elder writers to denote a *nonesuch*. It may have been adopted from the custom of the child's school, in which every letter, we may presume, was taught to be expressed *per se*.

AA (Peter Vander), a celebrated bookseller of Leyden, flourished in the beginning of the last century, and compiled many useful geographical works. He published an Atlas of 200 Charts (Galerie Agreable du Monde, 66 vols. folio), editions of the Thesaurus Antiquitatum Græcorum and of the Thesaurus Antiquitatum Italiæ, and a Collection of Travels in Europe, 30 vols. 12mo. &c.

Aa, a river of Semigalila, Courland, which runs into the Gulf of Riga.

270. L. 94 L.154

Aa, a river of France, which rises in the department of Pas de Calais, beyond Rumilly le Comte, near Taeroune, runs N. E. through Artois, and becomes navigable near St. Omers; whence it passes N. to Gravelines, below which it falls into the English Channel. At St. Omers, the Colme and an inferior branch separate from it.

Aa, a river in Westphalia, which rises near Munster, waters that city, and falls into the river Ems.

Aa, a river of Switzerland, which rises in Underwalden, and empties itself into the Lake of Lucerne: also a river of Underwalden, which falls into the Lake of Waldstadten opposite Gersau. This is likewise the name of a third river of Switzerland, which rises N. W. of Lucerne, and unites itself with the Aar, three miles S. W. of Brugg; and of a fourth in the canton of Zurich, which rises near Gruningen, and empties itself in the Greiffen.

Aa, a river of Dutch Brabant, rising on the borders of Guelderland, and running into the Dommel, near Bois le Duc. Also, a river of Overyssel, in Holland, falling into the Lake of Giter.

AABAM, or Aaban, a term used by some alchemists to signify *lead*.

AACH, a river in Suabia, which falls into the Lake of Constance.

Aach, a town in the circle of Suabia, situated near the source of the above river, and almost equidistant from the Danube, and the lake Constance. Also another river of Suabia, joining the Iller.

AAHUS, a small district of Germany, in the circle of Westphalia, and bishopric of Munster, containing twenty parishes and four towns. Aahus, the capital, has a good castle, and lies N. E. of Coesfeldt.

AAKIRKE, a town in the island of Bornholm, Denmark, with the rank and privileges of a city. The provincial court and synod are held in it.

AALBORG, or Aalbourg, a bishopric of Denmark, in North Jutland, length and breadth about 75 miles. It occupies the whole northern part of the peninsula, and contains several flourishing towns and noble manors. Population about 90,000.

Aalborg, the capital of the bishopric of that name, lies on the south coast of Lymfurt, on the confines of the bishopric of Wiburg. Next to Copenhagen and Odensee, it is the richest and most populous town in Denmark. The name signifies *Eel-town*, great quantities of eels being caught here. It has an exchange for merchants, a safe and deep harbour, (though the entrance near Hals is somewhat dangerous,) a considerable trade in corn, and herrings, and manufactories of soap, train oil, guns, pistols, saddles, and gloves. It was taken by the Swedes, in the years 1643 and 1658. Lon. 9. 46. E. lat. 57. N.

AALEN. See Ahlen.

AALTEN, a town of Breedevort, in Dutch Guelderland, near Munster, containing 3500 inhabitants.

AAM, or Haam, a liquid measure, used by the Dutch, containing 128 *mingles*, (a measure weighing nearly 36 ounces avoirdupois,) or 288 pints English, or 148¾ Paris measure.

AANCHE, in music, a name sometimes given to wind instruments and organ pipes, with reeds or tongues, as the clarionet, hautboy, &c.

AANES, in music, the tones and modes of the modern Greeks.

AAR, a small island in the Baltic.

Aar, a river of Germany, falling into the Rhine, near Sintzig.

Aar, a large river of Switzerland, which has its source in a lake, near Mount Schreckhorn, in the south of the canton of Berne, and running N. W. through the whole extent of the lakes of Brientz and Thun to Berne, takes a circuitous course to Soleure; whence it flows E. to Arburg, and N. E. to Brugg; below which, being joined by the Reuss and Limmat, it falls into the Rhine, opposite Waldschut.

AARASSUS, in ancient geography, a town of Pisidia, in Asia, supposed to be the Anassus of Ptolemy.

AARCHET, in music, instruments played with a bow, as the violin and violincello.

AARGAU, Argovia, or Argou, anciently one of the 45 districts or divisions of Switzerland, receiving its name from the Aar, and composing the German part of the canton of Berne, with part of Solothurn, Lucerne, and Underwalden. It now includes only that part of Berne which in 1798 was formed into a separate canton, having Arau for its capital; but received in 1803 the whole of Baden and the Frickthal, in addition to its territory. It is bounded by Zug and Zurich on the N. has the Rhine for its boundary E. the cantons of Solothurn and Basil W. and Zug S. containing 11 districts, and 48 jurisdictions. Population 132,763.

AARHUUS, a large diocese in N. Jutland, which extends from that of Wiburg to Categat, about 65 miles in length, and 33 in breadth. It is intersected by many excellent rivers, and lakes, abounding with fish, and adorned with a variety of large forests. It contains five towns, eight royal bailiwicks, and six counties. Population 135,000.

Aarhuus, or Arhusen, the capital of the bishopric of that name, lies between the sea and a lake, from which water is conveyed by a broad canal, that divides the town into two unequal parts. It is large and populous, and has six gates, two principal churches, two market places, an university, a free school, and a well-endowed hospital. It carries on a good trade in corn. The cathedral, which was begun in 1201, is 150 paces in length, 96 in breadth, and nearly 45 German ells in height.

AARON, Heb. a mountaineer, the brother of Moses, and first high priest of the Israelites, was great-grand-son of Levi by the father's side, and grandson by the mother's. His history being fully narrated in the Pentateuch, it needs only to be added here, that he died upon Mount Hor, in the 123d year of his age, being the 40th after the departure from Egypt; A. M. 2522, of the Julian period, 3262, and before the Christian æra, 1452. See Moses and Magician.

Aaron, (St.) a British martyr, who suffered along with St. Julius, another native of Britain, under Dioclesian, about the same time with St. Alban, the British proto-martyr.

Aaron, of Alexandria, a learned presbyter and physician of the seventh century, in whose works the small-pox is first mentioned.

Aaron, a market town of France, in the department of Mayenne, having extensive iron works.

Aaron Harischon. See Harischon.

Aaron, or Haroun, Al Raschid, a celebrated khalif of the Saracen empire, of whom many fabulous legends are told.

AARSENS, (Francis,) Lord of Someldyck and Spyck, was one of the greatest statesmen the United Provinces ever produced. Having been some years under M. Mornay, at the court of William I. prince of Orange, Barneveldt sent him, as agent for the States, to Paris, where he acquired for himself great reputation under Henry IV. Villeroi, &c. Being soon after invested with the character of ambassador, Henry gave him precedence next to the Venetian minister. He resided at the court of France 15 years, and was created a knight and a baron by the king; was afterwards ambassador at Venice; and to several princes in Germany and Italy: and in 1620, was appointed the first of three extraordinary ambassadors to England, where, in 1641, he settled the marriage between the princess Mary and prince William, the father of our William III. He died at a very advanced age.

Aarsens, (Peter,) a painter, called Long Peter, on account of his stature, born at Amsterdam in 1519. He was eminent in altar and kitchen pieces. A lady of Alckmaer offered 200 crowns to preserve one of his altar pieces, that was destroyed in the insurrection, in 1566.

AARTGEN, or Aertgens, a painter of merit, the son of a wool-comber of Leyden, born in 1498. He studied painting under Engelbrechtz, but was devoted to the bottle, and was drowned in 1564.

AASAR, in ancient geography, a town of Judæa, in the tribe of Judah, between Azotus and Ascalon. In St. Jerome's time it was a hamlet.

AAVORA, in natural history, the fruit of a large species of the palm tree, that grows in Africa and the West Indies. It is of the size of a hen's egg, and several are included in one shell.

AB, in the Hebrew calendar, the 11th month of the civil year and the 5th of the ecclesiastical. It answers to the moon, which begins in July and ends in August, and consists of 30 days. The Jews fast on the 1st of this month in memory of Aaron's death; on the 9th, because on that day, both the first and second temples were burnt; and on the 18th, because the sacred lamp in the sanctuary was that night extinguished, in the reign of Ahaz. The 9th of this month was also remarkable for the publication of Adrian's edict, which prohibited that unfortunate people, not only from continuing in Judæa, but even from looking back to Jerusalem to lament its desolation.

Ab, in the Syriac Calendar, is the last of the summer months. The eastern Christians called the first day of this month *Suum Miriam*, the fast of Mary, and fasted from that to the 15th, which they called *Fathr-Miriam*, the cessation of the fast of the Virgin.

Ab, at the beginning of the names of places, generally shews that they have some relation to an abbey, as *Abingdon*.

ABA, or Abau, Hanifah. See Hanifah.

Aba, Abas, Abos, or Abus, in ancient geography, a mountain of Greater Armenia; Strabo says, the Euphrates and Araxes both rose in it, the former running eastward and the latter westward.

Aba, or Abæ, in ancient geography, a town of Phocis in Greece, near Helicon, famous for an oracle of Apollo, older than that at Delphi; as well as for a rich temple, plundered and burnt by the Persians. See Abantis.

ABABDE, in geography, a tribe of the Bedouin Arabs, inhabiting, according to M. Burckhardt, that part of the west shore of the Arabian Gulf, which is south of the Kosseir, and in about the latitude of Derr. The country is mountainous, and the people faithless and barbarous.

ABABILO, or Ababil, in mythology, a fabulous bird mentioned in the Koran, who, according to the Mahometan doctors, has a foot like that of a dog.

ABACA, in botany, an Indian plant, a native of the Philippine Islands. There are two species, the *white* and the *grey*. The former produces lint, of which very fine linen is made; the latter hemp, which is used for nothing but cordage.

ABACÆNUM, or Abacene, in ancient geography, a town of Sicily, whose ruins are supposed to be those still lying near Trippi, a citadel on a high mountain, near Messina.

ABACAY, in natural history, a species of parrot in the Philippine Islands, called also Calangay.

ABACH, or Weltenburg, a market town in Lower Bavaria, seated on the Danube; nine miles from Ratisbon. It is defended by a citadel, and is remarkable for Roman antiquities, as well as for its mineral waters, which are celebrated for curing various diseases. Lon. 11. 56. E. lat. 48. 53. N.

ABACINARE, in archæology, *Ital.* from *bacino*, a basin, or *bacio*, a dark place, a punishment, described by writers of the middle age, wherein the criminal was blinded, by holding a red hot basin, or hot irons before his eyes.

ABACISCUS, in ancient architecture, the square compartments of Mosaic pavements.

ABACISTA, *O. L.* an arithmetician.

ABACK', on back, backwards.

So that the white was aboue, as the folk y seye,
And drof the rede al *abak* out of the put ney
The rede, as for sorinesse, by turnede hym atten ende,
And asailede the wyte, and made hym *abac* wende.
R. Gloucester, p. 131.

But when they came where thou thy skill didst show,
They drew *abacke*, as half with shame confound.
Spenser's Pastorals, June.

A noble heart ought not the sooner yield,
Not shrink *abacke* for any weal or woe.
Mir. for Mag. p. 359.

Yet Albert new resources still prepares,
Conceals his grief, and doubles all his cares;
"Away there! lower the mizen-yard on deck,"
He calls, "and brace the foremost-yards *aback!*"
Falconer's Shipwreck.

Aback, or Abake, in sea-language signifies

the situation of the sails, when their surfaces are flatted against the mast by the force of the wind. This may be either by a sudden change of the wind, or an alteration in the ship's course to avoid some imminent danger.

ABACO, one of the most considerable of the Bahama islands, lying in N. Lat. 26. 22. W. Long. 77. 14. Some writers have conjectured that this was the first spot of the western world upon which Columbus touched. See BAHAMA.

ABACOOCHE, or COOSEE, a river of N. America, which rising in the S. W. territory, and flowing through Georgia, unites with the Oakfuskee, and forms the Alabama.

ABACOT, a cap of state, worn in ancient times by the kings of England, the upper part of which was in the form of a double crown.

ABACTED, from *abactus*, *L.* drawn away by stealth or violence.

ABACTUS, or ABIGEATUS, among ancient medical writers, an abortion procured by the force of medicines. See ABORTION.

ABACUS, among the ancients, was a kind of cup-board or buffet. Livy, describing the luxury into which the Romans degenerated after the conquest of Asia, says they had their *abaci*, beds, &c. plated over with gold. See also *Juv. Sat.* iii. 203.

ABACUS, signified also a table covered with dust on which mathematicians drew their diagrams, and a draft or chess board, on which the ancients played games of chance. *Macrob.* v. *Stuck. Ant. Conviv.* xi. 16.

The ABACUS, in architecture, Vitruvius tells us, was originally intended to represent a square tile laid over an urn, or rather over a basket.—An old woman of Athens happening to place a basket covered thus, over the root of an acanthus, the plant, shooting up the following spring, encompassed the basket all around, till meeting with the tile, it curled back in a kind of scroll. Callimachus, an ingenious sculptor, passing by, took the hint, and immediately executed a capital on this plan; representing the tile by the *abacus*, the leaves by the volutes, and the basket by the vase, or body of the capital.—The form of the abacus is not the same in all orders: in the Tuscan, Doric, and Ionic, it is generally square; but in the Corinthian and Composite, its four sides are arched inwards, and embellished in the middle with some ornament, as a rose or other flower. Scammozzi uses *abacus* for a concave moulding on the capital of the Tuscan pedestal; and Palladio calls the plinth above the echinus, or boultin, in the Tuscan and Doric orders, by the same name.

ABACUS is also the name of an ancient instrument for facilitating operations in arithmetic. It is variously contrived. That chiefly used in Europe is made by drawing any number of parallel lines at the distance of two diameters of one of the counters used in the calculation. A counter placed on the lowest line, signifies 1; on the 2d, 10; on the 3d, 100; on the 4th, 1000, &c. In the intermediate spaces, the same counters are estimated at one half of the value of the line immediately superior, viz. between the 1st and 2d, 5; between the 2d and 3d, 50, &c.

ABACUS, *the Chinese*. See SWANPAN.

ABACUS *Pythagoricus*, the multiplication table of Pythagoras, similar to the common one, which has also been attributed to him.

ABACUS *Logisticus*, is a rectangled triangle, whose sides, forming the right angle, contain the numbers from 1 to 60; and its area, the facta of each two of the numbers perpendicularly opposite. This is also called a *canon of sexagesimals*.

ABACUS & *Palmulæ*, in the ancient music, denote the machinery, whereby the strings of Polyplectra, or instruments of many strings, were struck with a plectrum made of quills.

ABACUS *Harmonicus*, is used by Kircher for the structure and disposition of the keys of a musical instrument, whether to be touched with the hands or the feet.

ABACUS *Major*, in metallurgic operations, the name of a trough used in the mines, wherein the ore is washed.

ABACUS, *αβαξ*, Gr. Ben Jonson uses *aback* to denote simply a square surface.

> In the centre or midst of the Pegm, there was an *aback* or square in which this elegy was written.
> *Jonson's Coronation Pageant.*

ABADDON, the name which St. John in the Revelation gives to the angel of the bottomless pit. The inspired writer says, this word is Hebrew, and in Greek signifies *Απολλυων*, i. e. a *destroyer*. See Rev. ix. 11.

ABADE, or SCHECK ABADE, in Egypt. See ANTINOE.

ABADEH, a town of Persia, in the district of Fars, which is celebrated in the Persian civil wars of the last century. Its fortifications are in decay, but the neighbourhood is fruitful. Population 5000.

ABADIR, a title which the Carthaginians gave to gods of the first order. In the Roman mythology, it is the name of a stone which Saturn swallowed, by the contrivance of his wife Ops, believing it to be his new born son Jupiter: hence it ridiculously became the object of religious worship.

ABÆ, or ABA. See ABA.

ABA'FT, *adv.* abaftan, Sax. behind. From the fore part of the ship, towards the stern; in opposition to *afore*.

ABAFT THE BEAM, in maritime affairs, signifies the position of an object somewhere between a line at right angles with the keel, and the points to which the ship's stern is directed.

ABAGI, a silver coin of Persia, worth about 36 sols, French money. Four chaouris, which are also called sains, make one abagi.

ABAGUN, in ornithology, an Ethiopian bird of great beauty, having a crested horn on its head, adding much to its appearance and giving it perhaps its name, which signifies *lordly abbot*. *Lobo.* 71.

ABAI'SANCE, *n. s.* from the French *abaiser*, to depress, to bring down. An act of reverence, a bow. *Obeysance* is considered by Skinner as a corruption of *abaisance*, but is now universally used.

ABAISIR, in chemistry, a name sometimes given to spodium.

ABAIS'SED, ABAISSE', in heraldry, an epithet applied to the wings of eagles, &c. when the

tip looks downwards to the point of the shield, or when the wings are shut.

ABAISSED, or ABAISSE, in heraldry. See HERALDRY.

ABAITE, a river of Brazil in the Minas Geraes province, falling into the Francisco, near which was found the largest diamond ever discovered in the country.

ABAKA khan, the 18th emperor of the Moguls, a wise and clement prince, who is said to have been so far a Christian, as to have joined in keeping the feast of Easter, a short time before his death. He reigned 17 years.

ABAKANSKOI, or ABANKANSK, a town of Siberia, on the river Abakan. It was founded in 1707, and rebuilt in 1725. It has a garrison, and is provided with artillery. Population 1250. Lon. 91. 5. E. Lat. 53. 5. N.

ABALAK, a town in Siberia, sixteen miles from Tobolsk, celebrated for an image of the Virgin, which is visited by many pilgrims. Lon. 68. 20. E. Lat. 58. 11. N.

ABALIENATUS, in medicine, signifies that the part spoken of is in a state that requires amputation; and, when applied to the mind, denotes its total derangement.

ABALLABA, the ancient name of Appleby, in Westmoreland, remarkable as having been a Roman station. See APPLEBY.

ABALUS, in ancient geography, supposed to be an island in the German Ocean, called by Timæus, *Basilio*, and by Xenophon Lampsacenus, *Baltia*. Here, according to Pliny, amber dropped from the trees; and sacrifices were offered to the manes of the drowned if the body were lost.

ABALUS, the peninsula of Scandinavia.

ABANA, or AMANA, in ancient geography, a river of Phœnicia, called Chrysorrhæa, by the Greeks, which, rising from mount Hermon, washed the south and west sides of Damascus, and fell into the Phœnician sea, north of Tripolis.

Scripture supplies a fine instance of the expression of *disdain*, in the reply of the Syrian General, Naaman, to the prophet Elisha, respecting this river: "Are not Abana and Pharpar, rivers of Damascus, better than all the waters of Israel? may I not wash in them and be clean?" 2 Kings v. 12.

ABANCAY, or AVANCAY, a province of Peru, bounded on the E. by the city of Cuzco; S. by the provinces of Cochabamba & Aimarez; W. by Andahuelas; and N. by Calcayleres. It is the jurisdiction of a corregidor, containing 17 settlements or towns, and a noble chain of mountains, which diversify the climate to almost every degree of temperature. Silver mines are found here; the sugar cane flourishes, as well as wheat, maize, and all grain, which, together with the hemp manufactured into cloth, is conveyed by the Apurimac to the Amazons. Abancay has also a fine breed of horned cattle.

ABAND', *v.*
ABAN'DON, *v. n.*
ABAN'DONER,
ABAN'DONING,
ABAN'DONMENT,

Sax. *Bannan*, *Abannan*, past. part. *Abanned*. From this past participle is formed the verb *abandon*, signifying primarily to band or bind, or put in bondage. From this original sense are derived to resign, quit, desert, forsake, reject, and repel.

And Vortigern enforc'd the kingdom to *uband*.
Spenser's Faerie Queene, II. x. 65.

All pleasures quite and joys he did *aband*,
Pursuing war *Mir. for Mag.* p. 172.

The barons of this land,
For him trauailed sore, and brought him out of *band*.
R. Brunne, p. 201.

For he that
Yaue whole his hart, in will and thought,
And to himselfe kepeth right nought,
After this swift it is good reason
He yaue his good in *abandon*.
Chaucer, The Romaunt of the Rose.

Moris hir sonne was coroned,
Which so fer forth was *abandoned*,
To Christes feith, that men hym calle
Moris the christnest of all. *Gower*, b. II.

With women, which were *abandoned*
To werche *Gower, Conf. Am.* b. 7.

If she be so *abandoned* to her sorrow,
As it is spoke, she never will admit me.
Shakspeare's Twelfth Night.

The passive Gods behold the Greeks defile
Their temples, and *abandon* to the spoil
Their own abodes. *Dryden's Æneid.*

Must he, whose altars on the Phrygian shore,
With frequent rites, and pure, avow'd thy power,
Be doom'd the worst of human ills to prove,
Unbless'd, *abandon'd* to the wrath of Jove?
Pope's Odyssey.

Oh! sacred, shadowy, cold, and constant queen,
Abandonner of revels, mute, contemplative!
Beaumont and Fletcher's two Noble Kinsmen.

See how he lies at random, carelessly diffused,
With languish'd head unpropt,
As one past hope, *abandon'd*,
And by himself given over.
Milton's Samson Agonistes.

She loses all her influence. Cities then
Attract us, and neglected nature pines
Abandon'd, as unworthy of our love.
Cowper's Task.

When thus the helm of justice is *abandoned*, an universal *abandoning* of all other posts will succeed.
Burke.

ABANDUM, in old law, any thing that is sequestrated, confiscated, or forfeited.

ABANGA, the name given by the black natives of the Island of St. Thomas, to the fruit of the ady or palm tree. The Portuguese call it *caryoces* and *cariosse*. See ADY.

ABANNEG, or ABNET, Heb. a girdle worn by the priests of the Jews.

ABANNITION, *n. s.* Lat. *abannitio*, an old punishment, of one or two year's banishment for manslaughter.

ABANO, a town of Italy near Padua, famous in ancient as well as modern times, for its hot baths. Population 3000.

ABANTIS or ABANTIAS, in ancient geography, an island in the Ægean sea, extending along the coast of Greece from the promontory Sunium in Attica, to Thessaly; and separated from Bœotia by a narrow strait called Euripus. It is known in history by the different names of Chalcis, Ellopia, Aonia, &c. It was afterwards called Eubœa, from a famous cave on the eastern coast of the island; and Macris from its length. Its present name is Negropont. It derived the name Abantis from the ABANTES, a people

originally of Thrace, although some historians suppose they were Arabians who followed Cadmus. The Abantes are well known in history; Homer calls them οπισθεν Κομοωντες from their wearing the hair long behind. They are also called Curetes, from cutting their hair short before.

ABANTIS, a country of Epirus. *Paus.* v. c. 22.

ABAPTISTON, or ANABAPTISTON, in surgery, an ancient name for the perforating part of the instrument called a trepan.

ABARCA, or ABAREA, an ancient kind of shoe, used by the Spaniards, in travelling over mountains.

ABARIM, mountains which separated the territory of the Moabites and Ammonites from Canaan. Nebo and Pisgah were among them. Josephus says, they stood opposite to Jericho, and were the last station but one of the Israelites, before they took possession of Canaan.

ABARIS, the Hyperborean, a celebrated sage of antiquity, of whom a great number of fabulous stories are told; such as, that he received a present of a miraculous arrow from Apollo, with which he travelled without taking food; that he could foretel earthquakes, allay tempests, drive away the pestilence, &c. &c. Harpocration tells us, that the whole earth being infested with a deadly plague, Apollo ordered, that the Athenians should offer up prayers in behalf of all other nations; upon which, ambassadors were sent to Athens from different countries. Among these was Abaris, who, during this journey, renewed the alliance between his countrymen, and the inhabitants of the Isle of Delos. He also went to Lacedæmon, where he built a temple to Proserpine the Salutary. It is said that there is a Greek MS. of his epistles to Phalaris in the library of Augsburg.

ABARNARE, Sax. in Law. To discover to a magistrate any secret crime.

ABARNUS, ABARNIS, or APARNIS, in ancient geography, a city, country, and promontory of Pariana, near the Hellespont. Milesius calls it a promontory of Lampsacus. The Phocians are said to have given it the name of Abarnis from one of their countrymen, who built Lampsacus.

ABARTAMEN, in chemistry, a name for lead.

ABARTICULATION. *n. s.* from *ab*, from, and *articulus*, a joint, Lat. A good and apt construction of the bones, by which they move strongly and easily; or that species of articulation that has manifest motion.

ABARTICULATION, in anatomy, that species of articulation, that takes place in the joints of the arms, hands, thighs, &c. which is called also *Dearticulatio*, and *Diarthrosis*, to distinguish it from that sort of articulation, which admits of a very obscure motion, and is called *Synarthrosis*.

ABAS, a small weight used in Persia, for weighing pearls. It is one eighth less than the European carat.

ABAS, in the heathen mythology, the son of Hypothoon and Metanira, who entertained the goddess Ceres, and offered a sacrifice to her; but Abas, ridiculing the ceremony, and giving her opprobrious language, she turned him into a water lizard. Also in ancient history, the 11th king of Argos, who built Abæ. A son of Eurydemus, killed by Æneas near Troy; a companion of Æneas killed in Italy; another lost in the storm which drove him to Carthage; a Latian chief who befriended him, and was killed by Lausus; and an author, quoted by Servius, who described Troy. *Virg. Æneid.*

ABAS, in ancient geography, a river of Armenia, near which Pompey routed the Albani; also a mountain of Syria, near the sources of the Euphrates.

ABAS, in medicine, a name sometimes given to the epilepsy. See TINEA.

ABAS or ABASIA, in entomology, a species of the Bombyx of Fabricius, and of the Phalæna of Linnæus, found in Surinam. It has brown, spreading wings, the hinder wings cinereous, and the ocellus of a reddish colour.

ABAS, Schah, the Great, 7th Sophi, or emperor of Persia, succeeded his father in 1585, at eighteen. The empire having been much reduced by the conquests of the Turks and Tartars, he recovered most of the provinces they had taken; but death put a period to his victories, in 1626, in the 62nd year of his age, and 44th of his reign. He transferred the seat of empire to Ispahan.

ABAS, II. Schah, the 9th Sophi of Persia, the son of Sefi, and grandson of Abas the Great, succeeded his father at thirteen, and was only eighteen years of age, when he retook the city of Candahar, and the whole province around it, from the Great Mogul, who had seized it in his father's reign; and he afterwards defended it against him, though he besieged it more than once, with an army of 300,000 men. He was a merciful prince, and openly protected the Christians. He died at thirty-seven years of age, in 1666.

ABASE', ABAS'ING, *n.* ABASE'MENT, } Fr. *abaisser*; Lat. *basis* or *bassus*; Ital. *abbassare*; Span. *abaxar*. These are all to be referred to the Gr. βασις, the foot of a pillar. Hence it signifies, to lessen or keep under, to depress, to bring low, to degrade, to disgrace in a figurative and personal sense, says Johnson, which is the common use.

Our kynge hath do this thing amisse,
So to *abesse* his roialtee. *Gower.*

And will she yet *abase* her eyes on me,
That cropt the golden prime of this sweet prince,
And made her widow to a wofull bed?
Shakspeare's Rich. III. act i, sc. 2.

It is a point of cunning to wait upon him with whom you speak with your eye; yet with a demure *abasing* of it sometimes.
Lord Bacon's Essay on Cunning.

Her either cheek resembled blushing morn;
Or roses gules in field of lilies borne;
'Twixt which an ivory wall so fair is raised,
That it is but *abased* when it's praised.
Drummond.

Behold every one that is proud, and *abase* him.
Job xl. 11.

If the mind be curbed and humbled too much in children; if their spirits be *abased* and broken much, by too strict an hand over them; they lose all their vigour and industry. *Locke on Education.*

There is an *abasement* because of glory; and there is that lifteth up his head from a low estate.

Ecclesiasticus, xx. 11.

Heaven was to be earned only by penance and mortification; by the austerities and *abasement* of a monk, not by the liberal, generous, and spirited conduct of a man. *Smith's Wealth of Nations.*

ABASCIA, or ABCAS, a country in Asia, tributary to Russia, surrounded by Mingrelia on the E. and S. black Circassia on the N. and W. and the Black Sea on the S.W. It has few towns, and they are of little consequence. Anacopia, Dandar, and Czekorni, are the chief. Great and Little Abcas are both included in the government of Caucasus, but the Russian authority in the heart of the country is but nominal.

The inhabitants called ABASCIANS, or ABKHAS, have the name of Christians, but nothing else. The men are robust and strong, and the women beautiful; but they are so poor, thievish, and treacherous, that there is no trading with them, without the utmost caution. They even live in continual dread of each other, for the most powerful seize as many as they can of the poorer sort, especially the females, and sell them to the Turks. The tribe of Natukasch is the principal. Their commodities are furs, buck and tiger skins, linen yarn, box-wood and bees'-wax; but their chief traffic lies in selling their own children. An Abascian prince lately (1807) carried his depredations far into the neighbouring governments, and was sometime captive in Russia, but he escaped. Their customs resemble those of the MINGRELIANS, which see.

ABASH', *v.* } of the same derivation as *abase*,
ABASH'MENT, } unless it comes from *abaw*, a verb peculiar to Chaucer, and which Barret translates, to be *abashed* or astonied. *Abash* is used by Gower as a substantive. It is to be distinguished, however, from the preceding article, as it is applied to the feelings of those who are *abased*, depressed, disgraced. It generally implies a sudden impression of shame which generates painful surprise and confusion. The substantive is used to signify the state of being confused, and the cause of confusion.

He stode al *abashed*, with colour wan and pale.

Chaucer's 2nd Tale.

The town restlesse with furie as I sought
Th' unlucky figure of Creusae's ghost,
Of stature more than wont, stood fore mine eyen
Abashed then I waxe: therewith my heare
Gan start right up: my voice stuck in my throte.

Surrey.

Why, then, (you princes)
Do you with cheeks *abashed* behold our workes,
And think them shame, which are (indeed) nought else,
But the protractiue trials of great Joue,
To find persistiue constancy in men.

Shakspeare's Tro. and Cressida.

They heard, and were *abasht*, and up they sprung,
Upon the wing. *Milton's Paradise Lost.*

Silence was in the court at this rebuke:
Nor could the gods, *abash'd*, sustain their sovereign's look. *Dryden's Fables.*

She was afrayde;
The ruddy shamefastness in her vysage fyll,
Which manner of *abashement* became her not yll.

Skelton's Poems, p. 38.

Methinks it may be some *abashment* to reason, and that vast perfection to which some men would extol it, that it scarce knows what man or itself is.

Ellis's Knowledge of Divine Things.

ABASITIS, in ancient geography, a tract of Asiatic Mysia, in which the city of Ancyra was situated. *Strabo.*

ABASKI, a town of Circassia, 40 miles S. E. of Kopiel.

ABASSI, or ABASSIS, a silver coin, current in Persia, so named after Schah Abbas, II. equal to about a shilling of English money.

ABASSUS, in ancient geography, a town of the Greater Phrygia, on the confines of Galatia.

ABAT-CHAUVEE, a name given in Poitou, and other parts of France, to a species of very coarse wool.

ABATE, (A.) a Neapolitan painter of some eminence, who was employed in the Escurial. His boldness of colouring and shade was highly praised by Luca Giordano. Abate died in 1732.

ABATE', *v.* } *a. s. beatan*, to beat. The word
ABATE'MENT, } exists without the prefix *a*, as
ABA'TER, } *bate*; but, in modern usage, it is more limited in its application. The verb is both active and neuter. It not only signifies to beat down, but to subtract, as in arithmetic. Thus it has grown to mean to lessen, diminish, contract, deject, and depress. It is employed technically in law and in horsemanship. In the one it is used in reference to a *nuisance*,—to get rid of it; to a *castle*,—to beat it down or remove it; to a *writ*—to defeat and overthrow it: in horsemanship, it implies the exact performance of any downward motion. Its general and popular usage is set forth in the following specimens.

The kyng did samen his men, to *abate* Gryflyn's pride,
And Harald tham betaught ageyn the Walsch to ride.

Chaucer's Persones' Tale, p. 63.

And when the sunne hath eke the darke opprest,
And brought the day, it doth nothing *abate*
The trauailes of mine endlesse smart and paine.

Surrey.

Who can tell whether the divine wisdom, to *abate* the glory of those kings, did not reserve this work to be done by a queen, that it might appear to be his own immediate work. *Sir John Davies on Ireland.*

This iron world
Brings down the stoutest hearts to lowest state:
For misery doth bravest minds *abate*.

Spenser. M. Hubberd's Tale.

Till at length
Your ignorance deliver you,
As most *abated* captives to some nation
That won you without blows.

Shakspeare's Coriolanus.

HEL. O weary night, O long and tedious night,
Abate thy houres, shine comforts from the East,
That I may backe to Athens by day-light.
From these that my poore company detest.

Shakspeare's Mid. N. Dream, act iii, sc. 2.

Will come a day (hear this, and quake ye potent great ones)
When you yourselves shall stand before a judge,
Who in a pair of scales will weigh your actions,
Without *abatement* of one grain.

Beaumont and Fletcher's Plays.

Impiety of times, chastity's *abator*.

Daniel's Complaint of Rosamond.

If we could arrest time, and strike off the nimble wheels of his chariot, and like Joshua, bid the sun stand still, and make opportunity tarry as long as

we had occasion for it; this were something to excuse our delay, or at least to mitigate or *abate* the folly and unreasonableness of it. *Tillotson's Works.*

The law of works is that law, which requires perfect obedience, without remission or *abatement.* *Locke.*

ABATELEMENT, in commerce, a sentence of prohibition from trade, issued by the French consuls against those who will not stand to their bargains, or who refuse to pay their debts. It must be taken off, before they can sue any person for payment.

ABATEMENT, in heraldry, a certain mark of degradation, inserted in the bearings of particular persons or families, called also diminutiones, vel discernula armorum. Authors on this subject mention nine of these marks. See SELDEN, and GUILL. DISP. HERALD.

ABATEMENT, in commerce. See DISCOUNT and REBATE.

ABATIS, or ABBATIS, from *batum*, an old measure for corn, an ancient term for an officer of the stables, who had the care of the provender.

ABATIS, or ABBATIS, from *Abattre* to pull down, *Fr.* in fortification, a heap of large trees thrown together, to guard intrenchments, obstruct roads, and prevent the approaches of an enemy.

ABATOS, from *a* priv. and *βαινω* to go, i. e. inaccessible, in ancient geography, an island in the Lake Moeris, famous for its papyrus, and for being the burial place of Osiris. Hence sacred from profane intrusion.

ABATUTTA, or ABUTUTTA, in music, an Italian direction for continuing to beat the time as before.

ABAUZIT, (F.) a modern French writer and philosopher of some celebrity. He was born at Rezes, 1679; but sent off to Geneva, at two years of age, by his mother, a zealous protestant, to secure his education in that religion. He well rewarded her solicitude, becoming afterwards in this country the friend of Sir Isaac Newton, who complimented him by observing that he was "a fit judge between Leibnitz and himself." William III. wished him to remain in England, but he returned to become the librarian of the city of Geneva, in 1726. In 1730 he republished Spon's History of Geneva, with notes and dissertations, which was his chief work. Voltaire and Rousseau compliment him. He died 1767.

ABA-UJVAR, a palatinate of Upper Hungary, on the W. of Thorn. It contains the four circles of Futzer, Kaschau, Siepschow, and Tscherchat: There are 40 catholic, and 41 reformed parishes; 18 of the Greek church, and 3 Lutheran, comprised in this palatinate, which is about 50 miles in length, and from 12 to 15 in breadth. Population 125,000.

ABAVI, or ABAY, i. e. the Father of waters, an Abyssinian name for the Bahr-el-Azergue, which they consider as the head of the Nile.

ABAVI, ABAVO, or ABAVUM, in botany, a large tree in Ethiopia, that bears a fruit like a gourd. It is a synonime of the ADANSONIA, which see.

ABB, or ABB-YARN, *n. s.* the yarn on a weaver's warp; a term among clothiers.

ABBA, in ancient geography, a town of Africa, near Carthage.

AB'BA, *n.* AB'BACY, AB'BESS, AB'BEY, AB'BOT. } In Chaldee and Syriac אב, Father. Titles of honour and authority, first derived from the literal signification of the word. In scripture *Abba* is once used by Jesus Christ in prayer, and twice in the epistles, having in each place the explanation πατηρ annexed to it. In the eastern churches, it was given at a very early date to their bishops; —and *Baba*, *Papa*, *Pope*, had their origin from the same root.

ABBAT, or ABBOT, in the fourth and fifth centuries was gradually, and at last distinctively, applied to the heads of those religious orders who then began to exclude themselves from the world. For a particular account of these we refer our readers to the history of *Monachism* at large.—*Mosheim's Eccles. His.* &c.

And anon, after this *abbot*
Then spaken another;
I wode that thyn hede were of,
Though thou were my brother.
Chaucer's Coke's Tale of Gamelyn.

ABBACY, *n. s.* Lat. *abbatia*, the rights or privileges of an ABBOT, which see.

ABBADIE, (James,) an eminent protestant divine, born at Nay in Bearn, in 1654; educated under the famous La Placette, and afterwards at the university of Sedan; from whence he went into Holland and Germany, and became minister of the French church at Berlin. In 1690, he came into England, was minister of a French church in London, and was made dean of Killaloe in Ireland. He died at St. Mary-le-bone, 1727, aged 75. His writings, published in French, were, A Treatise on the Truth of the Christian Religion; The Art of Knowing one's Self; A Defence of the British Nation; The Deity of Jesus Christ essential to the Christian Religion; The History of the last Conspiracy in England, written by order of King William III.; and the Triumph of Providence and Religion, or the opening the Seven Seals by the Son of God.

ABBAISSEUR, in anatomy, a name given by Winslow and other French writers to one of the muscles of the eye, called by others the *deprimens* and *humilis;* and by Fabricius the *rectus inferior.*

ABBAS, the son of Abdalmothleb, and Mahomet's uncle. He at first opposed his nephew, but being taken prisoner at the battle of Bedir, in 623, (the 2d of the hegira,) and a great ransom being demanded, he represented that so large a sum would reduce him to poverty: but Mahomet, reminded him of the gold he had left with his mother at Mecca: whereupon Abbas, believing him to be really inspired, embraced his religion, became one of his chief officers, and saved his life, when in the utmost danger, at the battle of Honain. He afterwards commenced a doctor of the Mussulman law, and read lectures upon the Koran.

ABBATHY. See ABBACY.

ABBE, *n. s.* 1. In a monastic sense, the same with Abbot, which see. This was also, before the revolution, the name of a kind of

secular clergyman, popular in France. The Abbé had many privileges in the church, without any fixed station: and rose occasionally to eminence both in the literary and political world.

The ABBESS has the same rights and authority over her nuns, that the Abbots regular have over their monks. Her sex does not allow her to perform the spiritual functions, annexed to the priesthood, wherewith the abbot is usually invested; but there are instances of some abbesses who commission a priest to act for them, and possess a kind of episcopal jurisdiction, exempt from the visitation of their diocesan. Martene, in his treatise on the rights of the church, observes, that some abbesses have formerly confessed their nuns. But he adds, that their excessive curiosity carried them such lengths, that there arose a necessity for checking it. However, St. Basil, in his Rule, allows the abbess to be present with the priest at the confession of her nuns.

ABBE-BOYLE. See BOYLE.

ABBERFORD, or ABERFORD, a parish and market-town, in the wapintake of Skyrack, W. Riding of Yorkshire, on the Cook, where the Roman highway crossed it. It is 16 miles S. W. from York, and 186 N. of London: market on Wednesday.

ABBEVILLE, a considerable town of France, the chief of an arrondissement, in the department of Somme, and late province of Picardy, seated in a pleasant valley, where the river Somme divides into several branches, and separates the town into two parts. It has 14 parish churches, and a collegiate one; the principal churches are St. George's and St. Giles's. It is partially fortified, being flanked with bastions, and surrounded by large ditches. Here is a good woollen manufactory, which was erected in 1665, by Van Robais, a Dutchman, whose family retain it. The cloths are said to be little inferior to those of England and Holland. They also manufacture sail cloth, coarse linens, and black and green soap, and carry on a good trade. It lies 15 miles E from the British channel, 20 N.W. from Amiens, 22 S. of Calais, and 85 N. by W. of Paris. Population 30,000.

The arrondissement of ABBEVILLE extends to the English Channel, the Somme watering its whole extent, and falling into the sea near Crotoy. It contains the old counties of Ponthieu, and Vimeux and 114,000 inhabitants.

ABBEYS, *priories* and *monasteries*, differ little but in name. FAUCHET observes, that, in the early days of the French monarchy, dukes and counts were called *abbots*, and duchies and counties *abbeys*. Even some of their kings are mentioned in history under the former title. Monasteries were at first nothing more than religious houses, whither persons retired from the bustle of the world, to spend their time in solitude and devotion. But they soon degenerated from their original institution, and procured large privileges, exemptions, and riches. They prevailed greatly in Britain before the reformation; particularly in England: and as they increased in riches, so the state became poor: for the lands which these regulars possessed, were *in mortuo manu*, i. e. could never revert to the lords who gave them. This inconvenience gave rise to the statutes against gifts in *mortmaine*, which prohibited donations to these religious houses: and Lord Coke tells us, that several lords, at their creation, had a clause in their grant, that the donor might give or sell his land to whom he would, *(exceptis viris religiosis et Judæis)* excepting monks and Jews. Henry VIII. having appointed visitors to enquire into the lives of the monks and nuns, which were found in some places very disorderly: the abbots, perceiving their dissolution unavoidable, were induced to resign their houses to the king, who by that means became invested with the abbey lands: these were afterwards granted to different persons, whose descendants enjoy them at this day: they were then valued at £2,853,000 per annum. Though the suppression of religious houses, even considered in a political light only, was a great national benefit, it must be owned, that, at the time they flourished, they were not entirely useless. Abbeys or monasteries were then the repositories as well as the seminaries of learning; many valuable books and national records, as well as private evidences, have been preserved in their libraries; the only places wherein they could have been safely lodged in turbulent times; and many of those, which had escaped the ravages of the Danes, were destroyed with more than Gothic barbarity at the reformation. "Covetousness," says BALE, "was at that time so busy about private commodity, that public wealth, in that most necessary article of respect, was not any where regarded. A number of them who purchased these superstitious mansions, reserved of the library books, some to serve their jakes, some to scour the candlesticks, and some to rub their boots; some they sold to the grocer and soap-seller; and some they sent over sea to the book-binders, not in small numbers, but in whole ships full; yea the universities of this realm are not clear of so detestable a fact. I know a merchant, that bought the contents of two noble libraries for 40s. price; a shame it is to be spoken!" See MONASTERY.

ABBEY-HOLM, a town in Cumberland, on the Waver, so called from an abbey built in it by David I. king of Scots. Abbey-holm stands on an arm of the Irish Sea, near Solway Firth, 309 miles from London, and 16 S. W. from Carlisle. It contains four townships, i. e. the Abbey, East Waver, Low Waver, and St. Cuthberts. The abbots of Holm Cultram, (the ancient name of this foundation) built a castle about 5 miles from the sea, as a depository for their books and papers in the border wars: considerable ruins of which remain.

ABBEY-LUBBER, *n. s.* See LUBBER. A slothful loiterer in a religious house, under pretence of retirement and authority.

> This is no father Dominic; no huge overgrown *abbey-lubber*; this is but a diminutive sucking friar.
> *Dryd. Sp. Fr.*

ABBIATI, (F.) an Italian historical painter of eminence, who was born in 1640, and died in 1715. He studied under Nouvolone.

ABBOT, or ABBAT, and ARCHIMANDRITE,

were titles at first indifferently assumed by the governors of the primitive monasteries. They were really distinguished from the clergy; though frequently confounded with them, because a degree above laymen. In those early days, the abbots were subject to the bishops and the ordinary pastors. Their monasteries being remote from cities, built in the farthest solitudes, they had no share in ecclesiastical affairs. They went on Sundays to the parish church with the rest of the people; or, if they were too remote, a priest was sent them to administer the sacraments; till at length they were allowed to have priests of their own. The abbot or archimandrite himself was usually the priest: but his function extended no farther than to the spiritual assistance of his monastery; and he remained still in obedience to the bishop. There being among the abbots several persons of learning, they made a vigorous opposition to the rising heresies of those times; which first occasioned the bishops to call them out of their deserts, and fix them about the suburbs of cities, and at length in the cities themselves: from which æra their degeneracy is to be dated. The abbots, now, soon wore off their former plainness and simplicity, and began to be looked on as prelates. They aspired at being independent of the bishops; and became so insupportable, that some severe laws were made against them at the council of Chalcedon; notwithstanding this, in time many of them carried the point of independency, and got the appellation of *lord*, with other badges of the episcopate, particularly the mitre. Hence arose a new species of distinction between the abbots. Those were termed *mitred* abbots, who were privileged to wear the mitre, and exercised episcopal authority within their respective precincts, being exempted from the jurisdiction of the bishop. Others were termed *crosiered* abbots, from their bearing the crosier or pastoral staff. Others were styled *œcumenical* or universal abbots, in imitation of the patriarch of Constantinople: while others were termed *cardinal* abbots, from their superiority over all other abbots. Among us, the mitred abbots were lords of parliament; and called abbots sovereign, and abbots general. And as there were lords abbots, so there were also lords priors, who had exempt jurisdiction, and were likewise lords of parliament. Some reckon 26 of these lords abbots and priors that sat in parliament. Sir Edward Coke says, that there were 27 parliamentary abbots, and two priors. In the parliament, 20 Rich. II. there were but 25 abbots and two priors; but in the summons to parliament, *anno* 4, Ed. III. more are named. At present, in the Roman catholic countries, the principal distinctions observed between abbots are those of *regular* and *commendatory*. The former take the vow and wear the habit of their order; whereas the latter are seculars, though they are obliged by their bulls to take orders when of proper age. Anciently the ceremony of creating an abbot consisted in clothing him with the habit, called *cuculus*, or cowl, putting the pastoral staff into his hand, and the shoes called *pedales* on his feet; but at present it is only a simple benediction, improperly called, by some, consecration.

Abbot, (George,) archbishop of Canterbury was born 29th Oct. 1562, at Guildford in Surrey. He studied at Oxford, was chosen principal of University College in 1597, installed dean of Winchester in 1599, and thrice elected vice-chancellor of the University of Oxford, in 1600, 1603, and 1605. The translation of the Bible, now in use, being begun in 1604, by order of K. James, dean Abbot was one of the eight divines to whom the New Testament was committed. In 1608, he went to Scotland, to assist in bringing about an union between the kirk of Scotland and the church of England—a business which he conducted with so much moderation, as well as address, that the origin of all his after preferment may be traced to it. In December, 1609, he was consecrated bishop of Litchfield and Coventry; in January, 1610, bishop of London; and on the 2d November following, appointed to the archiepiscopal see. His enemies have ascribed this rapid accumulation of honours less to his merits, than to the flattering compliments he paid the king; by equalling him with several of the wisest and best monarchs of antiquity. In 1613, however, he opposed that favourite object of the king's, the divorce between lady Frances Howard, and Robert, earl of Essex; and in 1618, the royal declaration permitting Sunday sports, which he prohibited being read in the church. When his health began to decline, he went to Hampshire for recreation, and being invited to a hunting match by Lord Zouch, he had the misfortune to kill the game-keeper by an arrow, which he shot at one of the deer from a cross bow. This accident affected the archbishop so much, that, besides settling an annuity of 20l. on the widow, he kept a monthly fast on Tuesday, the day when the misfortune happened, all his life afterwards. His enemies endeavouring, on this account, to lessen him in the king's favour, James smartly observed, that, " an angel might have miscarried in this sort." Ten commissioners were appointed to inquire into the matter, whose report entirely exculpated the archbishop from crime, but it was thought proper that a dispensation of pardon and restoration should pass the great seal. After this he seldom assisted at the council, but attended it during the king's last illness very constantly. And, although troubled with the gout, he performed the ceremony of crowning king Charles I. He was never, however, greatly in this monarch's favour, and the duke of Buckingham and Laud being his enemies, he was suspended from all his functions as primate, upon his refusing to license a sermon of Dr. Sibthorpe's, justifying a loan which the king had demanded. At the meeting of parliament he was restored, and died at Croydon, the 5th of August, 1633, aged 71. Archbishop Abbot was a man of great moderation, and wished that the clergy should attract esteem, by the purity of their manners, rather than by the dignity of their function. He partook of the stern Calvinism that so largely pervaded the minds of most of the protestant reformers; but was more remarkable in early life than afterwards for his high-churchmanship. Being, at the former period, asked 'Whether a protestant prince might assist the subjects of a

neighbouring state in resisting tyranny and oppression?' he answered—'No; for even tyranny was God's authority.' In later life, he manfully opposed those extreme measures of Laud and his misguided sovereign, which brought the latter to the block. Dr. Southey, in his Book of the Church, speaks of him as "inclining to the puritans;" and as bringing the court of High Commission into disgrace by his great severity. We cannot reconcile these charges. Lord Clarendon, also, in the evident spirit of party, throws out some severe reflections against him, but Dr. Wellwood has done justice to his merits, in his Memoirs. He endowed a hospital at Guildford, (where he was buried,) with an income of £300 a year. He wrote various tracts of temporary interest, and "Six Latin Lectures on Divinity, at Oxford," 1598, 4to.; "Exposition of the Prophet Jonah," 4to. 1600; "A Brief Description of the whole World," 12mo. 1634; "Treatise on the Perpetual Visibility and Succession of the True Church," 4to. 1624; and a "History of the Massacre in the Valteline," inserted in Fox's Book of Martyrs.

ABBOT, (Robert,) bishop of Salisbury, elder brother to the archbishop, was born at Guildford, in 1560, studied at Oxford, took his degree of A.M. in 1582, and became a celebrated preacher. Upon his first sermon at Worcester, he was chosen lecturer in that city, soon after rector of All-saints; and John Stanhope, Esq. happening to hear him preach, immediately presented him to the rich living of Bingham, in Nottinghamshire. In 1597, he took the degree of D. D. and was appointed soon after, chaplain in ordinary to king James; who had such an opinion of him, that he ordered his book, *De Antichristo*, to be printed along with his own Commentary upon part of the Apocalypse. In 1609, he was elected master of Baliol college, a trust which he discharged with the utmost care. In 1615, he was appointed to the see of Salisbury, in which he exercised primitive diligence, visiting his diocese personally, and preaching weekly. He died of the stone, on the 2d of March, 1618, being one of the five bishops which Salisbury had in six years. Dr. Fuller speaking of the two brothers, says,—"that George was the more plausible preacher, Robert the greatest scholar; George the abler statesman; Robert the deeper divine: gravity did frown in George, and smile in Robert." He published several pieces; he also left behind him sundry manuscripts, which Dr. Corbet, his son-in-law, made a present of to the Bodleian library.

ABBOTS-BROMLEY, or PAGET'S BROMLEY, a town in the hundred of South Pirchill, Staffordshire, 6 miles E. from Stafford, and 129 N. W. from London. It has a weekly market on Tuesday, and three annual fairs for horses and cattle. On the dissolution of the monasteries it was given to Lord Paget, whence its modern name, which it bears in the county map, though it still retains its old name with regard to the fairs, and in the king's books.

ABBOTSBURY, a market-town in Dorsetshire, so named from an abbey near it, founded as some say, by a steward of Canute the Great, others, by a Norman lady, about 1026; to which Edward the Confessor, and William I. were both benefactors. It has a market on Thursday, a fair on the 10th of July, and lies eight miles S.W. of Dorchester, and 127 W. by S. from London.

ABBOTS-CASTLE, or APEWOOD CASTLE, an old fortification in Staffordshire, 7 miles from Wolverhampton, on the N. side of the road from Shrewsbury to London, situated on a lofty round promontory, and a steep ridge of hills; which extend a mile in length, and are supposed to have been one continued fortification of the ancient Britons.

ABBOTS-LANGLEY, a village in Herts, four miles from St. Albans, (and formerly belonging to the abbey there,) famous for being the birthplace of Pope ADRIAN IV.

ABBRE'VIATE, *v. n.* } Ital. *Abbreviare*,
ABBREVIA'TION, } from Lat. *brevis*, *ad*
ABBREVIA'TOR, } *breve agere*, which is
ABBRE'VIATURE. } from the Gr. βραχος, Anglo-Saxon, brœcan, to break.

To make short.—To shorten by contraction or cutting off, retaining the substance of the original. —To make an epitome, or compendium, to abridge, curtail.

In all theyr wrytynges, [the Frenshe] when they come to any mater that soundyth any thynge to theyr honour, it is wrytten in the longest and mooste shewynge manoure to theyr honour and worshyp. But if it sounde any thynge to theyr dishonoure, then shall it be *abreuyatyd* or hyd, that the trouthe shall not be knowen. *Fabyan*, repr. 1811. p. 333.

The epistles of St. Paul, St. Peter, St. John, St. James, and Judas, the Apostles, do contain counsels and advertisements, in the form of orations, reciting divers places, as well out of the Old Testament as out of the Gospels, as it were an *abbreviate*, called of the Greeks and Latins epitome.

Sir T. Elyot's Gov. fol. 205. b.

In Xiphilin and Theodosius, the two *abbreviators* of Dio Cassius, may be observed the like agreement and disagreement. *West on the Resurrection*, p. 343.

It is one thing to *abbreviate* by contracting, another by cutting off. *Lord Bacon's Essays*, 26.

He that means to have his sickness turned into safety, and life into health and virtue, must make religion the employment of his sickness, and prayer the employment of his religion. For there are certain compendiums or *abbreviatures*, and shortnings of religion, fitted to several states.

Taylor's Holy Living and Dying.

At the creation the original of mankind was in two persons, but after the flood, their propagation issued at least from six; against this we might very well set the length of their lives before the flood, which were *abbreviated* after, and in half this space contracted into hundreds and threescores.

Brown's Vulgar Errours.

ABBREVIATE of ADJUDICATIONS, in Scots law, an abstract or abridgment of a decree of adjudication, which is recorded in a register kept for that purpose.

ABBREVIATION, in ARCHÆOLOGY, is a short method of expressing words by initials, or other letters. We subjoin the most useful.

1. CLASSICAL ABBREVIATIONS,

Or those principally in use, on coins and monuments, and in Greek books

A. Absolvo, absolutio, aiunt, aliquando, ager, albo, annos, argentum, Augustus, &c.
A. A. Auro argento.
A. A. A. F. F. Auro argento ære flando feriundo.
A. A. S. L. M. Apud agrum sibi legavit monumentum. Apud agrum sibi locum monumenti.
AB. Abdicavit.
AB. AUG. M. P. XXXXI. Ab Augustâ millia passuum quadraginta unum.
AB. AUGUSTOB. M. P. X. Ab Augustobrigâ millia passuum decem.
A. B. M. Animæ benè merenti.
ABN. Abneros.
A. CAMB. M. P. XI. A Camboduno millia passuum undecim.
ACCENS. COS. Accensus consulis.
A. COMP. XIIII. A Compluto quatuor decem.
A. C. P. VI. A capite, *vel* ad caput pedes sex.
A. D. Ante diem. Agris dandis.
ADJECT. H-S. IX ∞. Adjectis sestertiis novem mille.
A. D. P. Ante diem pridiè.
ADQ. Adquiescit *vel* adquisita *pro* acquisita.
ÆD. II. $\overline{\text{II}}$.VIR. II. Ædilis iterum, duumvir iterum.
ÆD. II.VIR. QUINQ. Ædilis duumvir quinquennalis.
ÆD. Q. II.VIR. Ædilis quinquennalis duumvir.
ÆL. Ælius, Ælia.
ÆM. *vel* AEM. Æmilius, Æmilia.
AER. Ærarium Ærum, *pro stipendio.*
A. K. Ante kalendas.
A. G. Animo grato: Aulus Gellius.
AG. Ager *vel* Agrippa.
ALA. I. Ala prima.
A. L. P. Animo libens posuit.
A. L. V. S. Animo libens votum solvit.
A. MILL. XXXV, A milliariistriginta quinque, *vel* ad milliaria triginta quinque.
A. M. $\overline{\text{XX}}$. Ad milliare vicesimum.
AN. A.V. C. Anno ab urbe condita.
AN. C. H. S. Annorum cent. hic situs est.
AN. DCLX. Anno sexcentesimo sexagesimo.
AN. II. S. Annos duos semis.
AN. IVL. Annos quadraginta sex.
AN. N. Annos natus.
ANN. LIII. H. S. E. Annorum quinquagintarium hic situs est.
ANN. NAT. LXVI. Annos natus sexaginta sex.
ANN. P. Annonæ prefectus.
ANN. PL. M. X. Annos *vel* annis plus minus decem.
AN. Θ. XVI. Anno defunctus decimo sexto.
AN. V. XX. Anno vixit viginti.
AN. P. M. Annorum plus minus.
A. XII. Annis duodecim.
A. N. TR. Argentum novumTrevirense.
AN. P. M. L. Annorum plus minus quinquaginta.
AN. P. R. C. Anno post Romamconditam.
AN. V. P. M. II. Annis vixit plus minus duobus.
AN. XXV. STIP. VIII. Annorum viginti quinque stipendii, *vel* stipendiorum octo.
A. P. M. Amico posuit monumentum.
A. P. T. Amico posuit titulum.
A. P. V. C. Annorum post urbem conditam.
APVD. L. V. CONV. Apud lapidem quintum convenerunt.
A. RET. P. $\overline{\text{III}}$. S. Ante retropedes tres semis.
AR. P. Aram posuit.
ARG. P. X. Argenti pondo decem.
A. $\overline{\text{RION}}$. A rationibus.
A. V. B. A viro bono.
A. V. C. Ab urbe conditâ.
A. V. L. Annos vixit quinquaginta, animo vovit libens.
AVSP. S. Auspicante sacrum.
A. XX. H. EST. Annorum viginti hic est.

B. *pro* V. berna *pro* verna, bixit *pro* vixit, bibo *pro* vivo, bictor *pro* victor, bidua *pro* vidua.
B. A. Bixit annis, bonus ager, bonus amabilis, bona aurea, bonum aureum, bonis auguriis, bonis auspiciis.
B. B. Bona bona, benè benè.
B. D D. Bonis deabus.
B. F. Bona fide, bona femina, bona fortuna, benè factum.
B. F. reversed thus, ꟻ. ꟻ. Bona femina, bona filia.
B. H. Bona hereditaria, bonorum hæreditas.

B. I. I. Boni judicis judicium.
B. L. Bona lex.
B. M. P. Benè merito posuit.
B. M. P. C. Benè merito ponendum curavit.
B. M. S. C. Benè merito sepulcrum condidit.
BN. EM. Bonorum emptores.
BN. H. I. Bona hic invenies.
B. RP. N. Bono reipublicæ natus.
B. A. Bixit, *id est*, vixit annis.
BIGINTI. Viginti.
BIX. ANN. XXCI. M. IV. D. VII. Vixit annis octoginta unum, mensibus quatuor, diebus septem.
BX. ANUS. VII. ME. VI. DI. XVII. Vixit annos septem, menses sex, dies septem decem.

C. Cæsar, Caia, Caius, censor, civitas, consul, condemno, conscriptus, conjux.
C. C. Carissimæ conjugi, calumnia, causa, consilium cepit.
C. C. F. Caius Caii filius.
C. B. Commune bonum.
C. D. Comitialibus diebus.
C. H. Custos hortorum *vel* hæredum.
C. I. C. Caius Julius Cæsar.
CC. VV. Clarissimi viri.
CEN. Censor, centuria, centurio.
CERTA. QUINQ. ROM. CO. Certamen quinquennale Romæ conditum.
C. F. C. Clavi figendi causâ.
CL. Claudius.
CL. V. Clarissimus vir
CH. COH. Cohors.
C. M. *vel* CA. M. Causa mortis.
C. O. Civitas omnis.
COH. I. *vel* II. Cohors prima *vel* secunda.
COS. ITER. ET. TERT. DESIG. Consul iterum et tertium designatus.
COS. TER. *vel* QUAR. Consul tertium *vel* quartum.
COSS. Consules.
COST. CUM. LOC. H-S. ∞ D. Custodiam cum loco sestertiis mille quingentis.
C. R. Civis Romanus.
CS. IP. Cæsar imperator.
C. V. Centum viri.

D. Decius, decimus, decuria, decurio, dedicavit, dedit, devotus, dies, divus, Deus, dii, Dominus, domus, donum, datum, decretum, &c.
D. A. Divus Augustus.
D. B. I. Diis benè juvantibus.
D. B. S. De bonis suis.
DCT. Detractum.
DDVIT. Dedicavit.
D. D. Donum dedit, datis, datio, Deus, dedit.
D. D. D. Dono dederunt, *vel* datum decreto decurionem.
D. D. D. D. Dignum Deo donum dedicavit.
DDPP. Depositi.
D. D. Q. Dedit dedicatque *vel* donavitque.
D. D. Q. O. H. L. S. E. V. Diis deabusque omnibus hunc locum sacrum esse voluit.
DEC. Decimo.
DEC. XIII. AVG. XII. POP. XI. Decurionibus denariis tredecim, augustalibus duodecim, populo undecim.
DFTI. Defuncti.
DIG. M. Dignus memoriâ.
D. IM. S. Diis immortalibus sacrum.
D. M. S. Diis manibus sacrum.
D. M. Æ. Deo magno æterno.
D. N. Dominus noster.
DN. NN. Domini nostri.
D. O. Diis omnibus, *vel* Deo optimo.
D. O. Æ. Deo optimo æterno.
D. O. M. Deo optimo maximo.
DOSC. Dioclesianus.
D. P. Divus pius, diis penatibus, patriis, *vel* de periculo, dotem petit, *vel* devota persona, *vel* decretum principis.
DPC. Deprecatio.
DPO. Depositio.
D. PF. De præfecto.
D. P. ORT. De parte orientis.
D. PP. Deo perpetuo.
DPS. Discipulus.
DQ. Denique, Diis quirinalibus.
DR. Drusus.
DR. P. Dare promittit.
D. RM. De Romanis.
D. RP. De Republicâ.
DS. Deus.
D. S. P. F. C. De sua pecunia faciundum curavit.
DT. Duntaxat. Durat.
D. V. Devotus vir, vester, *vel* diis volentibus, *vel* dies quintus.
DVL. *vel* DOL. Dulcissimus.
D. VS. Deæ virgines, de virtutibus, *vel* de verbis.
DVS. Devotus, &c.
D. IIII. ID. Dei quartâ idus.
D. VIII. Diebus novem.
D. V. ID. Die quintâ idus.

E. Ejus, ergo, esse, est, erexit, exactum, &c.
E. B. Ejus bona.
E. C. E comitio, *vel* capitolio.
E. C. F. Ejus causa fecit.
E. D. Ejus domus, *vel* dominus.
ED. Edictum.
E. E. Ex edicto.
EE. N. P. Esse non potest.
E. F. Ejus filius.
EG. Egit, egregius.
E. H. Ejus hæres, ex hæredibus, *vel* ex hæreditate est.
EID. Idus.
EIM. Ejusmodi.
E. L. Ea lege.
E. M. Elegit *vel* erexit monumentum, ex more.
EMP. Emptor.
EM. Q. Equitum magister.
E. N. Etiam nunc, est noster *vel* non. Enim.
EOR. Eorum.
EP. Epistola.
E. P. Parie, è palatio, è publico.
EP. M. Epistolam misit.
EQ. M. Equitum magister.
EQ. O. Equester ordo.
EQ. P. Eques publicus.
EQ. R. Eques Romanus.
ER. Erit *vel* erunt.
EX. A. D. K. Ex ante diem Kalendas.
EX. A. D. C. A. Ex autoritate divi Cæsaris Augusti.
EX. A. D. V. K. DEC. AD. PRID. K. IAN. Ex antè diem quinto Kalendas Decembris ad pridiè Kalendas Januarii.
EX. H-S. X. P. F. I. Ex sestertiis decem parvis fit jussit.
EX. H. S. GIↃN. Ex sestertiis mille nummùm.
EX. H-S. ∞ ∞ ∞ ∞. Ex sestertiis quatuor millia.
EX. H-S. N. CC. L. ∞ D. XL. Ex sestertiis nummorum ducentis quinquaginta millibus, quingentis quadraginta.
EX. H-S. DC. ∞ D. XX. Ex sestertiis sex centis millibus, quingentis viginti.
EX. KAL. IAN. AD. KAL. IAN. Ex Kalendis Januarii ad Kalendas Januarii.
EX. S. C. Ex senatus consulto.
EX. V. Ex voto.

F. Fabius, fecit, factum, faciendum, familia, famula, factus, Februarius, feliciter, felix, fides, fieri, fit, femina, filia, filius, frater, finis, flamen, forum, fluvius, faustum, fuit.
FA. Filia.
F. A. Filio amantissimo, *vel* filiæ amantissimæ.
FAB. Fabrum, *vel* fabrorum.
FAC. B. Factum bene.
FAC. C. Faciendum curavit.
FA. F. Factum feliciter.
FAM. Familiaris.
FAMA. Familia.
F. AN. X. F. C. Filio *vel* filiæ annorum decem faciendum curavit.
FB. Fabricant.
F. C. Fieri, *vel* faciendum curavit, fidei commissum. Fecit, *vel* fecerunt.
F. D. Flamen Dialis, filius dedit, factum dedicavit.
F. D. Fide jussor, fundum.
FEA. Femina.
FEB. Februarius.
F. E. Factum est, *vel* filius ejus.
FE. C. Fermè centum.
FF. Fabrè factum, filius familias, fratris filius.
F. F. F. Ferro, flamma, fame, fortior, fortuna fato.
FF. Fecerunt.
FL. F. Flavii filius.
F. FQ. Filiis filiabusque.

FIX. ANN. XXXIX. M. I. D. VI. HOR. SCIT. NEM. Vixit annos triginta novem, mensem unum, dies sex, horas scit nemo.
FO. FR. Forum.
FOR. Fortè, *vel* fortis, *vel* foras, *vel* fortuna.
F. P. Forma publica, fama publica, fidei promissor, *vel* fides promissa.
F. PP. R. Forum populi Romani.
F. R. Forum Romanum, *vel* filius regondorum.
FR. COR. Forum Cornelii.
FR. I. Forum Julium.
FR. L. Forum Livium.
FR. S. Forum Sempronii.
FR. T. Forum Trajani.
FVNC. Functus.

G. Gellius, Gaius *pro* Caius, genius, gens, gaudium, gesta, gratia, gratis, &c.
G. AV G. Genio Augusti.
GAB. Gabinius.
GAL. Gallus, Gallerius.
G. B. Gens bona.
G. C. Genio civitatis.
G. D. Gens desolata.
GD. Gaudium.
GEN. P. R. Genio populi Romani.
GEN. CORN. Gente Cornelia.
GENS. Gentes.
GER. Germanicus.
G. F. Gula filiorum, Germanus frater, gemina fidelis.
GG. Gesserunt.
GL. Gloria.
GL. P. Gloria parentum, *vel* patriæ, *vel* populi.
GL. N. L. Gloria nominis Latini.
GL. S. Gallus Sempronius.
GN. Gneus *pro* Cneus, genius, gens.
GN. R. S. Genus Romani senatus.
GNT. Gentes.
G. M. Gentemala.
GOTH. Gothicus.
GRA. Gracchus.
GRC. Græcus.
GR. P. Gloria parentum, *vel* populi, &c.
G. S. Genio sacro.
GX. Grex.

H. Hic, habet, hastatus, hæres, homo, hora, hostis, herus, Hadrianus, honestas, honor, &c
H. A. Hoc anno.
HA. Hadrianus.
HÆ. M. Hæredem meum.
HC. Hunc, huic, hic.
HC. AM-N. Hunc amicum nostrum.
H. D. Hic dedicavit dedicarunt, *vel* dedicaverunt.
H. E. M. TBNR. Hæc est memoria Tribunorum.
HER. Hæres, hereditatis. Herennius.
HER. *vel* HERC. S. Herculis sacrum.
H. M. Honesta mulier, *vel* hora mala, *vel* hora mortis.
H. M. D. A. Hoc mandavit dari Augustus.
H. M. E. H-S. CCIↃↃ. CCIↃↃ. IↃↃ. M. N. Hoc monumentum erexit sestertiis viginti quinque mille nummûm.
H. M. AD. H. N. T. Hoc monumentum ad hæredes non transit.
H. M. EXT. N. REC. Hoc monumentum exteras non recipit.
H. M. P. Hoc monumentum posuit, *vel* hic memoriæ posuit.
H. O. Hostis occisus.
HOM. Homo.
HOSS. Hostes.
H. R. I. P. Hic requiescit in pace.
H. S. Hic situs *vel* sita, sepultus *vel* sepulta.
H-S. N. IIII. Sestertiis mille nummûm.
H-S. CCCC. Sestertiis quatuor centum.
H-S. ∞ N. Sestertiis mille nummûm.
H-S. ∞ CCIↃↃ. N. Sestertiis novem mille nummûm.
H-S. CCIↃↃ. CIↃↃ. Sestertiis viginti mille.
H-S. XXM. N. Sestertiis viginti mille nummûm.
H. SRL. M. AVC. Hæc sepultura modo aucta.
H. S. S. Hic supra scriptis.
H. V. B. P. Herus verus bonorum possessor.

I. Junius, Julius, Jupiter, ibi, idest, immortalis, imperator, inferi, in, inter, invenit, invictus, ipse, iterùm, judex, jussit, jus, &c.
IA. Intra.
IAD. Jamdudùm.
I. AG. In agro.
I. AGL. In angulo.
IAN. Janus.
IA. RI. Jam respondi.
I. C. Juris consultus, Julius Cæsar, judex cognitionum.
IC. Hic.
I. D. Inferis diis, *vel* in dimidio, *vel* juris dicendi, *vel* dicendo, *vel* in domino, Jovi dedicatum, Isidi deæ, jussu deæ, judex.
ID. Idus.
ID. E. Idem est.
I. D. M. Jovi Deo magno.
I. D. T. S. P. In diem tertium sive perendinum.
I. FO. *vel* I. F. In foro *vel* Julii filius.
IF. Interfuit.
IFT. Interfuerunt.
I. FNT. In fronte.
I. FO. C. In foro Cæsaris.
I. FO. P. In foro Palladis *vel* Pacis.
I. FO. TR. In foro Trajani, *vel* Transitorio.
IG. Igitur.
I. G. In agro.
I. H. Jacet hìc, justus homo, in honestatem.
I. I. In jure, inibi, jus jurandum.
J. J. J. Justa judicavit judicia.
I. L. A. In loco absente.
I. L. P. In loco publico.
IM. Imago, immortalis, imperator.
I. M. CT. In medio civitatis.
IMM. Immolavit, immortalis, immunis.
I. MO. In medio.
IMP. Imperator.
IMPP. Imperatores viz. de duobus.
IMPPP. Imperatores viz. de tribus.
IN. Inimicus, inscripsit, interea.
IN. A. P. XX. In agro pedes viginti.
IN H. H. In hoc honore.
I N. H. DD. In honorem dedicatum.
I. O. M. D. Jovi optimo maximo, dedicatum
I. R. Jovi regi, Junoni regiæ, jure rogavit.
I. S. *vel* I. SN. In senatum, judicium solvi, judicio senatus.
I. S. C. In senatus consulto, *vel* judex sacrarum cognitionum.
I. T. C. Intra tempus constitutum.
I. V. Justus vir.
IV. *vel.* IIII. Quatuor.
IVC. Judicium.

IVL. Julius.
IVN. Junius.
IVV. Juventus, Juvenalis.
IVVEN. M. Juvenum moderator.
IIV. Duum-vir *vel* duum-viri.
II. V. DD. Duum viris dedicantibus.
III. V. *vel* III. VIR. Trium-vir, *vel* trium-viri.
IIII. VIR. Quatuor-vir, *vel* quatuor-viri, *vel* quatuor viratus.
IIIII. V. *vel* VIR. Sextum-vir, *vel* se-vir, *vel* sex-vir.
IND. *vel* INDE. *aut* INDICT. Indictio, *vel* indictione.

K. Calendæ, Cæso, Caius, Caio, Cælius, Carolus, calumnia, candidatus, caput, cardo, castra, carissimus, clarissimus, cohors, Carthago, &c.
K. AVG. Calendas Augusti.
K. DD. Castra dedicavit.
KARC. Carcer.
KK. Carissimi.
KM. Carissimus.
K. S. Carus suis.
K. Q. Calendæ Quintiles.
KR. Chorus.
KR. AM. N. Carus amicus noster.
KR. N. Carus Rex noster.
KS. Calendæ sextiles.

L. Lucius, Lucia, Lælius, Lollius, lares, Latinus, latum, legavit, lex, lector, legio, libens *vel* lubens, liber, libera, libertus, liberta, libra, locavit, &c.
L. A. Lex alia.
L. AN. Quinquaginta annis.
LA. C. Latini coloni.
L. A. D. Locus alteri datus.
L. AG. Lex agraria.
L. AN. Lucius Annius, *vel* quinquaginta annis.
L. AP. Ludi Apollinares.
LAT. P. VIII. E. S. Latum pedes octo et semis.
L. DIV. Locus divinus.
L. ADQ. Locus adquisitus.
L. D. D. D. Locus datus decreto decurionum.
LECTIST. Lectisternium.
LEG. I. Legio prima.
L. E. D. Lege ejus damnatus.
LEG. Legio.
LEG. PROV. Legatus provinciæ.
L. F. Lucius filius *vel* filii.
LG. Legavit.
L. H. Locum hunc *vel* loca hæredum.
LIB. Libertas, libertus, *vel* liberti.
LIB. URB. Liberatori urbis.
LIC. Licinius.
LICT. Lictor.
L. I. D. A. C. Lex Julia de adulteriis coercendis.
L. I. J. Locus in jure.
LL. Libentissimè, liberi, libertas, Lælius, legibus, Lucii libertus, *vel* Lucius libertus.
L. L. OO. Linguæ orientales.
L. M. Locus monumento, *vel* mortuorum.
L. N. Latini nominis.
LONG. P. VII. L. P. III. Longum pedes septem latum pedestres.
LVD. SÆC. Ludi sæculares.
LVPERC. Lupercalia.
LV. PF. Ludos publicos fecit.
LX. Sexaginta.

M. Marcus, Marca, Martius, Mutius, macerià, magister, magistratus, magnus, manes, mancipium, marmoreus, marti, mater, maximus, memor, memoria, mensis, meus, miles, militavit, militiâ, mille, missus, monumentum, mortuus.
MA. F. &c. Manifestum fecit.
MAG. EQ. Magister equitum.
MAG. MIL. Magister militum.
MAR. VLT. Mars ultor.
MAT. P. FEC. ET. S. ET. S. P. Q. E. Mater piissima fecit, et sibi, et suis posterisque eorum.
M. AVR. Marcus Aurelius.
MAX. CS. Maximus Cæsar.
MAX. PON. Maximus pontifex.
M. B. Mulier bona.
MD. Mandatum. M. D. Mille quingenti.
MED. Medicus, medius.
M. E. M. Manceps ejus mancipii.
MENS. Menses.
MER. Mercurius, mercator.
MER. S. Mercurio sacrum.
MERK. Mercurialia, mercatus.
MES. VII. DIE. B. XI. Mensibus septem, diebus undecim.
M. F. Marci filius. Malâ fide. Malè fidus.
M. H. Malus homo.
M. I. Maximo Jovi, matri Idææ *vel* Isidi, militiæ jus, monumentum jussit.
MIL. COH. Miles cohortis.
MIL. IN. COH. Militavit in cohorte.
MIN. *vel* MINER. Minerva.
MMN. Matrimonium.
MMT. Monumentum.
M. MON. MNT. MONET. Moneta.
M. *vel* MS. Mensis *vel* menses.
MNF. Manifestus.
MNM. Manumissus.
M. O. P. Marito obsequens posuit.
M. P. II. Millia passuum duo.
M. S. Manu scriptum, memoriæ sacrum.
M. S. P. Memoriæ suæ posuit.
M. T. C. *vel* M. TVL. CIC. Marcus Tullius Cicero.
MV. MN. MVN. MVNIC. Municipium *vel* municeps.
M. VI. Mensibus sex.
MVL. B. Mulier bona.
MVL. M. Mulier mala.
MVL. P. Mulier pessima.

N. Neptunus, Numerius, Numeria, Nonius, Nero, nam, non, natus, natio, nefastus, nepos, neptis, niger, nomen, nonæ, noster, numerarius, numerator, numerus, nummus *vel* numisma, numen.
NAT. Natalia, natio *vel* natione.
NAV. Navis *vel* navibus.
N. B. Numeravit bivus *pro* vivus.
NB. *vel* NBL. Nobilis.
N. C. Nero Cæsar, *vel* Nero Claudius.
N. C. C. Non calumniæ causâ.
NEG. *vel* NEGOT. Negotiator.
NEP. Nepos.
NEP. S. Neptuno sacrum.
N. F. C. Nostra fidei commissum.
N. F. N. Nobili familiâ natus.
N. H. Notus homo.
N. L. Non liquet, non licet, non longè, nominis Latini.
N. M. Nonius Macrinus, non malum, non minus.

NN. Nostri.
NNR *vel* NR. Nostrorum.
NO. Nobis *vel* nostrum.
NOBB. Nobilibus.
NOB.G. Nobilis generatus, *seu* nobilis genere.
NOB. FN. Nobili familiâ natus.
NOBR. November.
NON.AP. Nonis Aprilis.
N.P. Nihil potest.
NQ. Namque, nusquam, nunquam.
NR. Noster.
N.V.N.D.N.P.O. Neque vendetur, neque donabitur, neque pignori obligabitur.
NVP. Nuptiæ.

O. Officium, optimus, olla, omnis, optio, ordo, ossa, ostendit.
OB. Obiit, Obriacum, *vel* Obreziacum, orbem, obitur.
OB.C.S. Ob cives servatos.
OB.M.E. Ob merita ejus.
OB.ME.P.E.C. Ob merita pietatis et concordia.
O.B.O. Omnia bona.
OCT. Octavianus, October.
OD. Ordo.
O.E.B.Q.C. Ossa ejus benè quiescant condita.
O.H.F. Omnibus honoribus functus.
O.L. Opera locavit.
OM. Omnium.
O.M. Optimus maximus.
OMA. Omnia.
OMIS. Omnibus.
ONA. Omnia.
ONT.IMP. Ornamentum imperiale.
OO. Omnes, omnino, oportuit, oportebit.
O.O. Optimus ordo.
OP.ABS. Opus absolutum.
OP. Oppidum, opiter, oportet, optimus, opus.
OR. Ornamentum, ornato *vel* ordo.
ORB.PAR. Orbati parentes.
ORD. Ordo, ordinis.
OR.M. Ordo militum.
O.V.D. Omni virtuti dedito.
O.V.B.F. Optima viventi fecit.

P. Publius, passus, patria, pecunia, pedes, perpetuus, pius, plebs, populus, pontifex, posuit, potestas, præses, prætor, pridiè, pro, post, provincia, puer, publicus, publicè, primus, &c.
PA. Pater, patricius *vel* pater patriæ, *vel* pater patratus.
PACE.P.R. Pace populo Romano.
PD. *vel* PA.DIG. Patricia dignitas.
PAE.ET.ARR.COSS. Pæto et Arrio consulibus.
P.A.F.A. Postulo an fias auctor.
PAR. Parens, parilia. Parthicus, parentum.
PAT. Patricius.
PAT.PAT. Pater patriæ.
PBLC. Publicus.
PC. Procurator.
P.C. Pactum conventum, *vel* pecunia constituta.
P.C. Post consultum, patres conscripti, patronus coloniæ, ponendum curavit, præfectus corporis, pactum conventum.
P.D. Publicè dedit.
PEC. Pecunia, *vel* peculium.
PED.CXVS. Pedes centum quindecim semis.
PEG. Peregrinus.
P.F. Pater familiæ.
P.H.C. Publicus honor curandus.
P.II.∞L. Pondo duarum semis librarum.
P.II.∴ Pondo duo semis et triente.
PICEN. Piceni.
PIEN. Pientissimus.
P.KAL. Pridiè Kalendas.
POM. Pompeius.
PON.MAX. Pontifex maximus.
POP. Populus.
POSTH. Posthumus
P.P.P.C. Propria pecunia ponendum curavit.
P.Q. Post quam.
P.R. Populus Romanus.
PR. Prætor.
PR.PR. Præfectus prætorii.
P.R.C.A. DCCCXLIIII. Post Romam conditam annus octingentis quadraginta quatuor.
PRÆ.VRB. Præfectus urbis.
PRÆ.PRÆS. Præfectus præsidii.
PRO. *vel* PROCOS. Proconsul.
P.PR. Pro-prætor.
P.PRR. Proprætores.
PR.N. Pro nepos.
PR.NON.APR. Pridiè nonas Aprilis.
PRID.KAL. *vel* K. Pridiè Kalendas.
PRS. Præses.
PRSS. Præsides *vel* Prætores.
P.R.V.X. Populi Romani rata decennalia.
PS. Passus, plebiscitum.
P.S. Posuit sibi.
P.S.F.C. Publica saluti faciendum curavit, *vel* publico, *vel* proprio sumptu faciendum curavit.
PVB. Publicus.
PUD. Pudicus, pudica, pudor.
PUR. Purpureus.

Q. Quinquennalis, quartus, quintus, quando, quantum, qui, quæ, quod, Quintus, Quintius, Quintilianus, quæstor, quadratum, quæsitus.
Q.B.AN.XXX. Qui bixit, *id est*, vixit, annos triginta.
Q.B.F. Quare bonum factum.
Q.B.M.V. Quæ benè mecum vixit.
Q.F. Quinti filius.
Q.L. Quinti libertus.
QM. Quomodo, quem, quoniam.
QN.A.N.N. Quandoque neque ais neque negas.
QQ. Quinquennalis.
QQ.V. Quoquo versum.
Q.R. Quæstor reipublicæ.
Q.V.A.III.M.II. Qui, *vel* quæ vixit annos tres, menses duos.
QV. Quartus.
QVIR. Quirites.

R. Roma, Romanus, rex, reges, Regulus, rationalis, Ravenna, recta, recto, requietorium, retro, rostra, rudera, &c.
RC. Rescriptum.
R.C. Romana civitas.
R.D. Regis domus.
REF.C. Reficiendum curavit.
REG. Regio, *vel* regi.
REI.M. Rei militaris.

R. P. RESP. Respublica.
RET. P. XX. Retro pedes viginti.
REC. *vel* REQ. Requiescit.
REG. F. Regis filius.
RMS. Romanus.
ROB. Robigalia, Robigo.
RS. Responsum.
RVF. Rufus.

S. Sacrum, sacellum, scriptus, semis, senatus, sepultus, sepulcrum, sanctus, servis, serva, servius, sequitur, sibi, situs, solvit, sub, stipendium, &c.
SAC. Sacerdos, sacrificium.
SÆ. *vel* SÆC. Sæculum, sæculares.
SAL. Salus.
S. C. Senatus consultum.
SCI. Scipio.
S. D. Sacrum diis.
S. EQ. Q. O. ET. P. R. Senatus, equesterque ordo et populus Romanus.
SEMP. Sempronius.
SER. Servius, Sergius.
SEX. Sextus.
SL. SVL. SYL. Sylla.
S. L. Sacer ludus, sine linguâ.
S. M. Sacrum manibus, sine manibus, sine malo.
SN. Senatus, sententia, sine.
S. O. Sine occasione.
S. P. Sine pecunia.
SP. Spurius.
S. P. Q. R. Senatus populusque Romanus.
S. P. D. Salutem plurimam dicit.
S. T. A. Sine *vel* sub tutoris auctoritate.
SCL. Scilicet.
S. E. T. L. Sit ei terra levis.
SIC. V. SIC. X. Sicut quinquennalia, sic decennalia.
SSTVP. XVIIII. Stipendiis novem decem.
ST. XXXV. Stipendiis triginta quinque.

T. Titus, Titius, Tullius, tantum, terra, tibi, ter, testamentum, titulus, terminus, triarius, tribunus, turma, tutor, tutela, &c.
T. A. Titi annus, *vel* tutoris auctoritate.
TAB. Tabula.
TABVL. Tabularius.
TAR. Tarquinius.
T. AVG. Tutela Augusti.
TB. D. F. Tibi dulcissimo filio.
TB. PL. Tribunus plebis.
TB. *vel* TI. *vel* TIB. Tiberius.
T. F. Titus Flavius. Titi filius.
THR. Thrax.
TI. F. Tiberii filius.
TI. N. Tiberii nepos.
TIB. CS. Tiberius Cæsar.
TIB. CL. Tiberius Claudius
T. L. Titus Livius. Titi libertus.
TIT. Titulus.
TM. Tantum, terminus, thermæ.
T. M. Terminis, thermæ.
T-M. P. Terminum posuit *vel* terminus positus.
TM. D. D. Terminum dedicavit, *vel* dedicante *vel* thermæ dedicatæ.
TR. PO. Tribunitia potestas.
TRAJ. Trajanus.
TR. ÆR. Tribuni ærarii.
TRV. CAP. Triumviri capitales
TRV. MON. Triumviri monetales.
TUL. Tullus *vel* Tullius.
TR. T. Triumvir.
TT. QTS. Titus Quintus.
Θ *vel* TH. AN. Mortuus anno.
ΘXIII. Defunctus viginti tribus.
TVL. Tullius.
TVL. H. Tullus Hostilius.
TVR. Turma.

V. Quinque, quintò, quintùm.
V. Vitellius, Volera, Volero, Volusius, Vopiscus, vale, valeo; Vesta, vestalis, vestis, vester, vesteranus, vir, virgo, vivus, vixit, votum, vovit, urbs, usus, uxor, victus, victor, &c.
V. A. Veteranò assignatum.
V. A. I. D. XI. Vixit annum unum, dies undecim.
VAL. Valerius *vel* Valerianus.
VAL. CS. Valerius Cæsar.
V. A. L. Vixit annos quinquaginta.
VAT. Vates *vel* vatum.
VB. Viro bono.
V. B. A. Viri boni arbitratus.
V. B. F. Vir bonæ fidei.
V. C. Vale conjux, vivens curavit, vir consularis, vir clarissimus, quintum consul, usu capio, urbis condita.
V. D. Vivus dedit.
V. CC. Voluerunt consules.
V. D. A. Vale dulci amico.
V. DD. Voto dedicatur.
VDL. Videlicet.
V. DICT. Vir dictatorius.
V. D. N. V. Vale decus nostræ urbis.
VE. Verba.
V. E. Vir egregius *aut* excellens, visum est, verum etiam.
VESP. Vespasianus.
VET. Veteranus.
VET. AVG. N. Veteranus Augustus nostri.
VET. LEG. S. Veteranus legionis secundæ.
VIC. Victores, victor, *vel* victoria.
VI. V. Sextum-vir.
VII. V. Septem-vir.
VIII. VIR. Octum-vir.
VII. VIR. EPVLO. Septem-vir Epulonum.
VIX. A. FF. C. Vixit annos fermè centum.
VIX. A. LIIX. Vixit annis quinquaginta octo.
VIX. AN. ⋈. Vixit annos triginta.
VIX. A. III. M. XI. D. XV. Vixit annis tribus, mensibus undecim, diebus quindecim.
ULPS. Ulpianus, Ulpius.
VL. Videlicet.
V. M. Vir magnificus, vivens mandavit, volens merito.
VM. Vestrum.
V. MUN. Vias munivit.
V. N. Quinto nonas.
V. N. V. Viro nostro urbis.
VOL. Volcania, Voltinia, Volusius.
VONÆ. Bonæ.
VOT. V. Votis quinquennalibus.
VOT. V. MULT. X. Votis quinquennalibus multis decennalibus.
VOT. X. Vota decennalia.
VOT. XX. *vel* XXX. *vel* XXXX. Vota vicennalia, *aut* tricennalia, *aut* quadragenalia.

V. R. Urbs Roma, votum reddidit.
VV. CC. Viri clarissimi.
UX. Uxor.
X. Decem, denarius.
X. AN. Annalibus decennalibus.
X. P. Decem pondo, *vel* decem pedes.
X. K. OCT. Decimo Kalendas Octobris.
X. M. Decem millia.
X. P. Decem pondo.
X. V Decemvir.
XV. VIR. Quindecimvir
XV. Quindecim.

2. Greek Abbreviations in Books.

αυ	αι	κ̓	κατὰ	σπδν	σπαν
δλ	αλ	μ̓	μὰρ	σ̓	σσ
δλγ	αλλ	μ̓θ	μεθ	ς	ST
δν	αν	μ̓̀	μὲν	ςd	σδει
ἀπο	ἀ̓πο	μρ	μεν	χ	σχ
θ	αρ	μ̓	μετὰ	χρ	σχρ
γ̓̀	γὰρ	μλω	μην	τ̓	ται
γλυ	γεν	μ̓̀ω	μων	τ̓ς	ταις
γς	γρ	οἷ	οἱον	τ̓	την
δ̓̀	δὲ	◎	ος	τ̓̃	τῆς
δλω	δην	ʊ	ου	τ̓̀	τὸν
δ[α	δια	ὅωυ	οὗν	τδυ	τυς
ει	ει	ωτος	υτος	τω	τω
ῆ	εῖ	πα	παρα	τ̓̃	τῶη
ἐῖ	εἶναι	πρ	περ	ὑ	ὗ
ἐκ	ἐκ	περ	περι	ꝛ	υι
ἑλ	ελ	ρο	ρο	ω	υν
ἐν	ἐν	ρα	ρω	ὑ	ὑπ
ἓξ	ἑξ	σ̓	σαν	ὑπ	ὑπερ
ὁπ	ἐπι	σθ	σθ	ꝛ	υς
ὅτι	ἐστι	σθ	σθαι	χω	χὺν
ὁ	ευ	σθ	σθι	ω̃	ω̃
κ̀	καὶ	π	σπ		

Ancient MSS., and early-printed Greek books, are frequently identified and classed according to the mode of the abbreviations that abound in them. These are sometimes made by putting the first, and last, and sometimes the middle letter of a word, under a line: thus, $\overline{\text{ΘC}}$, $\overline{\text{KC}}$, $\overline{\text{IC}}$, $\overline{\text{XC}}$, $\overline{\text{ΥΣ}}$, $\overline{\text{ΣΗΡ}}$, $\overline{\text{ΙΗΛ}}$, $\overline{\text{ΙΣΗΛ}}$, $\overline{\text{ΠΝΑ}}$, ΠΗΡ, $\overline{\text{ΜΗΡ}}$, $\overline{\text{ΟΥΝΟΣ}}$, $\overline{\text{ΑΝΟΣ}}$, $\overline{\text{ΙΑΗΜ}}$ $\overline{\Delta\text{A}\Delta}$ signify respectively, Θεος, God; Κυριος, Lord; Ιησους, Jesus; Χριτος, Christ; Υιος, a Son; Σωτηρ, a Saviour; Ισραηλ, Israel; πνευμα, spirit; πατηρ, father; μητηρ, mother; ουρανος, heaven; ανθρωπος, man; Ιερουσαλημ, Jerusalem; Δανιβ, David.

But of all people, the Jewish Rabbins are the most remarkable for this practice.—Without a key to their abbreviatures their writings are unintelligible. They not only abbreviate words like the Greeks and Latins, by retrenching letters or syllables, but they often take away all except the initials; and, what is still worse, they frequently join the initials of several words together, and, adding vowels to them, make a barbarous sort of a word representative of all the words thus abridged. Thus *Rabbi Schelemoh Jarchi*, in the jargon of Hebrew abbreviatures, is called *Rasi*, and *Rabbi Moses ben Malemon* is *Rambam*. Mercerus, David de Pomis, Schindler, Buxtorf, &c. have given explanations of the Hebrew abbreviatures.

3. Commercial and Common English Abbreviations.

A. Acre, accepted.
A. or Adj. Adjective.
A. B. or B. A. Artium Baccalaureus, Bachelor of Arts.
Abp. Archbishop.
A. C. Ante Christum, Before Christ.
Acct. Accompt, or account.
A. C. Account current.
A. D. Anno Domini, in the year of our Lord.
A. D. or A. D. V. Adverb.
A. F. or A. Fir. Ale firkin.
A. M. or Ante Meridiem, before noon, or Anno Mundi, in the year of the world.
A. Ana. Each.
Ank. Anker of brandy.
A. R. Anna Regina, Queen Anne; or, Anno Regni, in the year of the reign.
A. P. G. Professor of Geography in Gresham College.
A. U. C. Anno urbis conditæ, in the year of the city, i. e. the building of Rome.

B. Basso, Bass.
B. or B. K. Book.
Bar. Barrels or barley-corns.
Bart. Baronet.
B.C. Before Christ, or bass prolonged.
B. C. L. Bachelor of civil law.
B. D. Baccalaureus divinitatis, Bachelor of divinity.
B. F. or B. Fir. Firkin of beer.
B. L. Baccalaureus legum, Bachelor of laws.
B. M. Baccalaureus medicinæ, Bachelor of medicine.
Bp. Bishop.
B. V. Beata virgo, Blessed virgin.
Bu. Bushel.

C. Cap. Chapter.

C. or Cent. Centum, A hundred.
C. B. Companion of the Bath.
CC. 200 or Caius College.
CCC. 300 or Corpus Christi College.
CCCC. 400.
Cap. Captain.
Ch. Ch. Christ Church.
Chal. Chaldron.
Chron. Chronicles.
Cit. Citizen.
Co. Company.
Cochl. Cochleare, a spoonful.
Col. Colonel, or Colossians.
Col. College.
Conj. Conjunction.
Cor. Corinthians.
C. P. S. Custos Privati Sigilli, Keeper of the privy seal.
Cr. Creditor.
C. S. Custos Sigilli, Keeper of the seal.
Ct. Count.
Cwt. Hundred-weight.

D. Denarius, Penny.
Dan. Daniel.
D. D. Divinitatis Doctor, Doctor of divinity.
Dec. December.
Deg. Degrees.
Deut. Deuteronomy.
D. F. Defensor fidei, Defender of the faith.
D. G. Dei gratiâ, By the grace of God.
Do. Ditto, The same.
Dr. Doctor, debtor, or dram.
D. T. Doctor Theologiæ, Doctor of divinity.
Dwt. Pennyweight.

E. East.
Eccl. Ecclesiastics.
Eccles. Ecclesiastical.
E. E. English ells.
Exempli gratiâ, For example.
Ep. Epistle.
Eph. Ephesians.
Esq. Esquire.
Ex. Example.
Exon. Exeter.
Exr. Executioner.

F. Fiat, Let it be done, or forte, strong.
Far. Farthing.
F. F. d'or, Gold florin.
F. A. S. Fraternitatis Antiquorum Socius, Fellow of the Antiquarian Society.
F. E. or Fl. E. Flemish ells.
F. E. or Fr. E. French ells.
Feb. February.
Fig. Figure.
F. L. S. Fraternitatis Linneanæ Socius.
F. R. S. and A. S. Fraternitatis Regiæ Socius et Associatus, Fellow and Associate of the Royal Society.
F. S. A. Fellow of the Society of Arts.
Ft. Feet.
F'. Fl. Fs. Florins.
Fo. Folio.
Fth. Fathom.
Fur. Furlong.

Gal. Gallons, or Galatians.
G. C. B. Knight of the Grand Cross of the Bath.
Gen. General, or Genesis.
Gent. Gentleman.
G. R. Georgius Rex, King George.
Gr. Grains.

Hor. hr. Hours.
Heb. Hebrews.
Hhd. Hogshead.
H. M. S. His Majesty's Ship.

Ib. or Ibid. Ibidem, In the same place.
I. e. Id est, That is.
Jer. Jeremiah.
J. H. S. Jesus hominum Salvator, Jesus the Saviour of men.
In. Inch.
Incog. Incognito, Unknown, as a stranger.
Inst. Instant, of this month.
Interj. Interjection.
Itin. Itinerary.

K. A. Knight of St. Andrews, in Russia.
K. A. N. Knight of Alexander Newski, in Russia.
K. B. Knight of the Bath.
K. B. A. Knight of St. Bento d' Avis.
K. B. E. Knight of the Black Eagle, in Russia.
K. C. Knight of the Crescent of Turkey.
K. C. B. Knight Commander of the Bath.
K. C. S. Knight of Charles III. of Spain.
K. F. Knight of Ferdinand of Spain.
K. G. V. Knight of the Vasa of Sweden.
K. G. F. Knight of the Golden Fleece.
K. J. Knight of Joachim.
K. L. Knight of Leopold, of Austria.
K. M. Knight of Malta.
K. M. H. Knight of Mont, in Holstein.
K. M. J. Knight of Maximilian Joseph, in Bavaria.
K. P. Knight of St. Patrick.
K. M. T. Knight of St. Maria Theresa.
K. N. S. Knight of the Royal North Star, in Sweden.
K. R E. Knight of the Red Eagle, in Russia.
K. S. Knight of the Sword, in Sweden.
K. S. A. Knight of St. Anne, in Russia.
K. S. E. Knight of St. Esprit, i. e. of the Holy Ghost, in France.
K. S. F. Knight of Ferdinand of Sicily.

K. S. G. Knight of St. George, in Russia.
K. S. L. Knight of the Sun and Lion, in Persia.
K. S. P. Knight of St. Stanislaus, in Poland.
K. S. W. Knight of St. Wladomir, in Russia.
K. W. Knight of St. William, in the Netherlands.
K. T. Knight of the Thistle.
K. T. S. Knight of the Tower and Sword, in Portugal.
Kil. Kilderkin.
Kt. Knight.

L. or lib. libra, Pound.
L. or lib. liber, A book.
L. D. Lady Day.
Ldp. Lordship.
Lea. Leagues.
Lev. Leviticus.
Lieut. Lieutenant.
L L. D. Legum Doctor, Doctor of Laws.
L. S. Locus Sigilli, The place of the Seal.

M. Mille, a thousand, marquis, minutes, miles; in a recipe, manipulus, a handful, misce, mingle, and mixtura, a mixture; as a brand murder; in astronomical tables, a meridional or meridies.
M. A. Artium Magister, Master of Arts.
Mal. Malachi.
Matt. Matthew.
M. B. Medicinæ Baccalaureus, Bachelor of Physic, or Musicæ Baccalaureus, Bachelor of Music.
M. D. Medicinæ Doctor, Doctor of Physic.
Mastr. Master.
Mem. Memento, Remember.
Messrs. Messieurs, Gentlemen.
M. P. Member of Parliament.
Mr. Mister.
Mrs. Mistress.
M. S. Manuscriptum, Manuscript.
M. S. S. Manuscripta, Manuscripts.

N. North, note, noun, or nails.
N. B. Nota bene, observe, take notice.
Nem. con. or nem. diss. Nemine contradicente, or nemine dissentiente, unanimously.
No. Number.
Nov. November.
N. S. New style.
Numb. Numbers.

Obt. Obedient.
Oct. October.
O. S. Old style.
Oxon. Oxford.
Oz. Ounces.

P. Pints, poles, pugil, the eighth part of a handful.
Parl. Parliament.
Part. Participle.
Per. Cent. Per centum, By the hundred.
Pet. Peter.
Phil. Philip, or Philippians.
Pk. Pecks.
Pl. Plural.
P. M. Post meridiem, Afternoon.
P. M. G. Professor of Music in Gresham College.
Pot. Pottles.
Prep. Preposition.
Pres. President.
Pret. Preterite.
Prob. Problem.
Prof. Professor.
Prof. Th. Gr. Professor of Divinity in Gresham College.
Pron. Pronoun.
Prop. Proposition
Prov. Provost.
P. S. Post scriptum, Postscript, or Psalm.
Pt. pts. Part or parts, pint or pints.
Pun. Puncheon.

Q. Question and quasi, as though.
Q. D. Quasi dictum, As if it were said.
Q. E. D. Quod erat demonstrandum, Which was to be demonstrated.
Q. E. F. Quod erat faciendum, Which was to be done.
Q. P. L. Quantum placet, As much as you please.
Qr. qrs. Quarter or quarters.
Q. S. Quantum sufficit, A sufficient quantity, or as much as will do.
Q. V. Quantum vis, As much as you wish, quod vide, which see.

R. Rex, King, or roads.
Rec. Recipe, Take.
Rec. Received.
Rect. Rector.
Reg. prof. Regius Professor.
Rev. Revelation.
Revd. Reverend
R. N. Royal Navy.
Rom. Romans.
Rt. Hon. Right honourable.
Rt. Wpful. Right worshipful.
Run. Runlet.

S. South.
S. or St. Saint.
S. or. Sec. Seconds.
Sec. Secretary.
Sept. September.
Sh. Shillings.
Sol. Solution, or Solomon.
Sr. Sir.
S. S. Socius, or societatis.
St. Street.

Theor. Theorem.
Tim. Timothy
Tit. Titus.

V. Verb, or verse, or vide, see.
V. A. Verb active.
V. N. Verb neuter.
Viz. Videlicet, That is to say, namely.

W. Wk. Weeks.

Xmas. Christmas.
Xn. Christian.
Xper. Christopher
Xt. Christ.

Ye. The.
Ym. Them.
Yn. Then.
Yr. Your and year.
Ys. This.
Yt. That.

ABBROCHMENT, in law, the forestalling a fair or market.

ABBUTALS, or ABBUTTALS. See ABUTTALS.

ABB-WOOL, among clothiers, the wool of a weaver's warp.

ABCAS. See ABASCIA.

ABCEDE, or ABSCEDE, from *abcedo*, in surgery, to suppurate; an abceded surface, being that whose texture has been vitiated or separated by the formation of pus or purulent matter.

ABCEDARY, or ABCEDARIAN, an epithet given to compositions whose parts are arranged in the order of the alphabet, chiefly applied to Hebrew writings.

ABDA, a district of Morocco, on the west coast, famous for its grain and for its breed of horses.

ABDALAVI, or ABDELAVI, in botany, an Egyptian plant, very like a melon, except that the fruit is more oblong, and acute at the extremities.

ABDALLA, the son of Abdalmothleb, the father of the prophet Mahomet. This parent of the prophet, though a slave, is clothed with such personal attractions by the Arabian historians, that after he had passed the age of 75 his hand was solicited by the fairest and most virtuous women of his tribe; and on the night of his nuptials, we are told, 100 young females expired with grief.

ABDALLATIF, or ABDOLLATIPH, an Arabian physician and author, born at Bagdad, in the year 1161. He studied grammar, rhetoric, history, poetry, and the Mahometan law. At the age of twenty-eight he began to travel. He resided a year and gave lectures at Mosul, in Mesopotamia. From thence he went to Damascus; and having vanquished, in debate, Alkendi, a celebrated philosopher, he went on to Jerusalem. Saladin, king of the Saracens, had seized upon Egypt, and was at that time endeavouring to drive the Christians from the Holy Land. Abdallatif proceeded to his head-quarters at Acre; but the Saracen monarch, having been signally defeated by the Christians, was unable at that time to admit him to his presence. He was offered the patronage of one of his principal courtiers, and a pension, if he would return to Damascus. He preferred visiting Egypt, and with ample recommendations proceeded to Cairo. Here he became the friend of Maimonides, the eagle of the doctors. After Saladin made peace with the Christians, Abdallatif waited on him at Jerusalem, where he was received in the most flattering manner; and delivered lectures in the great church or temple. From thence he went a third time to Damascus, and gave public lectures, on various subjects, to a numerous audience. He went after this into Greece, where he remained several years; and passed into Syria, Asia Minor, and Armenia, practising physic in various courts. His purpose was at length to retire to Damascus; but he determined previously to make a pilgrimage to Mecca, in his way to Bagdad, whither he went in order to present his works to the caliph. There he died in the year 1231. A hundred and fifty works have been ascribed to this author: one only, an account of Egypt, now remains. Dr. Pococke brought it to Europe in MS., and deposited it in the Bodleian library. Dr. White published it with a Latin translation, in 1800, and a French translation, by Silvestre de Sacy, appeared at Paris, in 1810. Abdallatif's book on Egypt supplies a valuable link between ancient and modern history, giving us the only account extant of that country in the middle ages.

ABDALMALEK, the 5th khalif of the race of the Ommiades, called the skinner of a stone, because of his extreme avarice; as also *Aboulzebah*, because his breath was said to be so poisonous as to kill all the flies which rested on his face. He surpassed all his predecessors in power and dominion; penetrating to India in the east, and Spain in the west: he likewise made himself master of Medina and Mecca. His reign began in the 65th of the hegira, A.D. 685, and continued twenty-one years.

ABDALMELEK, (Ben Zohar,) an eminent Spanish physician, of the 12th century called by the Europeans AVENZOR, which see.

ABDALONYMUS, or ABDOLONYMUS, (in classic history,) of the royal family of Sidon, and descended from king Cyniras. Alexander the Great having deposed Strato, inquired whether any of the race of Cyniras was living, that he might set him on the throne; and found this prince happy in his poverty: "I wish," said Abdalonymus, "I may bear my new condition as well; these hands have supplied my necessities: I have had nothing, and I have wanted nothing." This answer pleased Alexander so much, that, besides giving him all that was Strato's, he augmented his dominions, and presented him with a large portion of the Persian spoils.

ABDALS, in the eastern countries, fanatics, supposed to be inspired to a degree of madness. The word comes, perhaps, from the Arabic, *Abdallah*, the servant of God. The Persians call them *devaneh khoda*, *q. d. furentes deo*, raging with the god. They have been known in India to run about the streets, and kill all they meet of a different religion.

ABDARA, or ABDERA, in ancient geography, a town of Bœtica in Spain, a Phœnician colony; now called Adra, to the west of Almeria, in Granada.

ABDELAVI. See ABDALAVI.

ABDERA, in ancient geography, a maritime town of Thrace, near the mouth of the Nessus, on the east. Timesius the Clazomenian attempted to found it, but was forced to give it up by the Thracians. The Teians, however, succeeded, and settled in it to avoid the Persians. Pliny and Justin report that the grass of Abdera was so strong that such horses as eat of it ran mad. It is famous for being the birth-place of Protagoras, Democritus, Anaxarchus, Hecatæus the historian, Nicenætus the poet, &c. Many accounts are given of its unwholesome atmosphere, and of the pride of its inhabitants. Hence the phrases, abderitica mens, and abderian laughter.

ABDERAHMA, a Saracen viceroy in Spain, who revolted and set up an independent principality at Cordova. He had several successors of the same name.

ABDEST, a Persian word literally signifying the water placed in a bason for washing the hands, but used to express the purifications practised by the Mahometans before they enter on their religious ceremonies.

ABDEVENAM, in astrology, the head of the 12th house in the scheme of the heavens.

ABDI, אבדי, Heb. i. e. my servant. The father of Kish, and grand-father of king Saul.

ABDICARIA *propositio*, in logic, a negative proposition.

ABDICATIO, *αποκηρυξις*, a Grecian custom of renouncing children, prohibited by the Roman laws. *Lucian.*

AB'DICATE, ABDICA'TION, AB DICATIVE. ABDICAN'T, } Ab: *dico*, *δικη*, right, to go from a right; to go from, quit, or leave, put away from, or deprive of that which has been possessed by law and right. To resign, disclaim, renounce, dispossess.

By avowing to govern by a despotic power unknown to the constitution, and inconsistent therewith, he (King James) hath renounced to be a king according to the law; such a king as he swore to be at the coronation; such a king to whom the allegiance of an English subject is due; and hath set up another kind of dominion, which is to all intents an *abdication* or abandoning of his legal title, as fully as if it had been done by express words.

Speech of Lord Somers, in 1688, *on King James's vacating the throne.*

O Saviour, it was ever thy manner to call all men unto thee: when didst thou drive any one from thee? neither had it been so now but to draw them closer unto thee, whom thou seemest for the time to *abdicate*.

Bishop Hall's Works.

The father will disinherit or *abdicate* his child, quite cashier him.

Burton's Anat. Mel. p. xxxv.

He cannot *abdicate* for his children, otherwise than by his own consent, in form to a bill from the two houses. *Swift.*

Great Pan, who wont to chase the fair,
And lov'd the spreading oak, was there,
Old Saturn too, with upcast eyes,
Beheld his *abdicated* skies.

Addison's Poem to Sir Godfrey Kneller.

The mortification of unreasonable desires, the suppression of irregular passions, the loving and blessing our enemies, the renouncing worldly vanities and pleasures, the rejoicing in afflictions, the voluntary *abdication* of our estates in some cases, yea, exposing life itself to inevitable hazard and loss, are not chimerical propositions of impossible performances; but duties really practicable. *Barrow's Sermons.*

What is all righteousness that men devise?
What, but a sordid bargain for the skies?
But Christ as soon would *abdicate* his own,
As stoop from heaven to sell the proud a throne.

Cowper's Truth.

ABDITARIUM, O. L. A chest in which relics were kept, or a place to hide goods, plate or money.

ABDOLLATIPH. See ABDALLATIF.

ABDOMEN. *n. s.* Lat. from *abdo*, to hide; a cavity commonly called the lower venter, or belly: it contains the stomach, guts, liver, spleen, and bladder, and is within lined with a membrane, called the peritonæum. See ANATOMY.

ABDOMINAL, *adj.* relating to the abdomen

ABDOMINALES, in ichthyology, fish which have the ventral fins placed behind the pectoral in the abdomen, and constitute the order of the fourth class of animals in the Linnæan System. See ICHTHYOLOGY and ZOOLOGY.

ABDON, one of the Papuan isles, N. of Wageeoo, in N. lat. 0°, 30′, E. long. 131°, 15.

ABDUCE', *v.* ABDUC'TION, } Ab: *duco*, to lead from; to draw, bring or take away from; to withdraw; chiefly a scientific word applied in physic and in logic; in the one, it signifies flexion or extension of the muscles; in the other, a particular kind of argument.—Abduction is also used in law, and is the act of carrying off a woman and marrying her against her will;—it refers also to the forcible taking away a wife or child, and to common kidnapping.

If, beholding a candle, we protrude either upward or downward the pupil of one eye, and behold it with one, it will then appear but single; and if we *abduce* the eye unto either corner, the object will not duplicate; for, in that position, the axis of the cones remain in the same plane, as is demonstrated in the opticks, and delivered by Galen.

Brown's Vulgar Errours.

They (the muscles) can stir the limb inward, outward, forward, backward, upward, downward; they can perform adduction, *abduction*; flexion, extension.

Smith's Old Age, p. 62.

The forcible *abduction* or stealing away of man, woman, or child, from their own country, and selling them into another, was capital by the Jewish law.

Blackstone's Commentaries.

ABDUCENS *labiorum*, in anatomy, a name given by Spigellius to a muscle, which is the *levator anguli oris* of Albinus, and the *caninus elevator* of others.

ABDUCENTES NERVI, that part of the sixth pair of nerves, which is lost on the abductores oculi.

ABDUCTION, in logic, by the Greeks called *apagoge*, is an argument from the conclusion to the demonstration of the proposition assumed.

ABDUCTION, in law, the forcible carrying away of a person, as of an heiress, &c. To enter a woman's house forcibly, carry off, and marry her without her own consent, has in Scotland been punished with death.

ABDUCTION, in surgery, a species of fracture, wherein the broken parts of the bone recede from each other, after the manner of a stalk.

ABDUCTOR AURIS, called also *posterior auris*, by Winslow, a muscle that pulls the ear backwards.

ABDUCTOR AURICULARIS, or of the little finger, called by Winslow, *hypothenar*, arises from the annular ligament, and the third and fourth bones of the carpus in the second rank; and is inserted externally into the first bone of the little finger: it serves to draw that finger from the rest, and also to bend it a little.

ABDUCTORES FEMORIS. Anatomists reckon four of these. Their use is to move the thigh bone, according to their different directions.

ABDUCTOR INDICIS, or of the fore-finger, arises from the inside of the bone of the thumb,

and is inserted into the first bone of the fore-finger, which it draws from the rest towards the thumb.

ABDUCTOR MINIMI DIGITI MANUS. See ABDUCTOR AURICULARIS.

ABDUCTOR MINIMI DIGITI PEDIS, or of the little toe, arises from the outside of the os calcis, near the exterior bone of the metatarsus, and is inserted laterally into the outside of the second bone of that toe, which it pulls from the rest.

ABDUCTOR OCULI, or of the eye, is one of the four recti, or straight muscles, arising from the bottom of the orbit, and spread over the first proper tunic; serving to draw the eye towards the outer canthus. It is also called the scornful muscle.

ABDUCTOR POLLICIS MANUS, called also Thenar, springs from the annular ligament and first bone of the carpus; from whence passing the thumb, it makes that fleshy body called mons lunæ: it draws the thumb from the fingers.

ABDUCTOR POLLICIS PEDIS, or of the great toe, springs from the inside of the os calcis, and the greater os cuneiforme; and is inserted into the outside of the exterior os sesamoideum pollicis; it serves to draw the great toe from the rest.

ABEAR', *v.* } See BEAR.
ABEAR'ING. }

Applied to the behaviour or conduct.—The word *abearance* instead of *abearyng*, is used by modern writers in English law.

Upon assurance takyn of the said Hunyldus, that there after he shulde be of good *abearynge* to warde the king, he clerely forgaue vnto hym all his former offence. *Fabyan*, repr. 1811, p. 141.

So did the Faery Knight himselfe *abeare*,
And stouped oft, his head from shame to shield;
No shame to stoupe one's head more high to reare,
And much to gaine, a little for to yield:
So stoutest knights doen oftentimes in field.
Spenser's Faerie Queene, v. can. xii.

The other species of recognizance with sureties is for the good *abearance*, or good behaviour.
Blackstone's Commentaries.

Not to be released, till they found sureties for their good *abearing*.
Lord Herbert's Hist. of Hen. VIII. p. 381.

ABED', *a.* On bed. See BED.

Some radde, that hir ssoide wende in at on hepe,
To habbe inome hom vnarmed, and somme abedde aslepe. *R. Gloucester*, p. 547.

Hir kyrtells, and hir mantell eke,
Abrode vpon his bedde he spredde,
And thus their slepen both *abedde*.
Gower, Con. A. b. v.

The sullen night had her black curtain spread,
Low'ring that day had tarried up so long;
And that the morrow might lie long *abed*,
She all the heaven with dusky clouds had hung.
Drayton's Barons' Wars.

Delight is layd *abedd*; and pleasure, past;
No sunne now shines; clouds han all overcast.
Spenser's Shepherds' Calendar.

She has not been *abed*, but in her chapel
All night devoutly watch'd.
Dryden's Span. Friar.

It was a shame for them to mar their complexions, yea, and conditions too, with long lying *abed:* when she was of their age, she would have made a handkerchief by that time o'day. *Sydney*, b. ii.

ABEDNEGO, the name given by Nebuchadnezzar to one of the three captive Jewish children, who were miraculously delivered from the fiery furnace. Dan. iii.

ABEILLE, (Gasper,) an eminent wit, of the 16th century; was born at Reiz in 1648, and died at Paris in 1718. He wrote several dramatic pieces, but his genius was not equal to the wit of his conversation, which appears to have been singularly aided by an unseemly wrinkled countenance, susceptible of the most ludicrous expression.

ABEILLE, (L. P.) a writer on agriculture, and natural history, inspector general of the manufactures of France, and secretary to the council of trades before the revolution; born at Toulouse, 1719; died at Paris 1807.

ABEL, הבל, Heb. *Vanity*, the 2d son of Adam and Eve, who was a shepherd, and was killed by his brother Cain, from envy of the superior mark of divine favour bestowed on him. Though he was the first martyr, his name is not to be found in any catalogue of saints or martyrs, either in the Greek or Roman church, earlier than the 10th century. Several Roman litanies however contain prayers to him, for persons at the point of death.

ABEL, (Charles Frederick,) an eminent musician and composer, was by birth a German. He came to England in 1759, and was soon appointed chamber-musician to the queen. He died at London in 1787. BURNEY, in his history of music, says, "The knowledge Abel had acquired in Germany, in every part of musical science, rendered him the umpire in all difficult points. His concertos, and other pieces were very popular, and frequently played on public occasions." He excelled on the viol di gamba.

ABELA, (J. F.) commander of the Order of Malta, born 1622; was the author of "Malta Illustrata," an able work on the topography and history of the island.

ABELARD, (Peter,) a famous doctor of the 12th century, born at Palais in Britany. He was eminent for his acuteness in logic, of which he gave proofs wherever he travelled, by disputing with, and baffling all who would enter the lists with him. He read lectures with great applause at Paris, where he lodged with one Fulbert, a canon, who had a beautiful niece, called Eloise. Abelard was appointed her preceptor; but instead of the sciences, he taught her love; and Eloise proving with child, he sent her to a sister of his in Britany, where she was delivered of a son. To soften the canon's anger, he offered to marry Eloise privately; and the old man was better pleased with the proposal than the niece; who, from a singular excess of passion, chose to be Abelard's mistress, rather than his wife. She married, however; but used often to protest upon oath that she was single, which provoked the canon to use her ill. Upon this, Abelard sent her to the monastery of Argenteuil; where she put on a religious habit, but did not take the veil. Eloise's relations considering this as a second treachery, hired ruffians, who, forcing into his chamber in the dead of night, emasculated him. This infamous treatment made him fly to the gloom of a cloister. He assumed the

habit at St. Denis: but the disorders of the house soon drove him from thence. He was afterwards charged with heresy; and having endured several persecutions for his religious sentiments, he settled in a solitude in the diocese of Troyes, where he built an oratory, to which he gave the name of the *Paraclete*. He was afterwards chosen superior of the abbey of Ruis, in the diocese of Vannes; when the nuns being expelled from the nunnery in which Eloise had been placed, he gave her his oratory; where she settled with some of her sister nuns, and became their prioress. Abelard mixed the philosophy of Aristotle with his divinity, and in 1140 was condemned by the council of Rheims and Sens. Pope Innocent II. ordered him to be imprisoned, his books to be burnt, and forbade him ever teaching again. However, he was soon after pardoned, at the solicitation of Peter the Venerable, who received him into his abbey of Cluni, where he led an exemplary life. He died in the priory of St. Marcel, at Chalons, April 21, 1142, aged 63. His corpse was sent to Eloise, who buried it in the Paraclete. He left several works; the most celebrated of which are the letters that passed between him and Eloise, with the account of their misfortunes prefixed; which have been translated into English, and immortalised by the harmony of Mr. Pope's numbers.

ABEL-BETHMAACAH, or ABEL-MAIM, a city of Judea, south of Mount Lebanon. Tiglathpileser, king of Assyria, took it, and carried the inhabitants captive. It was afterwards rebuilt, and became the capital of Abilene in Syria.

ABELIANS, or ABELINS, in church history, a sect of heretics mentioned by St. Austin, who pretended to regulate marriage after the example of Abel; allowing each man to marry one woman, but enjoined them to live in continence.

ABELIN, a large hamlet in Palestine, containing a castle of the same name, eight miles from Acre. Some have conjectured that the ruins in the vicinity are those of the ancient Zabulon.

ABELL, (John,) an English musician, and celebrated singer of the 17th century, who quitted this country, at the revolution, for his attachment to popery. Being at Warsaw, he was summoned to court to display his talents, but refused to go: the king then sent for him peremptorily; and on Abell's appearance, he was drawn up in a chair to the top of a spacious hall, at one end of which sat the king and his nobles in a gallery. Some wild bears were now turned into the apartment, and Abell was called upon to sing or be let down amongst them. He preferred, of course, the former, and said that he never made a better use of his voice. In 1701, he published a collection of songs in several languages.

ABELLA, an ancient town of Campania, near the river Clanis, now called AVELLA. Its nuts, called avellanæ, were very famous, as also its apples.

ABEL-MIZRAIM, a place between Jordan and Jericho, supposed to have been near Hebron, where the Egyptians celebrated Jacob's funeral. It was also called the threshing floor of Atad.

ABEL-MOSCH, or ABEL-MUSCH, in botany, a species of the HIBISCHUS, which see.

ABELOITES, or ABELONIANS. See ABELIANS.

ABEN-EZRA, (Abraham,) a celebrated rabbi, born at Toledo, in 1099. He was much admired for his learning, being not only skilled in philosophy, astronomy, medicine, and poetry, but a complete master of the Arabic. He was styled by his brethren, the wise and admirable Doctor. His principal works are, Commentaries on the Old Testament, which are printed in Bomberg's and Buxtorf's Hebrew Bibles, and *Jesud Mora*, a work (now very scarce,) intended to recommend the study of the Talmud. His style is elegant and concise. He died in 1174, aged 75.

ABENRADE, or APENRADE, a jurisdiction, and town of Denmark in Sleswick. It is seated on a spacious open bay, in the Baltic, surrounded on three sides by high mountains. Just without the town stands the castle of Brunbend. Lon. 9° 24′, E. Lat. 55° 6′, N.

ABENS, or ABENTZ, a river of Upper Bavaria, joining the Danube 4 mi. below Abensberg.

ABENSBERG, or ABENSPURG, a district and town of Bavaria, circle of Regen, seated on the Abens, near the Danube, S. W. of Ratisbon. Lon. 11° 15′, E. Lat. 48° 46′, N.

ABER, an old British or Welsh word, signifying the fall of a lesser water into a greater, as of a brook into a river, or of a river into the sea: also, the mouth of the river. In both these senses, it makes part of the names of many towns in Britain. See the following articles.

ABERAVON, a borough town of Glamerganshire, governed by a port-reeve, seated on the mouth of the Avon, 19 miles W. of Cowbridge, and 195 W. from London. The iron and copper works contiguous, have given it some importance. The delightful seat of Lord Vernon stands in the neighbourhood.

ABERBROTHOCK, or ARBROATH, a small neat town, on the E. coast of Scotland, in the county of Angus, 15 miles N. E. of St. Andrew's, and 56 N. N. E. from Edinburgh. It is situated on the mouth of the small river Brothock, is a royal burgh, and is well built and flourishing. The number of its inhabitants has greatly increased within these last 40 years, and they are now estimated at upwards of 9000. Their chief manufactures are brown linens or Osnaburghs, sailcloths, and white and brown thread. The foreign imports are flax, flax-seed, and timber from the Baltic. The coasting trade consists of coals from Borrowstounness, and lime from Fife. At this place, in default of a natural harbour, an artificial one of piers has been formed, where, at spring-tides, which rise here 15 feet, ships of two hundred tons can come, and of 80 at neap tides; but they must lie dry at low water. The port is of great antiquity: there is an agreement yet extant, between the abbot and the burghers of Aberbrothock, in 1194, concerning the making of the harbour. Both parties were bound to contribute their proportions; but the largest fell to the share of the former, for which he was to receive an annual tax payable out of every rood of land lying within the borough. The glory of the town was the abbey, whose very ruins give

some idea of its former magnificence. It was founded by William the Lion in 1178, and dedicated to Thomas á Becket. The founder was buried here; but there are no remains of his tomb, or of any other, excepting that of a monk, of the name of Alexander Nicol. The monks were of the Tyronensian order; and were first brought from Kelso, whose abbot declared those of this place, on their first institution, to be free from his jurisdiction. The last abbot was the famous Cardinal Beaton. King John, the English monarch, granted this monastery uncommon privileges; and, by charter under the great seal, exempted it *a teloniis et consuetudine* in every part of England, except London. At Aberbrothock is a chalybeate water, similar to those of Peterhead and Glendy.

ABERCONWAY, or CONWAY, a market-town of Carnarvon, Wales, 10 miles from Bangor, and 223 from London. It is chiefly remarkable as a fine model of ancient fortification. The castle was built by William the Conqueror. Here are also the ruins of a palace, built by the Earl of Leicester. The town is governed by a recorder, alderman, and two bailiffs, and has a small trade in lead, copper, slate, and calamine.

ABERCORN, the ABERCURRING of Bede, a romantic little town of Scotland, in Linlithgow, on the Frith of Forth, 12 miles W. of Edinburgh. Antoninus's Roman wall commenced here. The Earl of Hopetoun has a magnificent seat at a small distance.

ABERCROMBY, (Sir Ralph,) K. B. the son of George A. Esq. of Tullibody, Clackmannanshire, was born in 1738. In 1756 he became a cornet of the 3d Dragoon Guards. In 1781 he was colonel of the 103d, or King's Irish Infantry; and in 1783 went on half-pay. In 1787 he obtained the command of the 7th Dragoons; and acquired great experience in his profession in the seven years war, and in the war of the American revolution. That of the French revolution furnished him with an opportunity of eminently displaying his talents and experience. In two campaigns on the continent he gave distinguished proofs of his skill and intrepidity; and though the last, in the end of 1794, was singularly disastrous, his character both abroad and at home was in the highest estimation. In the autumn of 1795, he received the Order of the Bath, and succeeded Sir Charles Gray in the West Indies. In this command he was eminently successful, having carried every island and port which he attempted. Early in 1797 he took the Spanish island of Trinidad, and returned soon after to England. In November the same year he went commander-in-chief to Ireland; but this situation he held not long, the civil and military command being united in the person of Marquis Cornwallis. In 1798 he was made commander of the forces in Scotland; and in the autumn of 1799 was employed under the Duke of York in the unfortunate expedition to Holland. No failure ever produced a stronger sensation in the public mind than this; but Sir R. Abercromby was always mentioned with respect, and with an undisguised confidence, that he nobly performed his duty. At the close of 1800, he took the command of the army destined to deliver Egypt from the French. He landed his troops 8th of March, 1801, in Aboukir bay, facing the French army. On the 13th he fought the battle of Alexandria, and was nearly made prisoner by the French, through a defect in his sight. The 21st was marked by a more decisive and general engagement, when after an obstinate struggle, the enemy retreated. Sir Ralph was wounded and unhorsed in one of the first charges, but wrested the sabre from his antagonist, and gave it to Sir Sidney Smith. He afterwards received a musket ball in the thigh, which proved a mortal wound, notwithstanding which, he would not suffer himself to be removed from the field until the victory was declared to be his. He died on board the Admiral's ship in the bay a week afterwards, and was interred at Malta. On the account of the victory reaching England, Lady Abercromby was immediately raised to the peerage, with reservation to the sons of the deceased general; and a noble monument was erected to his memory soon after in St. Paul's.

ABERDEEN, or ABERDEN, a principal city in the north of Scotland, which comprehends two towns under that denomination, viz. OLD and NEW ABERDEEN. The Old Town is a place of great antiquity, and was of some importance so long ago as 893, when, tradition says, king Gregory conferred upon it some particular privileges. A bishopric, founded at Mortlich by Malcolm II. was translated to Aberdeen by David I, and in 1163, Malcolm IV. granted a new charter to the bishop of Aberdeen: there is still extant a charter of Alexander II, dated 1217, granting to Aberdeen the same privileges he had granted to his town of Perth. Both towns are situated on the coast of the German Ocean; 127 miles N. E. from Edinburgh. Lon. 1° 50′, W. Lat. 57° 6′, N.

Old Aberdeen lies about a mile N. from the new town, at the mouth of the Don, over which is a fine Gothic bridge, of a single arch, greatly admired, which rests on both sides on two rocks. This arch, said to have been built by a bishop of Aberdeen, about the year 1290, is 67 feet wide at the bottom, and 34½ feet high above the surface of the river, which at ebb-tide here is 19 feet deep. The old town was formerly the seat of the bishop, and had a large cathedral commonly called *St. Macher's*. Two very antique spires and one aisle, which is used as a church, are now the only remains of it. The cathedral had anciently two rows of stone pillars across the church, and three turrets, the steeple which was the largest of these turrets, rested upon an arch, supported by four pillars. In this cathedral there was a fine library; but, about the year 1560, it was almost totally destroyed. On the south side of the town, is the King's college, which is a large and stately fabric. It is built round a square, with cloisters on the south side. The chapel is very ruinous within; but there still remains some exquisite workmanship. This was preserved by the spirit of the principal at the time of the reformation, who armed his people, and checked the blind zeal of the barons of the Mearns, when about to violate this seat of learning. A ship, freighted with their sacri-

legious booty bound to Holland, had scarcely gone out of port, when it perished in a storm with all its lading. This college was founded in 1494, by William Elphinston, bishop of this place, lord chancellor of Scotland in the reign of James III, and lord privy seal in that of James IV. But James IV. claimed the patronage of it, and it has since been called the *King's College*. Together with the Marischal college in the new town, it forms one university, called the *University of King Charles*. The library is large, but not remarkable for many curiosities. Hector Boethius was the first principal; and sent for from Paris for that purpose, on an annual salary of 40 Scots marks, at 13 pence each. The square tower on the side of the college was built for the reception of students, by contributions from General Monk, and the officers under him, when quartered at Aberdeen. There are now about 150. There are several bussaries for poor students, professorships of humanity, Greek, philosophy (three) Oriental languages, civil law, divinity, and medicine; annual revenue about £700. Here is also a neat town-house; a trades' hospital for decayed freemen and their widows; and an hospital for 12 poor men. Old Aberdeen has its own government, of a provost, three bailies, a treasurer, and council, with the deacons of six incorporated trades.

ABERDEEN, *New*, the capital of the shire of Aberdeen. It is built on a hill or rising ground, and lies on a small bay formed by the Dee, deep enough for a ship of 200 tons, and above two miles in circumference. The town is approached from the N. and S. by two elegant streets, the latter passing over an arch, the span of which is 132 feet, and its width between the parapet 40 feet. The buildings, which are of granite from the neighbouring quarries, are generally four stories high; and have, for the most part, gardens behind them, which give them a beautiful appearance. In the high street is a large church, formerly belonging to the Franciscans, which was begun by bishop William Elphinston, and finished by Gavin Dunbar, bishop of Aberdeen, about 1500. Bishop Dunbar is said likewise to have built the bridge over the Dee, which consists of seven arches. In the middle of Castle-street is an octagon building, with neat bas-relievos of the kings of Scotland, from James I. to James VII. The town-house has a handsome spire in the centre. Opposite, is the Aberdeen bank, a fine building of polished granite. The grammar-school is a low but neat building. Gordon's hospital is handsome; in front is a good statue of the founder: it maintains forty boys, who are apprenticed at proper ages. The infirmary is a large plain building, sending out between eight and nine hundred patients. But the chief public building in the new town is the Marischal college, founded by George Keith, earl of Marischal, in the year 1593; and since greatly augmented with additional buildings. There are about 150 students belonging to it. In both the Marischal and King's college, the languages, mathematics, natural philosophy, divinity, &c., are taught by able professors. In the former is a good observatory. In new Aberdeen are also a lunatic asylum, erected in 1800, by subscription; three dispensaries, which in 1816, relieved 2700 patients; and a bridewell, which has been recently finished at an expense of £10,000. The convents in Aberdeen were: One of Mathurines, or of the order of the Trinity, founded by William the Lion, who died in 1214; another of Dominicans, by Alexander II. a third of Observantines, a building of great length in the middle of the city, founded by the citizens; and a fourth of Carmelites, or White Friars, founded by Philip de Arbuthnot, in 1350. Aberdeen, including the old town, is supposed to contain 40,000 people. Its trade is considerable, but might be greatly extended by an attention to the white fisheries. The ancient harbour was narrow at the mouth, having the easterly rocky point of the Grampian mountains on the south, and a flat blowing sand on the north, extending along the coast for many miles. This was driven in a long ridge across the harbour's mouth at the *bar*, where the depth of water at low tide was sometimes not above three feet. The town at last came to the resolution of erecting a strong pier on the north side of the harbour. This pier is 1200 feet in length, and gradually increases in thickness and height, as it approaches to the sea, where the head or rounding is 60 feet diameter at the base, and the perpendicular elevation 38 feet. The whole is built of granite, and was under the direction of Mr. Smeaton; the expense amounting to above £17,000. A little to the south of the bar, they have now a depth of 17 fathoms at low water; and, at the harbour mouth, from 8 to 9 fathoms. Two batteries defend the pier; which has lately been extended to the N. so as to form a wet dock. There is also a navigable canal from New Aberdeen to the Don at Inverney. Aberdeen once enjoyed a good tobacco trade. At present, its imports are from the Baltic, and the merchants trade to the Mediterranean, the West Indies, and North America. Its exports are stockings, thread, salmon, pickled-pork, and oat-meal. Large quantities of granite are also sent to London. The cotton manufactories of the vicinity employ nearly 1000 persons; and an extensive flax manufactory stands on the Don. Linen and woollen goods of most kinds are wrought here, as well as nails, cordage, and all ship-building articles. Vessels to the burthen of about 40,000 tons, belong to the port which is extensively engaged in the whale and other fisheries. The salmon exported, averages 2000 barrels annually. New Aberdeen has a provost, four bailies, a dean of guild, treasurer, town-council, and seven deacons of trades, incorporated for its civil government; and with Aberbrothock, Brechin, Montrose, and Inverbervie, returns one member to parliament. Its fairs are on the 31st of January, 3d Wednesday in June, and 18th of July.

ABERDEENSHIRE, a county of Scotland, bounded on the N. W. by Banffshire, and the Deveron; on the N. and N. E. by the German Ocean; on the S. by the counties of Kincardine, Angus, and Perth; and on the W. by Invernessshire. Its length from N. E. to S.W. is about 85 miles; its breadth not quite 40. It comprehends the districts of Mar, Garioch, Formartin,

Strathbogie, and the greater part of Buchan; and sends one member to parliament. It abounds in sea ports, from whence there is a safe and ready passage to the Orkney and Shetland isles, the Greenland fisheries, Norway, and the regions round the Baltic, the German coast, Holland, Flanders, and France; and is watered by numerous streams, as the Don, the Ythan, the Ugie, &c., all of them the resort of salmon, and whose banks display the most extensive plantations, as well as natural woods Cattle are sent to the south in great numbers. In the Ythan is a pearl fishery, which has yielded single pearls of from two to three pounds value. Several beautiful lakes also diversify the face of this country; Loch Murick, Loch Kander, Loch Builg, and Callader, are the principal. The granite quarries yield the most valuable mineral of Aberdeenshire, sending annually to London upwards of 12,000 tons; mill stone, blue slate, and lime stone also abound: as well as the asbetos, talc, schistus, and mica. On the coast of Buchan amber is found in considerable quantities, and in Lesley parish a beautiful green and variegated amianthus, of which snuff boxes and ornamental articles are made. Some of the mountains (as in the district of Marr) retain evident proofs of volcanic origin; and Peterhead, Aberdeen, Pannanach, or Glendye, are celebrated mineral waters. The whole county is tolerably fertile, but ill cultivated; the improvements introducing by spirited proprietors, being but slowly adopted. Here are 87 parishes, three royal boroughs, and one city; several handsome towns and noblemen's and gentlemen's seats. The valued rent of the county is £241,931.

ABERDOUR, a town and parish in Fifeshire, Scotland, on the Frith of Forth, about 10 miles N.W. of Edinburgh, resorted to in summer as a sea bathing-place. William, lord of Liddesdale, surnamed the *Flower of Chivalry*, in the reign of David II. conveyed it by charter to James Douglas, ancestor of the present owner, the earl of Morton. The old castle of Aberdour stands on the bank of a rivulet, falling into the Frith. The poor *Clares* had a convent at this place. In the neighbourhood are found free-stone, iron-stone, lime-stone, and coal of superior quality. Here is also a muslin manufactory of some repute; and a manufactory of coarse cloths. The neighbouring island of Inch Colm, belongs to the parish.

ABERE-MURDER, Sax. from ebere, proved, and morth, killing. In old law, murder that has been proved by a judiciary process. It was a crime that could not be expiated by money, as most others could be.

ABERFORD, or ABERFORTH. See ABBERFORD.

ABERFOYLE, a parish in the county of Perth, 11 miles in length, and five in breadth, in the western extremity of which the Forth has its rise. It is remarkable for its fine lakes and numerous streams, and the marked direction taken by the Grampians through the lower part of it; as well as for producing a great variety of rare plants, and excellent pasturage. The hills abound with oak; and granite, coarse marble, limestone, and slate compose their bases.

ABERFRAW, a village in the isle of Anglesey, formerly a place of note, the princes of N. Wales having had a palace in it. It has still a good harbour, navigable for vessels of 30 or 40 tons, and the Aber runs up to it. It is 20 miles W. of Holyhead.

ABERGAVENNY, a well built market-town of Monmouthshire, the Gibbanium of Antoninus, 16 miles W. of Monmouth, and 142 W. by N. from London, having two churches and an old castle. It stands on the confluence of the Usk and Gavenny, having a fine bridge of 15 arches over the former; and is surrounded by a wall in ruins. The neighbourhood yields abundance of coal and iron ore. Market on Tuesday.

ABERGEMENT LE DUC, a market town of Burgundy, France, in the arrondissement of Beaune, and department of the Cote d'Or, near the Saone, and eight leagues S. of Dijon.

ABERGUILLY a parish of Carmarthenshire, 12 miles W. of Carmarthen, and 216 N.W. of London, and remarkable as containing the only palace belonging to the bishop of St. David's.

ABERNETHY, a village in Strathern, a district of Perthshire, in Scotland, seated on the Tay, a little below its junction with the Erne. It is said to have been the seat of the Pictish kings, as well as the see of an archbishop. Here was a cathedral, which became a collegiate church in 854, an university being established in the place. This in 1273 became a priory of regular canons. Here is a good manufacture of household linen and silesias; the church has been lately re-built. In the church-yard is a tower of a circular construction, 48 feet in circumference, and 74 feet in height. Antiquarians have failed in their attempts to discover the use of this and similar buildings: some suppose them to be watch towers, or belfries for summoning the people to prayers; others, that the Picts used them as places of confinement for devotees in performing penance: and, hence they are called towers of repentance. There is only another of this description (at Brechin) in Scotland.

ABERNETHY, (John,) an eminent dissenting clergyman of Dublin, born 1680, and author of sermons on the Divine Attributes, which have been much admired.

ABERRATION, in astronomy, a small apparent motion of the fixed stars discovered by the late Dr. Bradley, astronomer royal. It is occasioned by the progressive motion of light, and the earth's annual motion in its orbit. For the history of its discovery, see Philosophical Trans. March, 1728, No. 406.

ABER'RANCE, ABERRA'TION, ABER'RING, } Ab: *erro*, to stray or wander; primarily applied to the errors or mistakes of the mind, and to irregularity of conduct.

So then we draw near to God, when, repenting us of our former *aberrations* from him, we renew our covenant with him.

Bishop Hall's Works, vol. v. p. 502.

Could a man be composed to such an advantage of constitution, that it should not at all adulterate the images of his mind: yet this second nature would alter the crasis of his understanding, and render it as obnoxious to *aberrances* as now.

Glanville's Scepsis Scientifica, c. 16.

They do not only swarm with errours, but vices depending thereon. Thus they commonly affect no man any farther, than he deserts his reason, or complies with their *aberrancies*.

Brown's Vulgar Errours, I. 3.

ABERRATION, in optics, is used to denote that error or deviation of the rays of light, when inflected by a lens or speculum, whereby they are hindered from meeting or uniting in the same point. There are two species of the aberrations of rays, distinguished by their different causes; one arising from the figure of the glass or speculum; the other from the unequal refrangibility of the rays of light. This last species is sometimes called the Newtonian, from the name of its discoverer. See OPTICS.

ABERTIVY, a river in Wales, formerly named *Tybius*.

ABERWINGREGIN, a town in Carnarvonshire, 250 miles distant from London.

ABERYSTWITH, a town of Cardiganshire in South Wales, seated on the Ystwith, near its confluence with the Rhydol, where they fall into the sea. It lies 208 miles W. N. W. from London, and 30 N. E. from Cardigan. It was formerly fortified with a castle, built by Gilbert de Strongbow, in the reign of Henry I. and defended with walls; but both are now in ruins. It is, however, rich and populous, having a great trade in lead, and a considerable fishing of herrings, cod, and whitings. The government of the town is vested in a mayor, recorder, and common-council. The church is a gothic building, but only a curacy; the houses are principally built of black slate. The town-hall is a handsome structure, and there is a neat stone bridge of nine arches, over the Rhydol. Near Aberystwith (which has lately become a favourite resort for sea-bathing) are the ruins of Ystradfflur abbey. Market, Monday and Saturday.

ABESTA, or AVESTA, the name of one of the sacred books of the Persian magi, which they ascribe to their great founder Zoroaster. It is a commentary on the *Zend* and *Pazend*; the three together including the whole system of the Ignicolæ, or worshippers of fire.

ABESTON. See ASBESTOS.

ABESUM, in chemistry, unslacked, or quick lime. See CALX.

ABET', *v. n.* } Anglo Sax. Betan, (meliorare,
ABET'MENT, } melius reddere, says Skinner.)
ABET'TER. } To better, to make better. It primarily signifies to enkindle or animate.

It is applied to encouraging, inciting, assisting, supporting, aiding. 'It was once indifferent,' says Johnson, 'but is almost always taken by modern writers in an ill sense.'

I am thine Eme, the shame were to me
As wel as the, if that I should assent,
Through mine *abet* yt. he thine honour shent.
Chaucer's Second Book of Troilus, fol. 159, col. 4.

Then shall I soon, quoth he, so God me grace,
Abet that virgin's cause disconsolate,
And shortly back return. *Spenser's F. Q.* xi. 64.

A widow who by solemn vows,
Contracted to me, for my spouse,
Combin'd with him to break her word,
And has *abetted* all. *Hudibras* v. iii. c. 4.

They *abetted* both parties in the civil wars, and always furnished supplies to the weaker side, lest there should be an end put to those fatal divisions.

Addison, Freeholder, No. 28.

Yet Christian laws allow not such redress;
Then let the greater supersede the less.
But let th' *abettors* of the panther's crime,
Learn to make fairer wars another time.

Dryden's Hind and Panther.

That which demands to be next considered is happiness; as being in itself most considerable; as *abetting* the cause of truth; and as being indeed so nearly allied to it, that they cannot well be parted.

Woollaston's Religion of Nature, p. 31.

ABEVACUATION, in medicine, a partial evacuation, either by nature or art.

ABEX, a name sometimes given to that country of Africa which bounds Abyssinia on the east, and the Red Sea west. It is mountainous, and so barren as to offer little to the notice of travellers. It is 500 miles in length, and 100 in breadth. The inhabitants are Mahometans.

ABEY'ANCE, *n.* Abaiance, or en abeiance, old Fr. Expectation.—A term of law, but sometimes of more general application.

Sometimes the fee may be in *abeyance*, that is, as the word signifies, in expectation, remembrance, and contemplation of law; there being no person *esse*, in whom it can rest and abide; though the law considers it as always potentially existing, and ready to vest, whenever a proper owner appears.

Blackstone's Commentaries.

ABGAR, or ABGARUS, a name given to several kings of Edessa in Syria; the most celebrated of whom is said by Eusebius to have sent a letter to Jesus Christ, requesting him to come and remove a distemper in his feet. The Saviour is stated to have returned an answer, accompanied by his portrait. Some great names in ecclesiastical history support the authenticity of these letters, as they are still extant in Eusebius; Mosheim rejects the letters, but sees "no reason of sufficient weight to destroy the credibility of the story." The general opinion of learned men, however, is decidedly against the whole.

ABHOR', *v.* } Ab: *horreo*. Vossius con-
ABHOR'RER, } ceives the word, "*horreo*,"
ABHOR'RENCE. } to express the effect produced
ABHOR'RENT, } by the determination of the breath (or rather the blood) to the heart, occasioned by a sudden and painful emotion, which causes a general rigidity, and convulsive shuddering of the body, so that the hair is said to stand on end.

But sins so great is thy delight to here
Of our mishaps and Troye's last decay:
Though to record the same my mind *abhorres*,
And plaint eschues: yet thus will I begyn.

Surrey, Chalmer's Poets.

Why then these foreign thoughts of state employments,
Abhorrent to your function and your breeding?

Dryden.

Whilst I was big in clamour, came a man,
Who, having seen me in my worser state,
Shunn'd my *abhorr'd* society.

Shakspeare's King Lear.

He hath not despised nor *abhorred* the affliction of the afflicted. *Psalm* xxii 24.

Justly thou *abhorr'st*
That son, who on the quiet state of men
Such trouble brought, affecting to subdue
Rational liberty.
Milton's Paradise Lost, xii. 79.

The self-same thing they will *abhor*
One way, and long another for.
Hudibr. p. i. cant. 1.

The first tendency to any injustice that appears, must be suppressed with a show of wonder and *abhorrency* in the parents and governours.
Locke on Education.

For if the worlds,
In worlds inclosed, could on his senses burst,
He would *abhorrent* turn. *Thomson's Sum.* l. 310.

The legal, and as it should seem, injudicious profanation, so *abhorrent* to our stricter principles, was received with a very faint murmur, by the easy nature of polytheism. *Gibbon*, vol. i. p. 112.

Lands intercepted by a narrow frith,
Abhor each other. *Cowper.*

But peace *abhorreth* artificial joys,
And pleasure, leagued with pomp, the zest of both destroys. *Lord Byron's Childe Harold.*

ABHORRERS, a name which was given to a political party in England, in distinction from the *petitioners* of the same period, (1680.) The name and the party soon ceased; but Hume gives an account of their origin and principles. They paid excessive court to the king, by expressing their *abhorrence* against those who petitioned for redress of grievances, or who presumed to prescribe or dictate to his majesty any period for assembling parliament.

ABIA, or IRE, in ancient history, a maritime town of Messinia, so called after Abia, a daughter of Hercules, and one of the seven cities promised by Agamemnon to Achilles.

ABIAD, a river of Africa, descending, according to Mr. Brown, from the Mountains of the Moon, several hundred miles south of Darfour.

ABIANS, or ABII, anciently a people of Thrace, or, according to some authors, of Scythia. They led a wandering life, living on the flesh of their herds and flocks; on milk and cheese. They cultivated little intercourse with their neighbours, but boldly maintained their own independence, and were a people of great integrity, according to Homer, *Il.* xiii. 5, 6.

ABIB, אביב, Heb. i. e. a ripe ear of corn. The first month of the ecclesiastical, and the seventh of the civil year, among the Jews. It answers to our moon that begins in March and ends in April; and contains the feast of the passover and of unleavened bread.

ABIDE', ABI'DER, ABI'DING, ABO'DE, } Bidian, or abidian, Sax. To stay, remain, tarry, dwell or continue in a place or state; also, to stay under, or support; to bear up against, or endure with fortitude, good temper, or the contrary. In the latter senses, however, the words are nearly obsolete.

The pacient *abyding* of the righteous shal be turned to gladnesse, but the hope of the vngodly shall perish. *Bible, Lond.* 1539. *Prov.* chap. x.

DEM. *Abide* me, if thou dar'st: for well I wot
Thou runn'st before me, shifting every place,
Thou dar'st not stand, nor look me in the face.
Shakspeare's Midsummer Night's Dream.

MRS. FORD. I would my husband would meet him in this shape; he cannot *abide* the old woman of Brainford; he swears she is a witch, forbad her my house, and hath threatened to beat her.
Shakspeare's Merry Wives of Windsor

Ah me! they little know
How dearly I *abide* that boast so vain
Under what torments inwardly I groan,
While they adore me on the throne of Hell.
Milton.

To remain in sin and *abide* in death is all one.
Bishop Taylor's Sermons

Why do we *abide* our thoughts and affections scattered from thee, from thy saints, from thine anointed.
Hall's Contemplations.

He (God) does not inflict sensible judgment upon all his enemies, lest the wicked should think there were no punishment *abiding* for them elsewhere.
Idem.

Thy servant became surety for the lad unto my father, saying, If I bring him not unto thee, then I shall bear the blame to my father for ever. Now therefore, I pray thee, let thy servant *abide* instead of the lad, a bondman to my lord: and let the lad go up with his brethren. *Gen.* xliv. 32, 33.

The marquis Dorset, as I hear, is fled
To Richmond, in the parts where he *abides*.
Shakspeare's Richard III.

Those who apply themselves to learning, are forced to acknowledge one God, incorruptible and unbegotten; who is the only true being, and *abides* for ever above the highest heavens, from whence He beholds all the things that are done in heaven and earth. *Stillingfl. Defence of Disc. on Rom. Idolat.*

ABIES, in botany, the fir tree. See PINUS.

ABIGA, in botany, the ground pine, or Chamapitys.

ABILA, or ABYLA, a mountain of Africa, one of the pillars of Hercules, as they were anciently called, being directly opposite to Calpe, in Spain, from which it is only 18 miles distant.

ABILENE, a small canton in Syria, between Lebanon and Antilibanus, west of Damascus. See ABEL-MAIM.

ABINEAU POINT, a neck of land projecting into Lake Erie, Canada, and forming a fine bay on each side of the point. It runs out about 10 miles west of Fort Erie. The northern bay is most commonly called Abineau Port.

ABINGDON, the chief town of Washington county, in Virginia, North America, 310 miles S. W. of Richmond. Also a town of Maryland, North America, 20 miles N. E. of Baltimore; and a township of Plymouth county, Massachusetts, 22 S. E. of Boston.

ABINGDON, or ABINGTON, a market town of Berks, in the hundred of Hormer, on the Isis, so named from an abbey formerly built in it, six miles S. of Oxford, and 56 W. from London. The streets are well paved, and have a spacious area in the centre, where the markets are held on Monday and Friday, and where an elegant market-house is built, supported on lofty pillars, with a handsome Town-house of free-stone above it, where the assizes, sessions, and county meetings are held. It has two churches, dedicated to St. Nicholas and St. Helena, and two hospitals, the one for 12 persons, six of each sex, the other for 26, viz. 13 of each; besides a charity and a free grammar school. This town is supposed by Bp. Gibson to be the Saxon *Cloveshoo*, where synods were held, in A. D. 742 and

822. It was incorporated by Queen Mary I. and sends one member to parliament, elected by the suffrages of the inhabitants generally. It is a considerable malting town.

ABIPONIANS, a decayed tribe of S. American Indians, inhabiting the banks of the Plata. The whole nation does not exceed 5000 in number. They are naturally fair; but, by exposure to the air and smoke, become of a brown colour. They are a strong and hardy race of people; which is attributed to their marrying late; and are greatly celebrated on account of their chastity and other virtues; though, according to some writers, they have no knowledge of a Deity, or name to express his existence: but they believe in an evil principle whom they call "Uncle." They are but slightly acquainted with agriculture, living by hunting and fishing, and holding the flesh of their jaguars in great repute. They have a kind of order of chivalry for their warriors; and are so formidable, that 100 of their enemies will fly before ten of these horsemen, armed with the long spears of the country. The caciques in war are their judges in time of peace; but the whole people have long ceased to be of any consideration in the neighbourhood.

ABISCA, a province of Peru of considerable extent, between the Yetan and Amarumain to the S. of Cuzco. It is little known to Europeans, being principally the resort of expelled barbarous tribes.

ABISHERING, an ancient law-term, denoting a being free, or exempt, from all amercements.

ABITELLO, in ecclesiastical affairs, a sort of penitential garment, in the Romish church. *Eym. Direct. Inquisit.* iii. 332.

ABITIBBE Lake, a lake of Upper Canada, in N. lat. 48° 35′, W. long. 82° 0′, near the settlement of Frederic.

Abitibbe River, a river of Upper Canada, flowing out of the lake of that name, and emptying itself into the Moose river, near James's Bay. The Abitibbes are a native tribe of this neighbourhood.

ABJECT', *v.* & *n.*
Abject'edness.
Abje'ction,
Ab'jectly,
Ab'jectness,

Ab: *jacio*, to cast or throw away from; to be reduced to a low rank or condition; to be degraded.

The audacite and bolde speeche of Daniel signifyeth the *abiection* of the kynge and his realme.
The Exposicion of Daniel, by Geo. Joye, p. 75.

I deemed it better so to die,
Than at my foemen's feet an *abject* lie.
Mirr. for Mag. p. 20.

Rebellion
Came like itself in base and *abject* routs,
Led on by bloody youth goaded with rage,
And countenanc'd by boys and beggary.
Shakspeare's Henry IV.

I was at first, as other beasts that graze
The trodden herb, of *abject* thoughts and low.
Milt. Paradise Lost. b. ix. l. 571.

The rarer thy example stands,
By how much from the top of wond'rous glory,
Strongest of mortal men,
To lowest pitch of *abject* fortune thou art fall'n.
Milton's Sampson Agonistes.

By humility I mean not the *abjectness* of a base mind; but a prudent care not to over-value ourselves upon any account. *Grew's Cosmologia Sacra.* b. ii. c. 7.

Let mean princes
Of *abject* souls, fear to reward great actions.
I mean to show,
That whatsoe'er subjects, like you, dare merit,
A king, like me, dares give.
Dryden's Marriage a la Mode.

To what base ends, and by what *abject* ways,
Are mortals urg'd through sacred lust of praise!
Pope's Essay on Criticism.

How poor, how rich, how *abject*, how august,
How complicate, how wonderful is man!
How passing wonder, He who made him such.
Young.

ABJURE', Abjura'tion. Ab: *juro*, to swear from, to forswear; to swear; to go away from, or leave; to disown, to disclaim, to renounce upon oath.

By our ancient customs felons were allowed to fly to a sanctuary, and on swearing to leave the kingdom forthwith, and for ever were exempted from farther punishment. *Vide Rastall's Collection of Statutes.*

In this season were banished out of Southwarke, twelve Scottes whiche had dwelt there a long season, and wer conveied fro parishe to parishe by the constable, like men yt had *abiured* the realme, and on their vttermost garment a white crosse before, and another behynd them. Thus were they conueyed through London northwarde till they came to Scotlande.
Hall, repr. 1809, p. 648.

Either to die the death, or to *abjure*
For ever the society of man.
Shakspeare's Midsum. Night's Dream.

No man, therefore, that hath not *abjured* his reason and sworn allegiance to a preconceived fantastical hypothesis, can undertake the defence of such a supposition. *Hale.*

A Jacobite, who is persuaded of the pretender's right to the crown, cannot take the oath of allegiance; or, if he could, the oath of *abjuration* follows, which contains an express renunciation of all opinions in favour of the claim of the exiled family.
Paley's Moral Philosophy.

ABJURATION, in ancient customs. The following oath taken by a person guilty of felony; who, having fled to a place of sanctuary, engages to leave the kingdom for ever, will furnish a curious illustration of this subject: "This heare, thou sir Coroner, that I, M. of H. am a robber of sheepe, or of any other beast, or a Murderer of one, or of mo, and a felon of our Lord the king of Englād; and because I haue done many such euilles or robberies in his land, I do *abjure* the land of our Lord Edward, king of England, and I shall haste me towards the Port of such a place, which thou hast given me, and that I shal not go out of the high way, and if I doe, I wil that I be taken as a robber, and a felon of our Lorde the king: And that at such a place I will diligently seeke for passage, and I will tarie there but one flud and ebbe, if I can have passage, and unlesse I can haue it in such a place, I wil goe euery day into the Sea up to my knees, assaying to passe ouer, and unlesse I can do this within fortie dayes, I wil put my selfe againe into the Church, as a robber and a felon of our Lord the king, so God me helpe & his holie iudgement," &c. *Rastall's Collect. of Stat.* p. 2.

Abjuration, in English law, signifies the renouncing and disclaiming upon oath, any right

of the late Pretender to the crown of these kingdoms; also, according to 25 Charles II. an oath abjuring particular doctrines of the church of Rome.

ABLA'CTATE, } Ab: from, and *lacto*, to
ABLACTA'TION, } feed with milk. To wean a child.

ABLAIQUET, or ABLAIKET, a town of Russian Tartary, 540 miles S. E. of Tobolsk, remarkable only for the remains of a great temple and other antiquities.

ABLANCOURT, (PERROT, D',) See PERROT.

ABLANIA, in botany, the trichocarpus genus of Linnæus.

ABLAQUEATION, in horticulture, the art or practice of opening the ground about the roots of trees, to let the air and water operate upon them.

ABLATIVE, in grammar, the 6th case of the Latin nouns, pronouns, participles, and gerunds. Priscian calls it the *comparative* case, as it serves for comparing as well as taking away. It is opposed to the *dative*, as the latter expresses the action of giving. In English, French, &c. there is no precise mark whereby to distinguish the ablative from other cases; and we only use the term in analogy to the Latin. Thus, in the two phrases, "the importance of the question," and "he spoke much of the question," we say, that *of the question* in the first is *genitive*, and in the latter *ablative;* because it would be so, if the two phrases were expressed in Latin. The question concerning the Greek ablative has been the subject of a famous literary war between two great grammarians, Frischlin and Crusius; the former of whom maintained, and the latter opposed, the reality of it. The dispute still subsists among their respective followers.

ABLATIVE ABSOLUTE, in the Latin grammar, is a clause or phrase detached from, and independent of the rest of the sentence, and answering to the genitive absolute of the Greek grammarians.

ABLAZE', *a.* On blaze. See BLAZE.

A'BLE, *v.* & *adj.* } *Abal*, Goth. Strength,
A'BLENESS, } power, force, skill, are the
ABII'ITY, } leading ideas. The verb,
A'BLY. } to *able*, had two other significations, now obsolete: first, to make *able*, or to give power for any purpose, of the same import as to *enable*; and, secondly, to warrant, or answer for.

God tokeneth and assigneth the times *abling* hem to her proper offices.

Chaucer's Boecius, b. i. fol. 215, col. 1.

And ye, my ladies, that ben trewe and stable,
By way of kinde ye oughtin to ben *able*
To haue pitie of folke that ben in paine,
Now haue ye cause to clothin you in sable.

Chaucer, the Complaint of Mars, fol. 326, col. 4.

Lytel Lowys, my Sonne, I perceive well by certaine evidences thyne *abylyte* to lerne scyences, touching nombres and proporcions, and also will conaydre I thy besye prayer in especyal to lerne the tretyse of the Astrolabye.

Chaucer's Conclusion of the Astrolabie.

That if God willinge to schewe his wraththe, and to make his power knownn, hath suffrid in greet pacience vessels of wrathhe *able* into deeth, to schewe the richessis of his glorie into vessels of merci whiche he made redi into glorie.

Wiclif. Romayns. chap. ix.

For no doute to dreade to offende God and to loue to please him, in all thing quyckeneth and sharpeneth all the wittes of Cristes chosen people: and *ableth* them so to grace, that they joy greatly to withdrawe their eares, and all their wittes and membres frome all worldly delyte, and frome all fleschely solace.

Howell's State Trials, vol i. p. 202. *Trial of Master William Thorpe for Heresy*, 8, *Henry IV.* A. D. 1407, *written by himself.*

A noble crew about them waited round
Of sage and sober peeres all gravely gownd,
Whom farre before did marche a goodly band
Of tall young men all *able* armes to sound,
But now they laurell-branches bore in hand;
Glad signe of victory and peace in all their land.

Spenser's Faerie Queene, b. i. canto. xii.

Love all; trust a few;
Do wrong to none: be *able* for thine enemy
Rather in power than use, and keep thy friend
Under thy own life's key. *Shakspeare.*

CRES. They say all louers sweare more performance than they are *able*, and yet reserue an *ability* that they neuer perform; vowing more than the perfection of ten, and discharging lesse than the tenth part of one. *Shakspeare's Troi. & Cres.* act iii. sc. 1.

To sell away all the powder in the kingdom,
To prevent blowing up. That's safe, ile *able* it.

Middl. Game at Chess. D. ii. b. act 2

Of singing thou hast got the reputation,
Good Thyrsis, mine I yield to thy *ability*;
My heart doth seek another estimation.

Sidney, b. i.

If aught in my *ability* may serve
To lighten what thou suffer'st, and appease
Thy mind with what amends is in my pow'r.

Milton's Sampson Agonistes, l. 744.

They gave after their *ability* unto the treasure.

Ezra, ii. 69.

If any man minister, let him do it as of the *ability* which God giveth: that God in all things may be glorified through Jesus Christ. 1 *Peter*, iv. 11.

Wherever we find our *abilities* too weak for the performance, he assures us of the assistance of his Holy Spirit. *Rogers's Sermons.*

And novels (witness every month's review,)
Belie their name, and offer nothing new.
The mind, relaxing into needful sport,
Should turn to writers of an *abler* sort,
Whose wit well manag'd, and whose classic style,
Give truth a lustre, and make wisdom smile.

Cowper's Retirement.

ABLECTI, in Roman antiquity, a select body of soldiers chosen from among those called *extraordinarii*. *Polyb.* vi. 31.

ABLEGMINA, in Roman antiquity, those parts of the entrails of victims, which were offered in sacrifice. They were sprinkled with flour, and burnt upon the altar; the priests pouring wine on them.

ABLET, or ALBLEN, in ichthyology, the common *bleak*, a small fresh-water fish, called in Latin *alburnus*. See ALBURNUS and CYPRINUS.

ABLIS, a market town of France, in Orleans, department of the Seine and Oise, arrondissement of Etampes, six leagues E. N. E. of Chartres.

ABLUTION, Ab: *luo*, to wash from. The act of washing, or the water used in cleansing or purifying. Also the ceremonial purification ob-

served under most systems of religion, ancient and modern, true and false. Lastly, the cup of wine and water, formerly given to the people in the Romish church after the host.

SUB. Sirrah, my varlet, stand you forth and speak to him,
Like a philosopher. Answer i'the language.
Name the vexations, and the martyrizations
Of metals, in the work.
FAC. Sir, Putrefaction.
Solution, *ablution*, sublimation,
Cohobation, Calcination, Ceration, and
Fixation. *Jonson's Alchemist*, act ii. sc. 4.

Hearts may be found, that harbour at this hour
That love of Christ, and all its quick'ning pow'r
And lips unstain'd by folly or by strife,
Whose wisdom, drawn from the deep well of life,
Tastes of its healthful origin, and flows
A Jordan for the *ablution* of our woes.
Cowper's Conversation.

ABLUTIONS, in religion, appear to be as old as any ceremonies, or even external worship itself. Moses enjoined them; the heathens adopted them; and Mahomet and his followers have continued them: they thus make a considerable part of the most ancient religions. The Egyptian priests had their diurnal and nocturnal ablutions; the Grecians their sprinklings; the Romans their lustrations and lavations; the Jews their washing of hands and feet, besides their baptisms. The ancient Christians practised ablution before communion; which the Romish church still retains before mass, and sometimes after. The attachment of the Hindoos for the Ganges is such, that ablution in its streams is placed amongst the first duties of their religion; and when, from necessity, they cannot reach that river, if in bathing they use the exclamation, "O Ganges, purify me!" the Brahmins assure them that the service is equally efficacious.

ABLUTION, in pharmacy, is applied both to a preparation which divers remedies undergo, by washing them in water, to cleanse them or increase their power, and to medicines which carry off impurities from the system.

ABO, a seaport town, the capital of Finland, which lies upon the point where the gulphs of Bothnia and Finland unite, 120 miles N. E. of Stockholm. It stands on the estuary of the Aura-jocki, is a good port, and is the see of a bishop; the seat of a governor, and of a high court of justice for S. Finland. The city became incorporated with the Russian empire in 1809. It is well built, and carries on a thriving trade with England, Holland, and the Mediterranean, in its manufactures of silk, cotton, cloth, paper, rope, &c. It has an extensive glass-house, a sugar refinery of good repute, and two excellent dock yards. Its external trade in iron, timber, fur and corn is also considerable. It has an university, founded by queen Christina in 1640, and endowed with the same privileges as that of Upsal. Long. 22°, 13′. E. Lat. 60°, 27′. N. Population about 12,000.

ABOARD′, *n.* ABORD′, *v.* & *n.* 'BORD. } Bopꝺ, Sax. a house, a habitation. This familiar sea-term, the orthography of which differs among our older writers, comes immediately from the French *àbord*, as *aller àbord*, to enter a ship, to go aboard.

And afterwards a great wynde arrising in ye sea, by meane whereof their shippes might no longar tarry there, for that, that it was a place wt out porte; one part of the embarqued theself, and passing bifore a rockky place call'd Ithis, they came to *aborde* in the porte of Philie.
Thucidides, by Thomas Nicolls, Lond. 1550, fo. 53, p. 1.

But there it resteth and abode
This great shyp on anker rode;
The lorde came forth, and when he sigh;
That other ligge on *borde* so nighe;
He wondreth, what it might bee,
And bad men to go in and see.
Gower, Con. A. book ii.

And how the tempest all began,
And how he lost his steersman
Which that the sterne, or he tooke keepe,
Smote ouer the *bord* as he slepe,
Chaucer's, Fame, b. i. fol. 277. c. 2.

And wha we had gotte a shippe yt wolde sayle vnto Phenices, we went *aborde* into it, and set forth.
Bible, Lond. 1539, Actes xxi.

We left this place about eleven in the morning, and were again conveyed, with more sunshine than wind, *aboard* our ship. *Fielding's Voyage to Lisbon.*

ABODE′, ABOD'ANCE, ABODE'MENT, ABOD'ING. } Bodian, Sax. to portend; to abode, bode, and forbode, are synonymous, and signify to show, or exhibit some appearance, sign, or token, from which good or evil is inferred.

Nay, nay, it may nat stonden in this wise
For nece mine, this writen clerkes wise
That percii is with dretching in draw
Nay, such *abodes* ben nat worth an haw.
Chaucer, third Booke of Troilus, fol. 171. col. 2.

For he (bishop Felix) brought all the province unto the faith, and workes of iustice, and in the end to rewarde of perpetuall blessednesse, according to the *abodement* of his name, which in Latine is called Felix, and in our English tongue, Happie.
Stowe's Chronicle, Howe's ed. 1614, p. 61.

ABO-HUS, or ABO-SLOT, an ancient fort in Finland, on a peninsula, near the mouth of the river Aura-jocki, which has often suffered from enemies, and by fire.

ABOI-VENTS, in fortification, lodgments constructed in a overed way to protect soldiers from the weather.

ABOL'ISH, ABOL'ISHMENT, ABOLI'TION, } Ab: *oleo*. to emit an odour. Hence *aboleo*, to lose an odour. To extinguish the very odour; to destroy, to annul, to abrogate, to annihilate.

Now to th' entent that ye may yet farther perceive and se, that they by the distruccion of the clergy, meane the clere *abolycion* of Christes faith: it may like you to conferre, and compare together ii places of hys beggars bill. *Sir Thomas More's Works*, p. 311

The plain and direct way had been to prove, that all such ceremonies, as they require to be *abolished* are retained by us with the hurt of the church, or with less benefit than the *abolishment* of them would bring. *Hooker*, b. iv

Or wilt thou thyself
Abolish thy creation, and unmake
For him, what for thy glory thou hast made?
Milton, b. iii. l. 163.

Nor could Vulcanian flame
The stench *abolish*, or the savour tame.
Dryd. Virg. Geo. iii.

An apoplexy is a sudden *abolition* of all the senses and of all voluntary motion, by the stoppage of the flux and reflux of the animal spirits through the nerves destined for those motions. *Arbuthnot on Diet.*

ABOLITION OF SLAVERY. *The Society for mitigating and gradually abolishing the state of Slavery throughout the British Dominions*, sometimes called the ANTI-SLAVERY SOCIETY, has been recently formed.

His Royal Highness, the Duke of Gloucester is president of the society. In the list of vice-presidents, are the names of many of the most distinguished philanthropists of the day, and among them, that of the never to be forgotten champion of the negro's cause, Mr. Wilberforce.

The society has already published several works illustrative of the state of slavery, and pointing out its atrocious evils, in a commercial and political, as well as a religious point of view; and which, by apparently unanswerable arguments tend to hold up the system to merited detestation, by every class of society, from the statesman to the peasant. The following summary of the evils to which the slaves in the British colonies are subject, may serve to give some idea of their miserable and degraded condition:—

There are, in the colonies of Great Britain, upwards of 800,000 human beings in a state of degrading personal slavery.

These unhappy persons are the absolute property of their master, who may sell or transfer them at his pleasure, and who may also regulate, according to his discretion, (within certain limits) the measure of their labour, their food, and their punishment.

Many of the slaves are (and all may be) branded like cattle, by means of a hot iron, on the shoulder or other conspicuous part of the body, with the initials of their master's name; and thus bear about them, in indelible characters, the proof of their debased and servile state.

The slaves, whether male or female, are driven to labour by the impulse of the cart-whip, for the sole benefit of their owners, from whom they receive no wages; and this labour is continued (with certain intermissions for breakfast and dinner,) from morning to night throughout the year.

In the season of crop, which lasts for four or five months of the year, their labour is protracted, not only throughout the day, as at other times, but during either half the night, or the whole of every alternate night.

Besides being generally made to work under the lash, without wages, the slaves are further obliged to labour for their own maintenance on that day which ought to be devoted to repose and religious instruction. And as that day is also their only market-day, it is of necessity a day of worldly occupation, and much bodily exertion.

The colonial laws arm the master, or any one to whom he may delegate his authority, with a power to punish his slaves to a certain extent, without the intervention of the magistrate, and without any responsibility for the use of this tremendous discretion; and to that extent he may punish them for any offence, or for no offence. These discretionary punishments are usually inflicted on the naked body with the cart-whip, an instrument of dreadful severity, which cruelly lacerates the flesh of the sufferer. Even the unhappy females are equally liable with the men to have their persons thus shamelessly exposed and barbarously tortured at the caprice of their master or overseer.

The slaves being regarded in the eye of the law as mere chattels, they are liable to be seized in execution for their master's debts; and, without any regard to the family ties which may be broken by this oppressive and merciless process, to be sold by auction to the highest bidder, who may remove them to a distant part of the same colony, or even exile them to another colony.

Marriage, that blessing of civilized, and even of savage life, is protected in the case of the slaves by no legal sanction. It cannot be said to exist among them. Those, therefore, who live together as man and wife, are liable to be separated by the caprice of their master, or by sale for the satisfaction of his creditors.

The slaves in general have little or no access to the means of Christian instruction.

The effect of the want of such instruction, as well as of the absence of any marriage tie, is, that the most unrestrained licentiousness (exhibited in a degrading, disgusting, and depopulating promiscuous intercourse,) prevails almost universally among the slaves; and is encouraged no less universally by the example of their superiors the whites.

The evidence of slaves is not admitted by the colonial courts, in any civil or criminal case affecting a person of free condition. If a white man, therefore, perpetrates the most atrocious acts of barbarity, in the presence of slaves only, the injured party is left without any means of legal redress.

In none of the colonies of Great Britain have those legal facilities been afforded to the slave to purchase his own freedom, which have produced such extensive beneficial effects in the colonial possessions of Spain and Portugal. On the contrary, in many of our colonies, even the voluntary manumission of slaves by their masters has been obstructed, and in some rendered nearly impossible, by large fines.

It is an universal principle of colonial law, that all black or coloured persons are presumed and taken to be slaves, unless they can legally prove the contrary. The liberty, therefore, even of free persons, is thus often greatly endangered, and sometimes lost. They are liable to be apprehended as run-away slaves, and to be sold into endless bondage as such, if they fail to do that which though free, nay, though born perhaps in Great Britain itself, they may be unable to do —namely, to establish the fact of their freedom by such evidence as the colonial laws require.

Many thousand infants are annually born within the British dominions to no inheritance but that of the hapless, hopeless servitude which has been described; and the general oppressive-

ness of which might be inferred from this striking and most opprobrious fact alone, that while in the United States of America the slaves increase rapidly—so rapidly as to double their number in 20 years—there is, even now, in the British colonies, no increase, but on the contrary a diminution of their numbers.

The more immediate objects of the society are, to *ameliorate* the condition of the slaves, and to facilitate the means by which they may obtain their freedom, and for the accomplishment of these intentions:

To remove all the existing obstructions to the manumission of slaves;—

To cause the slaves to cease to be chattels in the eye of the law;—

To prevent their removal, *as slaves*, from colony to colony, and, under certain modifications, their sale or transfer, except with the land to which they might be attached;—

To abolish markets and compulsory labour on the Sunday; and to make that day a day of rest, as well as of religious worship and instruction; and also to secure to the slaves equivalent time in each week, in lieu of Sunday, and in addition to any time which independently of Sunday is now afforded them, for cultivating their provision grounds;—

To protect the slaves, by law, in the possession and transmission of the property they may thus, or in any other way, acquire;—

To enable the slave to purchase his freedom, by the payment at once of a fair price for his redemption, or of a fifth part of that price at a time, in return for an additional day in the week to be employed for his own benefit;—

To make the testimony of slaves available in courts of justice, both in civil and criminal cases;—

To relieve all negros and persons of colour from the burden of legally proving their freedom, when brought into question, and to throw on the claimant of their persons the burden of legally proving his right to them;—

To provide the means of religious instruction for the black and coloured population, and of Christian education for their children;—

To institute marriage among the slaves; and to protect that state from violation, and from either forcible or voluntary disruption;—

To put an end to the driving system;—

To put an end also to the arbitrary punishment of slaves, and to place their persons as well as property under the guardianship of the law;—

To provide that all children born after a certain day shall be free,—care being taken of their education and maintenance until they shall be capable of acting for themselves;—

To provide that no colonial governor, judge, attorney-general, or fiscal, shall be a possessor of slaves, or shall have a direct and obvious reversionary interest in such property, or shall be the agent of the proprietors of slaves.

The society has further proposed, that the final extinction of slavery should be accomplished, by the redemption of all females from the lowest age, to about 40; by which means, all their posterity would be born free. The cost of this measure is estimated at £300,000; but should parliament refuse to accede to this, or some other effective plan, the society trust that their object will nevertheless be obtained, by bringing free labour into competition with slave labour; so that the latter shall become of so little value as to be not worth retaining. The parent society is supported by many auxiliaries, not fewer than 250 of which are in active operation in various parts of the kingdom; and if they continue to proceed with the energy that has hitherto marked their progress, there can be little doubt but that they will finally succeed in a cause, in which, truth, justice, and every noble principle of human nature, as well as the dictates of religion, are arrayed on their side.

ABOLLA, from the Lat. *bullæ*, Roman ornaments, or from the Gr. *αμβολη αναβολη*, clothing, a warm kind of garment, lined or doubled, worn by the Greeks and Romans, chiefly out of the city, in following the camp.—*Abolla* seems to have stood opposed to the *toga*, which was a garment of peace, as the *abolla* was of war. Kings appear to have used it, and Caligula was jealous of the notice attracted by king Ptolemy for appearing at the shows in a purple one. It was also worn by judges in the execution of their office, whence the phrase of Juvenal: 'Facinora majores abolla.' *Mart.* viii. 46. v. 1.

ABOMASUM, or ABOMASIUM, names of the fourth stomach of ruminating animals. It is in the abomasus of calves and lambs, that the runnet, or earning, is formed, wherewith milk is curdled. See COMPARATIVE ANATOMY.

ABOMEY, the capital of Dahomey, on the Slave Coast of Africa, E. of Ashantee, about 100 miles from the sea. It consists of mud houses and huts scattered over a large area, and surrounded by a broad and deep ditch. The king's palaces, of which he has two within the town and one in the suburbs, are said to be ornamented in various parts with human skulls. Cotton is manufactured here with some success, and the colours used in dying it, are both bright and permanent.

ABOM'INATE, *v.*
ABOM'INABLE,
ABOM'INABLENESS,
ABOM'INABLY,
ABOMINA'TION.

Ab: *ominor*, to turn away from, as from an evil omen; to deprecate an ill omen; to turn away from, with loathing and detestation; to hate utterly, to execrate.

Thei knowlochen that thei knowen God; but bi dedis thei denyen whanne thei ben *abomynable*, and unbileeful, and reprenable to all good werk.

Wiclif. Tyte. chap. 1.

Al whom therfore by the whole thousande on an heape (for no fewer he nombreth them) dothe thys dywelyshe dronken soule *abomynably* blaspheme, and calleth them lyars and falsefiers of scripture, maketh them no better then draffe.

Sir Thomas More's Works, p. 679

I *abhor* such phanatical phantasms, such insociable and point-devise companions, such rackers of orthography, as do speak dout fine, when he should say doubt; det, when he should pronounce debt; d, e, b, t, not d, e, t. He clepeth a calf, cauf; half, hauf: neighbour, vocatur nebour; neigh abbreviated ne; this is *abhominable*, which he would call

abominable: it insinuateth me of insanie. Ne intelligis Domine, to make frantick, lunatick?

Shakspeare's Love's Labour Lost.

Where all life dies, death lives, and nature breeds,
Perverse, all monstrous, all prodigious things,
Abominable, inutterable, and worse
Than fables yet have feign'd, or fear conceiv'd,
Gorgons, and hydras, and chimeras dire.

Milton's Paradise Lost, b. ii.

This infernal pit
Abominable, accurs'd, the house of woe. *Milton.*

Pride goes hated, cursed, and *abominated* by all.

Hammond.

And the high places that were before Jerusalem, which were on the right hand of the mount of Corruption, which Solomon, the king of Israel, had builded for Ashtoreth the *abomination* of the Zidonians, and for Chemosh the *abomination* of the Moabites, and for Milcom the *abomination* of the children of Ammon, did the king defile. 2 *Kings*, xxiii. 13.

The queen and ministry might easily redress this *abominable* grievance, by endeavouring to choose men of virtuous principles.

Swift's Project for the Advancement of Religion.

Covetousness is idolatry, that the love of money is the root of all evil, that it has occasioned in some even the shipwreck of their faith, and is always, in whomsoever it obtains, an *abomination*.

Cowper's Letters

ABON, ABONA, or ABONIS, from *abbon*, or *avon*, Celt. a river, the ancient name of a river in Britain, supposed to be the Avon; also a town in Albion, supposed by Camden to be Abingdon, and by others, who argue from the distance, (9 miles from Venta Silurum) to be Porshut, upon Avon, opposite Bristol.

ABONY, a flourishing Hungarian settlement, in the Ketskemet and county of Pest.

ABORIGINES. The term *aborigines*, though now an appellative, was originally a proper name given only to a people of Italy, who inhabited ancient Latium. St. Jerome says, they were so called, as being, *absque origine*, the primitive planters of the country after the flood; Aurelius Victor, that they were called *Aborigines*, q. d. *Aberrigines*, from *ab*, from, and *errare*, to wander; as having been before a wandering people. The term in fact signifies, of unknown origin; and has therefore in ancient and modern times described the oldest inhabitants of any country.

ABORT', *a.* & *n.*
ABOR'TION,
ABORSE'MENT,
ABOR'TIVE,
ABOR'TIVELY,
ABORT'MENT.

Ab: *orior*, to rise from; to arise out of season; to bring forth prematurely, or before the time; to miscarry; to fail in bringing to perfection.

Of these words *abortion* and *abortive* only are in present use. They are all applied to animal and vegetable productions, and to imperfect or unsuccessful mental operations.

Thou eluish mark'd *abortive* rooting hogge,
Thou that wast seal'd in thy natiuitie
The slaue of nature, and the sonne of hell.

Shakspeare's Richard III. act i. sc. 3.

How often hast thou waited at my cup,
Remember it, and let it make thee crest-fall'n;
Ay, and allay this thy *abortive* pride.

Shakspeare's Henry VI. p. ii.

All th' unaccomplished works of nature's hand,
Abortive, monstrous, or unkindly mix'd,
Dissolv'd on earth, fleet hither.

Milton's Paradise Lost, b. iii. l. 456.

The void profound
Of unessential night receives him next,
Wide-gaping; and with utter loss of being
Threatens him, plung'd in that *abortive* gulf.

Idem, b. ii. l. 451.

Concealed treasures, now lost to mankind, shall be brought into use by the industry of converted penitents, whose wretched carcases the impartial laws dedicate, as untimely feasts, to the worms of the earth, in whose womb those deserted mineral riches must ever lie buried as lost *abortments*, unless those be made the active midwives to deliver them.

Bacon's Physical Remains.

Many politic conceptions, so elaborately formed and wrought, and grown at length ripe for delivery, do yet, in the issue, miscarry and prove *abortive*.

South's Sermons

Nor will his fruit expect
Th' autumnal season, but, in summer's pride;
When other orchards smile, *abortive* fail. *Phillips.*

Behold my arm thus blasted, dry, and wither'd,
Shrunk like a foul *abortion*, and decay'd,
Like some untimely product of the seasons. *Rowe.*

ABORTION, in midwifery, the exclusion of a fœtus before it has acquired a sufficient degree of perfection to enable it to perform respiration and the other vital functions. See MIDWIFERY.

ABORTIVE CORN, a distemper of corn mentioned by M. Gillet, and suspected to be occasioned by insects. It appears long before harvest, and may be known by a deformity of the stalk, the leaves, the ear, and even the grain.

ABORTIVE VELLUM, is made of the skin of an abortive calf.

ABOU-HANIFET, in Mahometan theology, a doctor and founder of a sect in the 8th century, who was imprisoned and died at Bagdad, A.D. 757, for his denial of predestination. His followers became numerous, and a mausoleum was built by one of the caliphs to his memory.

ABOUILLONA, or ABELLIONTE, a lake, island, and town of Asiatic Turkey, at the foot of Olympus, and supposed to contain the scite of the ancient Apollonia. It is distant eight miles, and a stream called Lupat communicates from the W. of the lake to the sea of Marmora.

ABOUKIR, a town of Egypt, 10 miles N. E. of Alexandria, between the sea, and the lake Mareotis. It is the ancient Canopus, according to M. Savary, and stands upon a ridge of rocks which communicates with Aboukir, a small island, about a league from the town, mentioned by Pliny and Strabo.

ABOUKIR BAY, formed by the same ridge of rocks, offered the best landing place which Sir Ralph Abercrombie could select for the disembarkation of the British army in 1801, (see Abercrombie,) and is distinguished in the British annals as the scene of the memorable battle of the Nile, (or of Aboukir,) fought by our intrepid NELSON, 1st of August, 1798.

ABOULFEDA, (Ismael,) prince of Hamah in Syria, one of the most celebrated of the Arabian geographers and historians. He was born at Damascus in 1273, and soon became distinguished

by his learning. In 1321 he wrote an important geographical work, which Grævius published in London, in 1660. He wrote also the lives of Mahomet and Saladin; the former was printed at Oxford in 1723, and the latter at Leyden in 1732. His Annals of Mahometanism, a work in high estimation, was published with a Latin version at Copenhagen, in 5 vols. 4to. in 1789—1794. He was a soldier as well as a scholar, and served in several expeditions with his father; was present at the storming of Tripoli in 1289, and in 1291 at the capture of Acre, distinguishing himself as well by his skill as his bravery. He died in 1331. Professor White gives several chapters of extracts from Abulfeda in his Pocock's Specimen Hist. Arabum, Oxon. 1806.

ABOULOLA, (Ahmed,) an eminent Arabian poet, blind, like our great Milton; but esteemed one of the principal ornaments of his country. He was born A.D. 973, and died 1057.

ABOUTIGE, or ABUTIGE, a market-town in Upper Egypt, near the Nile, where quantities of poppies grow, of which the natives make the best opium in the Levant. It was formerly the *abotis* of *Stephanus*.

ABOVE', *prep.* and *adv.* Ang. Sax. bufan, be-ufan; top or head. Written variously by our older writers. It designates the upper or uppermost, and is much used as a prefix in composition.

And God sent him tokenyng on nyght als he slepe,
Dat he suld fynd a palmere orly at morn,
At pe south zate, alone as he was born,
And if he wild praie him, for Jhesu Crite's loue,
He wild dope bataile, and pe suld be *aboue*.
R. Brunne, p. 32.

But one thing yet there is aboue all other
I gaue him winges, wherewith he might up flie
To honour and fame; and if he would to hygher
Then mortal things *aboue* the starry skye. *Wyatt.*

Descend from Heav'n, Urania, by that name
If rightly thou art call'd, whose voice divine
Following, *above* th' Olympian hill I soar
Above the flight of Pegasean wing. *Milton.*

The inhabitants of Tirol have many privileges *above* those of the other hereditary countries of the emperor. *Addison.*

True dignity is his, whose tranquil mind
Virtue has raised *above* the things below;
Who, every hope and fear to heaven resigned,
Shrinks not, though Fortune aim her deadliest blow.
Beattie's Minstrel.

ABOUND', *v.* ABOUND'ING, ABUN'DANCE, ABUN'DANT. ABUN'DANTLY, } Abundo, ab: from *unda*, a wave. A metaphor derived from water when it exceeds the bounds which should contain its stream. Hence, to overflow; to be rich; to have in great plenty.

And, brethren, we preien ghou, that ghe knowe hem that traueilen among ghou, and ben souereyns to ghou in the lord, and techen ghou that ghe haue hem *aboundauntli* in charite, and for the werk of hem haue ghe pees with hem. *Wiclif.* 1 Tessal. chap. v.

For well I wot, most mighty sovereign,
That all this famous antique history,
Of some th' *abundance* of an idle brain
Will judged be, and painted forgery. *Spenser.*

Good, the more
Communicated, more *abundant* grows;
The author not impair'd; but honour'd more.
Paradise Lost, b. v.

God on thee
Abundantly his gifts hath also pour'd:
Inward and outward both, his image fair.
Paradise Lost, b. viii.

Let the waters bring forth *abundantly* the moving creature that hath life. *Genesis* i. 20.

Their chief enterprise was the recovery of the Holy Land; in which worthy, but extremely difficult action, it is lamentable to remember what *abundance* of noble blood hath been shed, with very small benefit unto the Christian state.
Sir Walter Raleigh's Essays.

At the whisper of thy word,
Crown'd *abundance* spreads my board. *Crashaw*

Circles are prais'd, not that *abound*
In largeness, but the' exactly bound:
So life we praise that does excel,
Not in much time, but acting well. *Waller*

The doubled charge his subjects' love supplies;
Who, in that bounty, to themselves are kind:
So glad Egyptians see their Nilus rise;
And, in his plenty, their *abundance* find.
Dryd. Ann. Mir.

Heroic poetry has ever been esteemed the greatest work of human nature. In that rank has Aristotle placed it; and Longinus is so full of the like expressions, that he *abundantly* confirms the other's testimony. *Dryd. State of Innocence*, pref.

The river Inn is shut up between mountains covered with woods of fir-trees. *Abundance* of peasants are employed in hewing down the largest of these trees; that, after they are barked and cut into shape, are tumbled down. *Addis. on Italy.*

If the Prophecies have been fulfilled (of which there is *abundant* demonstration) the Scripture must be the word of God; and if the Scripture is the word of God, Christianity must be true. *Cowper's Letters.*

ABOUT', *prep.* and *adv.* Saxon abuꝺa, on buꝼa, or on boꝺa. The first limit or boundary of any thing. It also implies approximation to other things. About was also used like a verb in the imperative mood, and is so still in nautical phraseology. In this sense it is derived immediately from the French a-bout, a verb being understood.

Goggomagog was a geand swiþe grete and strong,
Aboute four and twenti fet me seiþ he was long.
R. Gloucester, p. 22.

Gold hath these natures: greatness of weight; closeness of parts; fixation; pliantness, or softness; immunity from rust; colour, or tincture of yellow: Therefore the sure way (though most *about*) to make gold, is to know the causes of the several natures before rehearsed. *Bacon's Natural Hist.* No. 328.

About him all the sanctities of Heav'n
Stood thick as stars, and from his sight receiv'd
Beatitude past utt'rance. *Milton.*

My brain, *about* again; for thou hast found
New projects now to work upon. *Iron Age.* 1632.

Children should always be heard, and fairly and kindly answered, when they ask after any thing they would know, and desire to be informed *about*. Curiosity should be as carefully cherished in children, as other appetites suppressed. *Locke.*

Even in the hour of death, he (the good man) considers the pains of his dissolution to be nothing else than the breaking down of that partition which stands betwixt his soul, and the sight of that being who is always present, and is *about* to display himself to him in fulness of joy. *Spectator.*

ABRA, a silver coin of Poland, formerly

worth about one shilling sterling, also a coin of Poland of the value of three half-pence.

ABRA, an island of the Southern Ocean, in the straits of Magellan, at the entrance of the passage, as it is called.

ABRABANEL, ABARBANEL, or AVRAVANEL, (Isaac,) a celebrated rabbi, born at Lisbon, in 1437, and said to be descended from king David. He was counsellor to Alphonso V, and afterwards to Ferdinand I. but was obliged to leave Portugal along with his brethren Jews, in 1492. Though he was an avowed enemy to Christianity in his writings, yet he treated Christians with politeness. The Jews called him the sage, the prince, and the great politician. He wrote a commentary on the Old Testament, which is scarce; a Treatise on the Creation, wherein he refutes Aristotle's notion of the eternity of the world; another on the prophecies relating to the Messiah, against the Christians; with a work concerning articles of Faith, and some others of less importance. He died at Venice in 1508, aged 71.

ABRACADABRA, is said to have been the name of a god worshipped by the Syrians, and was recommended as a magical antidote against agues and fevers. It was written in a kind of inverted cone, omitting the last letter of the former every time it was repeated: thus,

α β ρ α κ α δ α β ρ α
α β ρ α κ α δ α β ρ
α β ρ α κ α δ α β
α β ρ α κ α δ α
α β ρ α κ α δ
α β ρ α κ α
α β ρ α κ
α β ρ α
α β ρ
α β
α

ABRADATES, in ancient history, a king of Susa who surrendered himself to Cyrus, and was killed in battle for the Persian cause. *Xenoph. Cyrop.* v.

ABRAHAM, אברהם, Heb. i. e. Father of a great multitude, the youngest son of Terah, and the 10th in descent from Noah, founder of the Jewish nation. One fourth of the book of Genesis is occupied with his history; and to its ample and authentic details we refer the reader. In the first ages of Christianity, the Sethians dispersed a work entitled *Abraham's Revelation;* and a work *on the Creation*, ascribed to him, which is mentioned in the Talmud, was printed at Paris in 1552: Rittangel, a converted Jew, professor at Konigsberg, published it with remarks, in 1642.

ABRAHAM, (Nicholas,) a learned Jesuit, of Lorrain, born in 1589, and seventeen years professor of Divinity in the university of Pont-a-Mousson. He wrote a Collection of Theological pieces in folio, entitled *Pharus Veteris Testamenti;* Notes on Virgil and Nonnius; a Commentary on some of Cicero's Orations, in 2 vols. folio, and other works.

ABRAHAMIANS, or ABRAHAMITES, a sect of monks, in the 9th century, who were exterminated by Theophilus for worshipping images; also a sect which, in the 8th century, renewed the errors of Paulus; but were suppressed by Cyriacus, patriarch of Antioch.

ABRAM'S CREEK, a river of North America, entering the Hudson, about 4 miles from the city of that name, in the state of New York.

ABRAMIS, in ichthyology, the *Cyprinus latus*, or bream.

ABRANTES, a town of Portugal, in Estremadura, seated on the Tajus, and giving name to a marquisate. It is surrounded with gardens and olive yards, and occupies a most romantic situation. Distant 45 miles E. of Lisbon.

ABRASA, in medicine, ulcers attended with abrasion of part of the substance, or where the skin is so tender as to be subject to ABRASION.

ABRASAX, or ABRAXAS, the name given to the Deity by the Basilidian heretics, and composed of Greek numerals, which amount to the number 365. For Basilides taught that there were 365 heavens between the Empyrean heaven and the earth; each of which had its angel that created it, and each of whom again was created by the next superior angel, thus ascending by a scale to the supreme Creator. Some authors allege that the Basilidians concealed the doctrine of the Trinity, under this word, and that the initials α, β, ρ, stand for the Hebrew words *Ab*, *Ben*, *Rouah*, i. e. Father, Son, and Spirit. Windelin, of Tournay, improving upon this, explains the whole word thus,

A	Ab	Pater — — —	1
B	Ben	Filius — — —	2
P	Rouah Kakadosh	Spiritus Sanctus	100
A	Ανθρωπος	homines — —	1
Σ	Σωζων	salvans — —	200
A	Αγιω	per sacrum —	1
Ξ	Ξυλω	lignum — —	60
			365

It is also frequently put for the stone, or medal, on which the word was engraved.

ABRASION, in medicine, the wearing away, or paring off, superficial ulcerations.

ABRAUM, in natural history, a popular name for a species of red clay, used in England by the cabinet-makers, &c. to give a red colour to new mahogany wood.

ABREAST, a maritime phrase, signifying side by side, or even opposite to; and used to denote ships lying, or sailing, with their sides parallel to each other. It has a more particular reference to the line of battle at sea. When the line is formed *abreast*, the whole squadron advances uniformly and evenly; the commander-in-chief being always stationed in the centre, and the ships equi-distant from each other. *Abreast* of any place, signifies being opposite to it. In the interior of the ship, *abreast* means to be on the starboard or larboard side of the main hatchway, in opposition to *afore* or *abaft* the hatchway.

ABREAST. See BREAST.

ABREIRO, a market-town of Trast-los-Montes, in Portugal, comprehending a district of ten parishes, belonging to the Villa-Real family.

ABRENTIUS, in ancient history, the governor of Tarentum, appointed by Hannibal, who gave up that city to the Romans at the instigation of a beautiful woman.

ABRETTENE, or ABRETTINE, in ancient geography, a district of Mysia, in Asia, from which the epithet Abrettenus was given to Jupiter. *Strabo.*

ABREUVOIR, in military affairs, a tank to receive water in the case of encampment; also, small trenches in stone quarries to carry off the water.

ABRI, in military affairs, shelter, or protection, as that derived from a wood, &c.

ABRIDGE', *v.* } *Abreger*, Fr. from the German Brechen, *to break*.—Sax.
ABRIDG'ER, } Abræccan, nearly synonimous
ABRIDG'MENT. } with abbreviate; to shorten, to lessen, to give the same substance, or that portion of it which may be considered necessary in less compass than the original, to make an abstract.

Largesse it is, whose priuilege
There maie no auarice *abrege*.
Gower Con. A. b. vii.

Surely this commandment containeth the law and the prophets; and, in this one word, is the *abridgement* of all volumes of Scripture. *Hooker*, b. ii. sec. 5.

THES. Say, what *abridgment* have you for this evening?
What mask? what musick? how shall we beguile
The lazy time, if not with some delight?
PHILOST. There is a *brief*, how many sports are ripe;
Make choice of which your highness will see first.
Shakspeare's Midsummer Night's Dream.

I have disabled mine estate,
By shewing something a more swelling port,
Than my faint means would grant continuance;
Nor do I now make moan, to be *abridg'd*
From such a noble rate. *Shaksp. Merchant of Venice.*

After thou hadst drawn that large and real map of the world, thou didst thus *abridge* it into this little table of man: he alone consists of heaven and earth, soul and body. *Hall's Contemplations.*

They were formerly, by the common law, discharged from pontage and murage; but this privilege has been *abridged* them since, by several statutes.
Ayliffe's Parergon Juris Canonici.

It is not barely a man's *abridgment* in his external accommodations which makes him miserable; but when his conscience shall tell him that it was his sin and his folly which brought him under that *abridgment*.
South.

Idolatry is certainly the first-born of folly, the great and leading paradox; nay the very *abridgment* and sum total of all absurdities. *South's Sermons.*

All trying, by a love of littleness,
To make *abridgments*, and to draw to less
Even that nothing, which at first we were. *Donne.*

The constant desire of happiness, and the constraint it puts upon us, no body (I think) accounts an *abridgment* of liberty; or at least an *abridgment* of liberty to be complained of. *Locke.*

ABROACH', *v.* and *adv.* Sax. *Abræcan*, to break. To abroach, or broach a vessel, is to break into it, to tap it, to prepare to draw off its contents. Hence figuratively, to commence, to set any thing going. Broach has also a different signification, which see under the word.

From when had you this doctrine M. Hardinge? who set it first *abroche*? who taught it? who confirmed it? who allowed it?
Jewel's Defence of the Apologie.

Let but some upstart heresy be set *abroach*, and presently there are some out of a curious humour; others, as if they watched an occasion of singularity, will take it up for canonical, and make it part of their creed and profession.
Bishop Wilkins's Discovery of a New World.

The jars of gen'rous wine
He set *abroach*, and for the feast prepar'd
Dryd. Virgil.

Hast thou no friend to set thy mind *abroach*?
Good sense will stagnate. Thoughts shut up want air
And spoil, like bales unopen'd to the sun.
Young's Complaint, night ii.

ABROAD', *adv.* Broad from the Ang. Sax. Brœdan, Abrœdan, to broaden, enlarge, extend. The orthography of this word differs among ancient writers. See the following authorities. Opposed to home, or at home.

With thulke stroc he smot al of the scolle and ek the croune,
That the brain orn al *abrod* in the pauiment their doune. *R. Gloucester*, p. 476.

Ane felloun rusche it maid and sound withall
And large *on brede* ouer Grekis routes did fal.
Douglas, b. ii. p. 54.

Crowns in my purse I have, and goods at home
And so am come *abroad* to see the world.
Shakspeare's T. Shrew.

On cherubim and seraphim full royally he rode,
And on the wings of mighty winds came flying all *abroad*. *Sternhold.*

Intermit no watch
Against a wakeful foe; while I *abroad*,
Thro' all the coasts of dark destruction, seek
Deliverance. *Milton's Par. Lost*, b. ii. l. 463.

Again the lonely fox roams far *abroad*,
On secret rapine bent, and midnight fraud;
Now haunts the cliff, now traverses the lawn,
And flies the hated neighbourhood of man. *Prior.*

Welcome, Sir!
This cell's my court; here have I few attendants,
And subjects none *abroad*. *Shaksp. Tempest.*

Lady —— walked a whole hour *abroad*, without dying after it. *Pope's Letters.*

What learn our youth *abroad*, but to refine
The homely vices of their native land?
Dryd. Span. Friar.

He who sojourns in a foreign country, refers what he sees and hears *abroad*, to the state of things at home. *Atterb. Serm.*

We have no slaves at home. Why then *abroad*?
Cowper.

ABROCHMENT, or ABROCAMENTUM, in old law. See ABBROCHMENT.

AB'ROGATE, } Ab *rogo*: Rogare legem,
ABROGA'TION, } or facere rogationem populi, among the Romans, to propose a new law to the people in order to obtain their sanction to its passing. A successful application to the same authority was essential to the repeal of a law; hence also, *abrogare* legem; conformably to the latter usage, to unmake, repeal, annul, or make void, are the significations in English.

Besides this all estatutes made by king Edward were clerely reuoked, *abrogated*, and made frustrate.
Hall, p. 286.

I do not *abrogate* the grace of God, for if righteousnesse be by the law, then Christ died without a cause. *Geneva Bible*, 1561. Gal. chap. ii. v. 21.

Laws have been made, upon special occasions; which occasions ceasing, laws of that kind do *abrogate* themselves. *Hooker*, b. iv. sec. 14.

The negative precepts of men may cease by many instruments, by contrary customs, by public disrelish,

by long omission: but the negative precepts of God never can cease, but when they are expressly *abrogated* by the same authority.

Taylor's Rule of Living Holy.

The commissioners from the confederate Roman catholics demanded the *abrogation* and repeal of all those laws, which were in force against the exercise of the Roman religion. *Clarend.* b. viii.

ABROHANNI, Abroani, or Mallemolli, a kind of muslin, or clear, white, fine cotton cloth, brought from the East Indies, particularly from Bengal.

ABROLHOS, or Abrolkos, dangerous shoals about fifty miles from the coast of Brazil, and near the Island of St. Barbe. Their centre is in lat. 17°, 51′. S. Long. 39°, 18′. W.

ABROMA, in botany, a genus of the class polyadelphia, and order dodecandria. It has been denominated Indian flax, as being excellent for making cordage. The fibres are interwoven with the bark, and are remarkably beautiful, fine, and strong. To procure their separation from the parenchymatous substance, they are macerated in water from four to eight days. The world owes to Dr. Roxburgh this important discovery. See his paper on the subject in *Memoirs of the Society of Arts for* 1804.

ABRON, a river of France, entering the Loire, between Avril and Lamotte.

ABRONO, or Abrugi, in botany, a name given by Serapion and others to the heart pease.

ABROTANUM, in botany. See Artemisia and Santolina.

ABROTANOIDES, in natural history, a coral in the form of the abrotanum.

ABROTONUM, in ancient geography, a town on the Mediterranean, in the district of Syrtis Parva, in Africa. *Pliny*, v. 4.

ABRUG-BANYA, a populous town in Transylvania, on the river Ompay, 21 miles above Alba Julia. There are mines of gold and silver near it, and the mine court was formerly held in it. It is the chief of what are called the Metal towns.

ABRUGI. See Abrono.

ABRUPT′, *adj.* } Ab: *rumpo*, *ruptum*, to
Abrup′tion, } break off, or away from.
Abrupt′ly, } Broken off from. These
Abrupt′ness } words express or imply sudden, violent, or unexpected separation of a part from the whole.

Pardon, if my *abruptnesse* breed disease;
" He merits not t' offend that hastes to please."
Jonson.

The devel he is a spirit, and hath means and opportunitie to mingle himselfe with our spirits, and sometimes more slily, sometimes more *abruptly* and openly, to suggest devellish thoughts into our hearts.

Burton's Anatomy of Melancholy.

Abrupt, with eagle-speed, she cut the sky;
Instant invisible to mortal eye.

Pope's Homer's Odyssey, b. i.

Abrupt and horrid as the tempest roars,
Thunder and flash upon the steadfast shores,
Till he, that rides the whirlwind, checks the rein,
Then all the world of waters sleeps again.

Cowper's Retirement.

ABRUS, in botany, the trivial name of the Glycine. See Glycine.

ABRUZZO, a mountainous province of Naples, bounded on the E. by the gulph of Venice; on the N. and W. by Ancona, Umbria and the Campagna of Rome; and on the S. by the Terra di Lavora and Molise. It is divided into two parts by the river Pescara, called Ulteriore and Citeriore. The former has Aquila, and the latter Sulmona, for its capital. The country, though cold, is fertile in corn, rice, fruits, saffron, vines and olives. The rice of Teramo is little inferior to that of Lombardy. A great deal of it is exported, as well as of oil, wines, and Turkey wheat; but the staple commodity is wool, the greatest part of which is sent off unwrought, there being no woollen manufactures in the province, except two small ones of coarse cloth. The sheep, after spending the summer on the mountains, are brought down to pass the winter in the warm plains of Puglia, and some other places on the coast, where the snow does not lie. This whole coast, one hundred miles in length, is utterly destitute of sea-ports; and the only spots where the produce can be embarked are dangerous inconvenient roads, at the mouths of rivers and along a lee shore. Villages, castles, and feudatory estates, are to be met with in abundance; but the numbers of their inhabitants are to be reckoned by hundreds, not thousands: the political and social system being here wholly in decay. Monte-corno and Mayallo are among the most interesting natural features of the province; the first evidently contains many valuable veins of metallic ore; but the great difficulty of access renders the search of them almost impracticable. Mayallo has other merits, and of a gayer kind.—Nature has clothed its declivities and elevated fields with an infinite variety of her most precious plants; vulnerary herbs grow there in as great perfection as on the Alps of Swisserland, and are applied by the natives to wounds with equal success. The warlike nations, who descended hither from the north, have left many traces of their customs and languages, as well as numerous monumental inscriptions; and the inhabitants are said to differ remarkably from the more southern Neapolitans.

ABSCESS, in surgery, from *abscedo*, to depart: a cavity containing pus, or, a gathering of matter; so called, because the parts which were joined are now separated; one part receding from another, to make way for the collected matter. See Surgery.

ABSCIND′, *v.* } Ab: *scindo*, to cut off or
Abscis′sion. } away from. Applied naturally, and to operations in surgery, &c. figuratively in medicine, astrology, rhetoric, and divinity.

Fabricius ab Aquapendente renders the *abscission* of them difficult enough, and not without danger.

Wiseman's Surgery.

By cessation of oracles, with Montacutius, we may understand this intercision, not *abscission* or consummate desolation. *Brown's Vulgar Errours*, b. vi. c. 12.

When two syllables likewise are *abscinded* from the rest, they evidently want some associate sounds to make them harmonious *Rambler.*

ABSCISSE, or Abscissa, in mathematics, part of the diameter or transverse axis of a conic section, intercepted between the vertex, or some

other fixed point and a semiordinate. In a more general sense, it is the segment of a line terminated at some certain point, cut off by an ordinate to a curve.

Abscission in astrology, is when one planet outstrips another, and joins a third before it, and so cuts off the light of the first.

Abscission, in rhetoric, a figure of speech whereby the orator stopping short in the middle of his discourse leaves the audience to draw the inference: e.g. "He started from me, toward the edge of the precipice, and my attention being caught for the moment by another voice ——. In the next, I heard a plunge in the water——. I need add no more."

Abscission, in surgery, the act of taking away something morbid or unsound in the fleshy or membraneous parts of the body. Sometimes also applied to sudden death.

ABSCOND', *v.* Abs: *condo*, to hide from, to remove to a place of secrecy.

The marmotte, or mus alpinus, which *absconds* all winter, lives on its own fat: for in autumn, when it shuts itself up in its hole, it is very fat: but in the spring-time, when it comes forth again, very lean. *Ray on the Creation.*

Outlawry always supposes a precedent right of arresting, which has been defeated by the parties *absconding*. *Blackstone's Commentaries.*

ABSCONSIO, in anatomy, a hiding or concealing of the head of one bone in the cavity of another.

AB'SENT, *v. adj.*
Ab'sence,
Absentee',
Absent'er,
Absent'ment. } Ab: *esse*. Participial adj. Absens. To be away from, to withdraw. Applied more particularly to persons, and intimates rather a temporary removal than final departure.

The archebisshop desirying the duke (Henry of Lancaster) to *absent* all other persons than suche as were his co-panions saied these or like wordes of him. *Hall.*

So, badde is nothing els but *absence* or negatiue of good, as darkness is *absence* or negatiue of light. *Chaucer's third Booke of the Test of Love.* folio 309, col. 1.

Night with her will bring
Silence, and sleep; listening to thee will watch,
Or we can bid his *absence* till thy song
End, and dismiss thee ere the morning shine.
Milton's Paradise Lost, b. vii.

Our Lord being *absent* in body from us (sitting in Heaven at God's right hand), to supply that *absence* that we should not be apt to forget him, and thereby become wholly estranged from him, is pleased to order this occasion of being present, and conversing with us in such a manner as may retain in our memories his gracious performances for us; may impress in our hearts a kindly sense of them; may raise us up in mind and affections. *Barrow.*

A great part of estates in Ireland are owned by *absentees*; and such, as draw over the profits raised out of Ireland, refunding nothing. *Child's Discourse on Trade.*

ABSENTEE, in political œconomy, may describe those who are systematically absent from any country, or, indeed, any particular station; but has been in modern times more particularly applied to those land-owners and churchmen of Ireland who reside in England or on the continent.

The political demerits of this class of landholders have been, on some occasions, exaggerated; they have been said to contribute nothing to the good government or prosperity, and to constitute altogether an unnatural and oppressive burden on the resources of a country. Taxes on absenteeship from Ireland were, for a length of time, therefore, popular in that country. In 1715, a tax of four shillings in the pound was levied on all profits, employments, fees, and pensions, derived from Ireland, in all cases where the persons receiving them should not reside in that country for six months of the year; power to grant leave of absence being reserved to the crown. This dispensing power, however, was brought so much into exercise, as to render the act of little practical operation, and in 1753 it ceased to be renewed. Mr. Flood, the great Irish orator, proposed in 1773, a more general measure, i. e. a tax of two shillings in the pound on the emoluments of absentees, without exception; and the bill was at first supported by the Irish government; but some communications from England inducing the lord lieutenant to withdraw his support, the measure was lost in a division of 122 to 102. In 1783 the question was renewed in the Irish House of Commons, by Mr. Molineux, but again lost by a division of 184 to 122.

Such is the history of a direct tax upon absentees, and the different attempts at taxing them in Ireland; which, as proceeding upon the theory of their being wholly a burden to the country, must be unjust: they can enjoy but the surplus profit of that capital and labour which employ humbler, and, it may be granted, *more* useful classes of the community. Still *their* capital so in operation must be a benefit as far as it goes, to the country in which it is working, and not an injury. As a punishment, such a tax is manifestly impolitic, and calculated only to inflame animosity, and inspire contempt of the legislature imposing it. Persons who can afford to live entirely out of the country, are generally those of superior rank and influence: they would wholly withdraw their capital from it, in many instances, and will despise that attempt to control their movements which they have unusual power of resenting. The justice of this reasoning, according to Mr. Hardy, the biographer of Lord Charlemont, led to the rejection of the absentee tax in 1773. It was felt that a general land tax was likely to result from this partial one proposed upon the absentees. "If the powerful interest of that body," argued the great commoner, "had hitherto been able to secure interest against such a tax, the same interest would be sufficient, and would be exerted to introduce it, in order that the other inheritors of landed property should as such, be made to pay a tax as well as themselves." In opposition to this, Dr. Smith argues, —Those who live in another country contribute nothing by their consumption, towards the support of the government of that country in which is situate the source of their revenue. If, in this latter country, there should be no land tax nor any considerable duty on the transference either of moveable or immovable property, as is the case in Ireland,

such absentees may derive a great revenue from the protection of a government, to the support of which they do not contribute a shilling. This inequality is likely to be greatest in a country of which the government is, in some respects, subordinate or dependent on that of some other. The people who possess the most extensive property in the dependent, will in this case generally choose to live in the governing country. Ireland is precisely in this situation, and we cannot therefore wonder that the proposal of a tax upon absentees, should be so very popular in that country. It might, however, be a little difficult to ascertain, either what sort, or what degree of absence might subject a man to be taxed as an absentee; or at what precise time the tax should either begin or end."

But while we hold legislation, or at least compulsory laws on such a subject impolitic, and even unjust; freedom of intercourse throughout all the parts of an extended, civilized empire, being one of the best portions of our birthrights in it; and while the evils of absenteeship may have been exaggerated, we also regard them as real and great; and that they suggest many important moral and political considerations, to men of property connected with Ireland.

That unhappy country suffers from such a withdrawment of her proper supporters and governors, in the curse of *middle men*; in the notorious want of influence and example to stimulate improvement; and in the practical discouragement of all attempts to form a respectable yeomanry, which follow in its train. It is not merely the money spent in the neighbourhood of a gentleman's seat in England, any more than it is his ill-painted coat of arms, or effigy, as the sign of the neighbouring village ale-house, that constitutes the most beneficial tie between the resident proprietor and the neighbouring country; it is his presence, as the chief of a system, at the head of authority, of property, of all improvements, public spectacles, and even of all the public amusements, that diffuses order, prosperity, and happiness.

As to churchmen, we understand that the gross evil of their late notorious absenteeships has engaged the attention of the government, both in its civil and ecclesiastical administration. For who can be surprised at the increase of the Catholics in numbers, property, and every kind of local influence when the appointed lights of the land are withdrawn? Or when they are exhibited to an impoverished peasantry only in the character of voracious consumers of tythe?

Writers of all parties agree in the difficulty of estimating the mischiefs that arise from the great prevalence of middle men in Ireland, and that necessarily attend the existence of absenteeship in every country. Letting and sub-letting, thus, has multiplied without end.

Now, that the rent of land, as well as that of other real property, should be fairly secured by any produce that may be derived from it, seems on the face of things to be as reasonable in Ireland as in England or elsewhere. But the almost incredible number of persons that are interposed between the absentee proprietor and the cultivator of the soil in that country, grinds the actual farmer to the earth; involves the whole business of agricultural property in legal subtleties; and makes the taking of land by a plain and sober small capitalist the height of presumption and folly. He is, in fact, never secure; he may repay his rent again and again to half a dozen claimants. This has banished practical men of this class, and produced an endless subdivision of excellent farms among desperate adventurers that have nothing to lose.

ABSINTHITES, ABSINTHIAS, or ABSINTHIATED, tinged or impregnated with the virtues of *absinthium*, or wormwood. In *Bartholin's Act. Med.* (tom. ii.) we read of a woman whose milk was become *absinthiated*, and rendered as bitter as gall, by the too liberal use of wormwood. *Vinum absinthites*, or *poculum absinthiatum*, wormwood wine, is much spoken of among the ancients, as a wholesome drink, and even an antidote against drunkenness. Fehr. shews that it should be prepared by fermentation, in order to correct crudities, and call forth a volatile salt.

ABSINTHIUM, in botany, from *a. priv.* and ψινθος, pleasure, wormwood. See ARTEMISIA.

ABSIS, ABSES, or APSIDES. See APSIS.

ABSOLVE', *v.* ABSOLV'ER, AB'SOLUTE, AB'SOLUTELY, AB'SOLUTENESS, ABSOLU'TION, ABSOLU'TORY. Ab: *solvo*, to loose, to untie, to set free. Figuratively to release from the penal consequences of crime, to pardon, acquit, or declare innocent. The adjective and words immediately derived from it express freedom, independence, perfection of state, or existence.

But let the sonne of perdicion perishe, and *absolue* we the chapter, the angel yet speking with Daniel.
The Exposicion of Daniel, by George Joye, p. 146.

We must know what is to be meant by *absolute*, or *absolutenes*; whereof I find two main significations. First, *absolute* signifieth perfect, and *absolutenesse* perfection; hence we have in Latin this expression, Perfectum est omnibus, numeris absolutum. And in our vulgar language we say, a thing is *absolutely* good, when it is perfectly good. Next, *absolute* signifieth free from tye or bond.
Knox's History of the Reformation. Preface.

DUKE. So then you hope of pardon from Lord Angelo?
CLAUD. The miserable have no other medicine
But only hope: I've hope to live, and am prepared to die.
DUKE. Be *absolute* for death: or death or life
Shall thereby be the sweeter.
Shakspeare's Measure for Measure.

And of that nature (for the most part) are things, *absolutely* unto all men's salvation necessary, either to be held or denied, either to be done or avoided.
Hooker's Preface.

A monarchy, where there is no nobility at all, is ever a pure and *absolute* tyranny; as that of the Turks. For nobility attempers sovereignty, and drawes the eyes of the people somewhat aside from the line royal. *Lord Bacon's Essays.*

Being as I am, why didst not thou
Command me *absolutely* not to go,
Going into such danger, as thou saidst?
Parad. Lost. b. ix.

The *absoluteness* and illimitedness of his commission was generally much spoken of. *Clarendon.* b. viii.

My crown is *absolute*, and holds of none:
I cannot in a base subjection live;
Nor suffer you to take, though I would give.
Dryd. Ind. Emp.

The *absolution* pronounced by a priest, whether papist or protestant, is not a certain infallible ground to give the person, so *absolved*, confidence towards God. *South's Sermons.*

Although it runs in form *absolute*, yet it is indeed conditional; as depending upon the qualification of the person, to whom it is pronounced. *Idem.*

The prince long time had courted fortune's love;
But, once possess'd, did *absolutely* reign;
Thus, with their Amazons, the heroes strove;
And conquer'd first those beauties they would gain.
Dryden's Annus Mirabilis.

Chief, let devotion to the sovereign mind,
A steady, cheerful, *absolute* dependence
On his best, wisest government, possess thee.
Mallet.

I see still the distinctions of sovereign and inferior, of *absolute* and relative worship, will bear any man out in the worship of any creature with respect to God; as well at least, as it doth in the worship of images. *Stilingfl. Def. of Disc. on Rom. Idol.*

An *absolute* mode is that, which belongs to its subject, without respect to any other beings whatsoever; but a relative mode is derived from the regard, that one being has to others. *Watts's Logic.*

A firm persuasion of the superintendence of Providence over all our concerns is *absolutely* necessary to our happiness. *Cowper's Letters.*

ABSOLUTE, in metaphysics, denotes that being whose essence does not consist in a mere habitude or relation to another, and stands opposed to *relative* or *respective*. It is more particularly understood of that which does not proceed from any cause, and is independent of any other being, considered as its cause; in which sense, God alone is *absolute*.

Absolute Equation, in astronomy, is the aggregate of the optic and eccentric equations. See Equation.

Absolute Estate, in law, one free of all conditions and incumbrances.

Absolute Government, that wherein the government is above the law, and not, as in this country, a creature of the law.

Absolute Gravity, among philosophers, that property in bodies, by which they are said to weigh so much, with regard to circumstances of modification, and which is, in that respect, distinct from specific gravity.

Absolute Number, in Algebra. See Algebra.

Absolute Space, Place, Motion, &c. See the Substantives.

ABSOLUTION, in civil law, is a sentence whereby the party accused is declared innocent of the crime laid to his charge. Among the Romans, the ordinary method of pronouncing judgment was this: after the cause had been pleaded on both sides, the prætor used the word *dixerunt*, q. d. they have said what they had to say; then three ballots were distributed to each judge, marked as mentioned under the article A; and as the majority appeared of either mark, the accused was *absolved* or condemned, &c. If he were absolved, the prætor dismissed him with *videtur non fecisse*, or *jure videtur fecisse*.

Absolution, in the canon law, is a juridical act, whereby the priest declares the sins of penitents remitted. The Romanists hold absolution a part of the sacrament of penance, and the council of Trent, sess. xiv. cap. 3. declares the essence of the sacrament to lie in the words of *absolution*. The *formula* of absolution, in the Romish church, has been said to be absolute; in the Greek church deprecatory; and in the churches of the reformed, declarative. But this is a matter strongly contested between protestants at large and the Romanists; as well as between the dissenters of England and the Anglican church. Dissenters object, generally, to all forms of absolution which suppose a power residing in mortals to appease the conscience, or purify the character of a sinner. The church of England, and all protestants, oppose the absolute claims of the Romish hierarchy (as they at least understand them,) to forgive sins on earth. The form that Tetzel used in vending the indulgences which first awoke the indignation and resistance of Luther, has been often quoted, but is said by Catholics to be unauthentic. They have thus stated their opinions upon this subject:—"Catholics believe, that when a sinner repents of his sins from his heart, and acknowledges his transgressions to God and his ministers, the dispensers of the mysteries of Christ, resolving to turn from his evil ways and to bring forth fruits worthy of penance; there is then (and not otherwise) an authority left by Christ to absolve such a penitential sinner from his sins: which authority we believe Christ gave to his apostles and their successors, the bishops and priests of his church, in these words, when he said, "Receive ye the Holy Ghost," &c.

The foregoing is an extract from an authentic catholic work, entitled, "The Faith of Catholics confirmed by Scripture, and attested by the Fathers of the first five centuries of the Church," by the Rev. Messrs. Berrington and Kirk, Lond. 1813. The same work confirms the proposition stated by these assertions of St. Ephrem of Edessa:—"The exalted dignity of the priesthood is far above our understanding and the power of speech! *The remission of sins is not granted to mortals, but through the ministry of the priest.*" De Sacerdatio, i. p. 1: and these observationsof Chrysostom;—"Temporal princes have a power to bind but the body only; whereas the power of the priesthood binds the soul, and *reaches to heaven*. In this sense, that God ratifies above what the priests do here below, and the master confirms the sentence of his servants. And what is this but that all power, even the concerns of heaven, has been entrusted to them." *De Sacerd.* iii. c. 5.

ABSONIARE, in old records, to shun, avoid or detest; a term introduced in the Anglo-Saxon oaths of allegiance.

ABSORB', v. } Absorb'ent, } Absorb'ing, } Absorp'tion. } Ab: *sorbeo*, to drink up; to swallow; to imbibe; to devote one's whole time and attention to a pursuit, so as to be insensible to others; to contemplate intensely.

The rays of the sun are reflected from a white body, but *absorbed* by a black one.
Bacon's Distribution of Knowledge

It was below the dignity of those sacred penmen, or the Spirit of God that directed them, to shew us the causes of this disruption, or of this *absorption*: this is left to the enquiries of men.

Burnet's Theory of the Earth.

Moses imputed the deluge to the disruption of the abyss; and St. Peter to the particular constitution of that earth, which made it obnoxious to be *absorpt* in water. *Idem.*

Some tokens shew
Of fearless friendship, and their sinking mates
Sustain; vain love, though laudable, *absorpt*
By a fierce eddy, they together found
The vast profundity. *Phillips.*

An earthquake reel'd unheededly away!
None felt stern Nature rocking at his feet,
And yawning forth a grave, for those that lay
Upon their bucklers for a winding sheet;
Such is the *absorbing* hate when warring nations meet!

Lord Byron's Childe Harold.

ABSORBENT Vessels, a name given promiscuously to the lacteal vessels, lymphatics, and inhalent arteries. See Anatomy. Plants are also said to possess absorbent vessels in their fibrous and hairy roots.

Absorbents, in medicine. The term absorbent was introduced into chemistry by physicians, on the erroneous supposition that the faculty of withdrawing moisture from the air was confined to substances which freely unite with water; and hence applied to such as seemed to check diarrhœa, by the absorption of the redundant liquids.

The substance, says Dr. Ure, whose absorbent power is to be chemically examined, after thorough desiccation before a fire, is immediately transferred into a phial, furnished with a well ground stopper. When it is cooled, a portion of it is put into a large wide-mouthed bottle, where it is closely confined for some time. A delicate hygrometer being then introduced, indicates on its scale the dryness produced in the enclosed air, which should have been previously brought to the point of extreme humidity, by suspending a moistened rag within the bottle."

The following are the results of experiments made by Professor Leslie:—

Alumina causes a dryness of	84 degrees.
Carbonate of magnesia -	75
Carbonate of lime - -	70
Silica - - - -	40
Carbonate of barytes -	32
Carbonate of strontites -	23
Pipe clay - - -	85
Greenstone, or trap in powder	80
Shelly sea sand - - -	70
Clay indurated by torrefaction	35
Clay strongly ignited -	8
Greenstone do - -	23
Quartz do. - -	19
Decomposed greenstone -	86
Greenstone resolved into soil	92
Garden mould - -	95

The more a soil is comminuted by labour and vegetation, the greater is its absorbent power. This ingenious philosopher infers, that the fertility of soils depends chiefly on their disposition to imbibe moisture; and illustrates this idea by recent and disintegrated lava. May not the finely divided state most penetrable by the delicate fibres of plants, derive its superior power of acting on atmospherical vapour from the augmentation of its surface, or the multiplication of the points of contact?

In similar circumstances, 100 gr. of the following organic substances absorb the following quantities of moisture: ivory 7 gr. boxwood 14, down 16, wool 18, beech 28. Charcoal, and other porous solids of a fibrous texture, have the faculty of absorbing gases in a remarkable degree. See *Leslie on Heat and Moisture;* and *Ure's Dictionary of Chemistry.*

Absorption. By this term modern chemists understand the conversion of a gaseous fluid into a liquid or solid, on being united with some other substance. It differs from condensation in being the effect of mechanical pressure, or the abstraction of caloric. Thus, if muriatic acid gas be introduced into water, it is absorbed, and muriatic acid is formed; if carbonic acid gas and ammoniacal gas be brought into contact, absorption takes place, and some carbonate of ammonia is produced by the union of their ponderable bases. *Ure's Dictionary.*

Absorptions of the earth, a phrase used by Kircher and other geologists, for the sinking in of large tracts of land, by subterranean commotions or other accidents. Pliny tells us of the mountain Cymbotus, with the town of Curites, which stood on its side, being thus wholly absorbed into the earth. He records the like fate of the city of Tantalis in Magnesia, and after it of the mountain Sypelus. Galanis and Garnatus, towns once famous in Phœnicia, are said to have met the same fate. But the fact is, no fair distinction can be drawn between these remarkable incidents, and what have been more generally called *earthquakes* and their consequences, which see.

ABSORUS, or Apsorus, in ancient geography. See Absyrtides.

ABSTAIN', *v.* Absten'tion, Ab'stinence, Ab'stinent, Ab'stinently. Ab or Abs: *teneo*, to hold or keep from; to forbear, to refrain from. In this verb a middle or reflected action is distinguishable, and a resemblance between the Latin and English derivatives preserved.

Among some religious persons, abstinence is forbearance from certain kinds of prohibited food, as well as the almost total absence of nourishment experienced for an extraordinary period by individuals, many of whose cases are authentically recorded.

Moost dere, I biseche you as comelingis and pilgryms to *absteine* you fro fleischli desires thot figten agens the soule. *Wiclif. Peter* i, chap. 2.

Say, can you fast? your stomachs are too young,
And *abstinence* engenders maladies.

Shaksp. Love's Labour Lost.

Abstain
To ask: nor let thine own inventions hope
Things not revealed, which the invisible King
Only omniscient hath suppressed in night,
To none communicable in earth, in heaven:
Enough is left besides to search and know.

Milton.

A little wisdom, and an easie observation were enough to make all men that love themselves, wisely to *abstain* from such diet which does not nourish.

Taylor's Dissuasive from Popery.

Abstinence merits not; for religion consists not in the belly either full or empty.

Hall's Contemplations.

Religious men, who hither must be sent,
As awful guides of heavenly government;
To teach you penance, fasts, and *abstinence*,
To punish bodies for the soul's offence.

Dryden's Indian Emp.

Because the *abstinence* from a present pleasure, that offers itself, is a pain; nay, oftentimes a very great one: it is no wonder that, that operates after the same manner pain does; and lessens, in our thoughts, what is future; and so forces us, as it were, blindfold into its embraces. *Locke.*

ABSTE'MIOUS, *adj.* } Ab or abs: *temetum*,
ABSTE'MIOUSLY. } from strong wines. To be *abstemious* is to refrain with more than ordinary caution from the inebriating liquids.

The instances of longevity are chiefly amongst the *abstemious*. Abstinence in extremity will prove a mortal disease; but the experiments of it are very rare. *Arbuthnot on Aliments.*

The pearch is not only valiant to defend himself, but he is a bold biting fish; yet, he will not bite at all seasons of the year; he is very *abstemious* in winter. *Walton's Angler.*

ABSTEMIOUS, properly signifies a person who refrains from all use of wine. So particular were the ancient Romans in exacting this virtue from their ladies, that they were willing, it would seem, to put some others to hazard. In the first ages of the commonwealth, it was expected that they should kiss their friends and relatives whenever they accosted them, that it might be known by their breath whether they had been indulging in wine.

ABSTENSION, in law, a withholding the heir from taking possession of his estate. Among ecclesiastical writers, the word is also used for a person excommunicated.

ABSTERGENTS, or abstersive medicines, are medicines of a saponaceous nature, employed for removing inward obstructions, by dissolving concretions. They are also called *Detergents*.

ABSTERGE', } Ab: *stergo*, to wipe off, to
ABSTERGE'NT, } cleanse by wiping or scour-
ABSTERSE', } ing. The latter words are
ABSTER'SION, } not so analogical, and still
ABSTER'SIVE. } less in use than the preceding.

Abstersion is plainly a scouring off, or incision of the more viscous humours, and making the humours more fluid, and cutting between them and the part; as is found in nitrous water, which scoureth linen cloth speedily from the foulness.

Bacon's Nat. Hist. No. 42.

The seats with purple clothe in order due;
And let th' *abstersive* sponge the board renew;
Let some refresh the vase's sullied mould,
Some bid the goblets boast their native gold.

Pope's Homer's Odyssey, b. xx.

ABSTINENCE, from *abs*, from, and *tenere*, to hold, signifies the act or the habit of refraining from something to which there is a strong propensity. Pythagoras earnestly enforced upon his followers the necessity of abstaining from all animal food, except the remains of sacrifices, and to drink nothing but water, except in the evening, when they might take a little wine; and the ancient Athletæ abstained from all kinds of sensual pleasure, to render themselves more hardy in the public games. The Jews were also commanded to observe various kinds of abstinence by their laws. Many of the primitive Christians denied themselves the use of particular meats, as we learn from St. Paul's Epistle to the Romans, (chap. xiv.) And the council assembled at Jerusalem, which the Apostles superintended, enjoined the Christian converts to abstain from things strangled, and from blood. Not that the reception of these things was, in itself a moral evil, but because the Jews were so offended by it, that it was the source of perpetual discord between the Jewish and Gentile converts.

A ritual abstinence is however still retained in many communities, and is prescribed by rules and regulations of the Romish church. The church of England has also enforced abstinence from meats on certain days, and since the reformation, the practice has been enforced by statute. Injunctions of general abstinence were renewed under queen Elizabeth, not out of motives of religion, it was said, but to encourage the practice of fishing, and to increase the number of our mariners.

ABSTINENCE, in medicine, is used to signify a *suppression*. Thus in Cœlius Aurelianus, *abstinentia sudoris*, signifies a suppression of sweat. Sometimes in this author it means a *compression;* as *Spiritus ob* abstinentiam *clausus*, means the wind shut up in the intestines by compression, thereby causing the iliac passion.

ABSTINENCE in a more popular sense of the word, signifies a spare and parsimonious diet, which has been recommended medicinally, observed through superstition, or practised to impose on the credulity or benevolence of mankind. The Venetian Cornaro, after his life was despaired of, betook himself to a regular but abstinent life, revived his health, though almost in his grave at 40, and lived to the protracted period of nearly 100 years of age. The early Christians of the east, driven by persecution into the deserts of Arabia, lived on very spare food, in health and cheerfulness. St. Anthony is said to have taken only 12 ounces of bread and water in 24 hours, and on this slender subsistence, to have lived to the age of 105 years. In like manner, James the hermit, lived 104 years; Arsenius, tutor of the emperor Arcadius, 120; St. Epiphanius, 115; Simeon the Stylite, 112; and Romauld, 120. By temperance and labour, one Laurence, mentioned by Buchanan, attained the age of 140; and Kentigern, commonly called St. Mungah or Mungo, mentioned by Spottiswood, lived to 185, by the same means. Longevity appears to have been frequently connected with remarkable cases of abstinence, a consideration which led Dr. Cheyne to affirm, that most of the chronical diseases prevalent in luxurious climates, the common infirmities of old age, and the short lives of Englishmen, are the common effects of repletion; and might be prevented or cured by abstinence. Sudden and immediate abstinence is however, extremely detrimental to the constitution; and many persons who have attempted it, have never afterwards enjoyed health.

Some animals seem to possess extraordinary powers of abstinence. The dormouse, tortoise,

bear, serpent, &c. pass four, five, or six months in the year without eating or drinking. Several species of birds, and almost the whole tribe of insects, live throughout the winter without food. Rattle-snakes after many months' abstinence, have retained their vigour and fierceness. Two cerastes, a sort of Egyptian serpent, mentioned by Dr. Shaw, lived five years in a bottle closely corked, without any thing in the bottle, except a small quantity of sand. When he saw them, they had just cast their skins, and appeared as brisk and lively as ever. Vipers again, seem to live occasionally on those well-known nutritious substances floating in the atmosphere, and which are continually taken in by animal respiration: their young kept from every thing but air, will grow considerably in a few days. The eggs of lizards are observed to increase in bulk after they are produced, and seem to be nourished in the air in the same way as the spawn of fishes is in the water.

Pliny says, a man may live seven days, and that many have been known to continue more than eleven days, without either meat or drink. *Hist. Nat.* lib. ii. c. 54.—Alexander Benedictus, that a person at Venice lived without food for 46 days. *Pract.* lib. xii. c. 2.—Clausius et Garcia ab Horto, that some rigid Banians in India, frequently abstain from food for 20 days together;—and Guaguinus states, that Louis the Pious, emperor and king of France, who died 840, existed the last 40 days of his life without food or drink. *Hist. Francor.* lib. v.—Albertus Magnus saw a woman at Cologne, who often fasted 20, and sometimes 30 days; and a hypochondriacal man, who drank nothing but a draught of water every other day, for seven weeks. *De Animalibus*, lib. vii.—Democritus is said to have lived to the age of 109 years, and that in the latter part of his life he subsisted for 40 days at one time, by smelling honey and hot bread.—Petrus de Abano gives an account of a woman in Normandy, who lived without food for 18 years. *Exposit. Ult.* prob. x.—Joubertus, of a woman that lived in good health three years; and of another, who to her tenth year, subsisted without either food or drink: and when she was of proper age, married and had children, and lived like other people. *Decad.* 1, paradox 2.—Albertus Krantzius says, that a hermit in the mountains of the canton of Schwitz, lived 20 years without food. *Hist. Eccles.* lib. xii. c. 21.—Hildanus relates the case of a girl who lived many years without food or drink. The abdomen had wasted and retracted toward the spine, and she neither voided urine nor fæces. *Cent.* 5, *Obs. Chirurg.* 33.—Sylvius says, there was a young woman in Spain, 22 years of age, who never ate any food, but lived entirely on water. And that there was a girl in Narbonne, and another in Germany, who lived three years in good health without meat or drink. We shall now subjoin a few modern cases of abstinence, which have been given more at large:—

"Gilbert Jackson, of Carse-Grange, Scotland, about 15 years of age, was seized in February, 1716, with a violent fever, which returned in April for three weeks, and again on the 10th of June. He then lost his speech, his appetite, and the use of his limbs, and took no food whatever. On June 30, he was seized with a fever again, and the next day recovered his speech, but without eating or drinking, or the use of his limbs. On the 11th of October, he recovered his health with the use of one of his legs, but neither eat nor drank, only sometimes washed his mouth with water. On the 18th of June, 1718, the fever returned and lasted till September. He then recovered, and continued in pretty good health, and fresh coloured, but took no kind of meat nor drink. On the 6th of June, 1719, he was again seized with a severe fever; and on the 10th, at night, his father prevailed on him to take a spoonful of milk, boiled with oatmeal; it stuck so long in his throat, that his friends feared he had been choked; but ever since that time he took food, though so little, that a halfpenny loaf lasted him eight days. All the time he fasted, he had no evacuation, and it was 14 days after he began to eat, before he had any. He still continued in pretty good health"

"In the year 1724, John Ferguson, of Killmelfoord, in Argyleshire, overheated himself in the pursuit of some cattle on the mountains, then drank largely of cold water, and fell asleep. He slept for 24 hours, and awoke in a high fever, and ever since, his stomach loathed, and could retain no kind of aliment but water. Mr. Campbell, a neighbouring gentleman, to whom his father was tenant, locked him up for 20 days, supplying him only with water, and taking care that he should have no other food; but it made no difference either in his look or strength; at the age of 36, (when the account was sent to the Philosophical Society,) he was of a fresh complexion, and as strong as any common man." *Phil. Trans.* 1742, vol. xlii. page 240.

Pennant says of his second visit to Barmouth, in 1770, "My curiosity was excited to examine into the truth of a surprising relation of a woman in the parish of Cylynin, who had fasted a most supernatural length of time. I took boat and had a most pleasant passage up the harbour, charmed with the beauty of the shores intermixed with woods, verdant pastures, and corn fields. I landed, and after a short walk, found in a farm called Tydden Back, the object of my excursion, Mary Thomas. She was of the age of 47, of a good countenance, very pale, thin, but not so much emaciated as might be expected from the strangeness of the circumstances I am going to relate. Her eyes were weak, her voice low, and deprived of the use of her lower extremities, and quite bed-ridden; her pulse rather strong, her intellects clear and sensible. On examining her, she informed me that at the age of seven, she had some eruptions like the measles, which grew confluent and universal; and she became so sore that she could not bear the least touch: she received some ease by the application of a sheep's skin just taken from the animal, After this she was seized at the spring and fall, with swellings and inflammations, during which time she was confined to her bed; but in the intervals she could walk about. When she was about 27 years of age she was attacked with the same complaint, but in a more violent manner; and during two years and a half remained in-

sensible, and took no manner of nourishment, although her friends forced open her mouth with a spoon to get something down, but the moment the spoon was taken away, her teeth met and closed with snapping violence; during that time she flung up vast quantities of blood. She well remembers the return of her senses, and her knowledge of every body about her. She thought she had slept but a night, and asked her mother whether she had given her any thing the day before, as she found herself hungry. Meat was brought to her, but so far from being able to take any thing solid, she could scarcely swallow a spoonful of thin whey. From this, she continued seven years and a half without any food or liquid, excepting sufficient of the latter to moisten her lips. At the end of this period she fancied herself again hungry, and desired an egg, of which she got down the quantity of a nut kernel. She requested to receive the sacrament, which she did, by having a crumb of bread steeped in wine. She now eats a bit of bread about two penny weights seven grains daily, and drinks a glass of water, and sometimes a spoonful of wine; but frequently abstains whole days together from food and liquids. She sleeps very indifferently; the ordinary functions of nature are seldom performed, and are very small; her temper is even, her disposition mild; she is religious, and prays fervently; the natural effect of the state of her body unembarrassed by food, and a constant alienation of thought from all worldly affairs." *Journey to Snowden*, vol. ii. p. 105.

A very curious instance of nearly four years' abstinence from all food and drink, is related in two numbers of Hufeland's Practical Journal, Vols. viii. and ix. No 2. And a pamphlet has been since published respecting this fact by Dr. Schmidtmann of Melle, in the bishopric of Osnabruck.

"A country girl, 16 years old, in a village near Osnabruck, had enjoyed a good state of health, during her childhood; but, at about 10 years of age she was seized with epileptic fits against which a number of remedies were employed in vain; since that time she was mostly confined to her bed, particularly in winter, but in summer she found herself a little better. From February 1798, the alvine and urinary excretions began to cease; though she took now and then a little nourishment. But from the beginning of April the same year, she abstained entirely from all food and drink, falling into an uninterrupted slumber, almost senseless, from which she only awoke from time to time for a few hours. Her sensibility during this time was so great that the slightest touch on any part of her body brought on partial convulsive motions. In this state she had continued for nearly 10 months, when Dr. Schmidtmann saw her first, in 1799. Though she had not taken the least nourishment during all this time, Dr. S. found her to his great astonishment, fresh and blooming. For the last two months only the intervals of sleep began to be longer, her senses of sight and hearing were in perfect order; but her feelings, she seemed to have quite lost, as she could suffer pinching of the arms and legs without pain; her gums bled frequently, and the pulse was scarcely perceptible in the arms, but beat strong and full in the carotids, about 120 in a minute. Dr. S. attempted to make her drink a little milk, but she protested she could not swallow it. The alvine and urinary excretions had quite ceased. Although there could hardly be a suspicion of imposition, the parents being honest people, yet to remove all doubt, six sworn men were appointed from different places in the neighbourhood to watch her day and night, and instructions given them accordingly. This being continued about a fortnight, the men were dismissed, having given evidence upon oath that the patient had never taken any food or drink whatever during that time, nor had any excretion, alvine or urinary; she had become very ill, and nearly dying, seized with convulsions, feverish, and sometimes in a great sweat, which had the extraordinary property of turning water black. When Dr. S. saw her again, he found her quite recovered, not in the least emaciated; but rather looking lustier; her gums however, still frequently bled, and her feeling was not yet returned; but her memory was not impaired, and she amused herself sometimes with reading and writing. No alvine or urinary excretions had taken place. Sometimes she was attacked with sudden weakness, particularly after having bled at the mouth. During the last severe winter she could not endure the heat of the stove, because she felt then faint and oppressed. Dr. Schmidtmann then enters into an enquiry by what means the patient in this case was nourished and maintained in that state in which she was found. And having discussed the matter at large, he is of opinion, that she drew by resorption such elementary particles from the atmosphere as were sufficient for the nutrition of the body, and that the excretions were likewise replaced by the skin."

Instances of the like kind might be multiplied from *Haller, in his Elementæ Physiologæ*, tom. vi. sec. 2—6; *Conf. Memoires de l'Academie des Sciences de Toulouse*, tom. i. 1783. *Prichter's Library devoted to Surgery*, (in German,) vol. xii. p. 184. *Swieten Comments in Boerhaave, Aph.* tom. iii. p. 508; *Histoire de l'Academie Royale des Sciences, l'an* 1769; and in *Hufeland's Art of Prolonging Life*, 1 ed. p. 67; *Halpart Van der Wiel Observat, rar Centur Poster.* In the London Magazine for August 1769, there is an account of a young woman, 24 years of age, who had fasted for two years, and whose excretions were entirely suppressed. *London Medical and Physical Journal*, vol. iv. p. 87.

In the Philosophical Transactions, we have an account of four colliers who were confined 24 days in a coal pit at Herstal, near Leige, with nothing to support them but water. A French officer of infantry, who had retired from service, and became deranged, took it into his head to refuse food, and persisted in that determination from the 25th of December, till the 9th of February, drinking only about a pint and a half of water daily, with a few drops of aniseed liquor in each glass, till 39th day, from which time till the 47th day he remained out of bed; but weakness at length obliged him to lie down. The return to food was followed by a temporary

cure of his insanity. *Hist. de l'Academie des Sciences*, 1769.

In the Medical Commentaries, December, vol. iv. p. 360, there is a history of a girl who lost her way, and remained 18 days on a barren moor in the island of Lewis, where she could have had no other sustenance than water. Mr. Miller saw her two hours after she was found, and describes her as much emaciated. We infer, from these instances, the possibility of maintaining life for a considerable time on small quantities of water and other liquids. The feeling of hunger, if not appeased by food, often ceases entirely; but the feeling of thirst becomes increasingly urgent, and where it is attended with bodily heat, becomes aggravated and insupportable.

ABSTINENTES, in ecclesiastical history, a party who appeared in France and Spain, in the third century, and who enjoined abstinence from the use of marriage, and particular foods, especially wine. Some consider them to have been a branch of the Gnostics.

AB'STRACT, *n. v.* & *adj.*, ABSTRACT'ED, ABSTRACT'EDLY, ABSTRACT'EDNESS, ABSTRACT'ER, ABSTRAC'TION, ABSTRACT'LY, ABSTRACT'NESS. Abs: *traho, tractum*, to draw away from; to separate. Hencé, by an easy transition, to refine, to purify. Also, to consider any thing in its essence, or simple being, independently of modes or accidents.

PAL. But man, the *abstract*
Of all perfection which the workmanship
Of Heaven hath modell'd, in himself contains
Passions of several qualities.
Ford's Lover's Melancholy, act iv. sc. 3.

He whose understanding is prepossest with the doctrine of *abstract* general ideas, may be persuaded that extension in *abstract* is infinitely divisible.
Berkley's Principles of Human Knowledge.

Precepts of morality, besides the natural corruption of our tempers which makes us averse to them, are so *abstracted* from ideas of sense, that they seldom give an opportunity for those beautiful descriptions and images which are the spirit and life of poetry.
Addison.

To *abstract* the mind from all local emotions would be impossible if it were endeavoured; and would be foolish if it were possible. *Dr. Johnson.*

Abstract terms signify the mode or quality of a being, without any regard to the subject in which it is; as whiteness, roundness, length, breadth, wisdom, mortality, life, death. *Watts's Logic.*

He may be justly driven out from the commerce of mankind, who has so far *abstracted* himself from it as to neglect the endearments of his wife and the caresses of his children, to count the drops of rain, note the changes of the wind, and calculate the eclipses of the moons of Jupiter. *Rambler.*

ABSTRACT IDEA, in metaphysics, is a partial idea of a complex object, limited to one or more of the component parts or properties, laying aside the rest.

ABSTRACT MATHEMATICS, otherwise called *Pure Mathematics*, treat of magnitude or quantity, absolutely and generally considered, without regard to any species of particular magnitude, such are arithmetic and geometry.

ABSTRACT NUMBERS, are assemblages of units, considered in themselves, without denoting any particular and determined articles. Thus six is an abstract number, when not applied to any thing; but if we say six feet, six becomes a concrete number. See NUMBER.

ABSTRACTI, a name given to a sect among the Lutherans.

ABSTRACTITIOUS, in pharmacy, a term used to distinguish that spirit which is drawn from plants, naturally abounding with it. *Bailey.*

ABSTRUSE', ABSTRUSE'LY, ABSTRUSE'NESS. Abs: *trudo, trudum*, to thrust or push away.

To cast away from the sight.—*Cicero.* Hence, not obvious, plain, nor evident.

Let the Scriptures be hard: Are they more harsh, are they more hard, more crabbed, more *abstruse* than the fathers? *Milton on the Reformation in England.*

Yet it must be still confessed that there are some mysteries in religion both natural and revealed, as well as some *abstruse* points in philosophy, wherein the wise as well as the unwise must be content with obscure ideas. *Watts's Logic.*

ABSURD', *adj.*, ABSURD'ITY, ABSURD'LY, ABSURD'NESS. Ab: *surdus*. Supposed to be formed from *ab* and *surdus*, a deaf person, who from not hearing, frequently replies altogether unsuitably to the question proposed. Foolish, nonsensical, not to the purpose.

There was never proud man thought so *absurdly* well of himself, as the lover doth of the person loved: and therefore it was well said, That it is impossible to love, and to be wise. *Lord Bacon's Essays.*

The capital things of nature generally lie out of the beaten paths, so that even the *absurdness* of a thing sometimes proves useful. *Idem.*

But grant, that those can conquer, these can cheat;
'Tis phrase *absurd* to call a villain great;
Who wickedly is wise, or madly brave,
Is but the more a fool, the more a knave.
Pope's Essay on Man.

How clear soever this idea of the infinity of number be, there is nothing more evident, than the *absurdity* of the actual idea of an infinite number.
Locke.

That satisfaction we receive from the opinion of some pre-eminence in ourselves, when we see the *absurdities* of another, or when we reflect on any past *absurdities* of our own. *Addison.*

But man, we find the only creature;
Who, led by folly, combats nature;
Who, when she loudly cries, Forbear,
With obstinacy fixes there;
And where his genius least inclines,
Absurdly bends his whole designs.
Swift's Miscel

We may proceed yet further with the atheist; and convince him, that not only his principle is absurd, but his consequences also as *absurdly* deduced from it. *Bentley's Sermons.*

Truth indeed needs no ornament, neither does a beautiful person; but to clothe it therefore in rags when a decent habit was at hand, would be esteemed preposterous and *absurd*. *Cowper's Letters.*

ABSUS, the Egyptian LOTUS, which see.

ABSYNTHIUM, or ABSINTHIUM. See ARTEMESIA.

ABSYRTES, or ABSYRTUS, in ancient mythology, the infant son of Æetes, king of Colchis, and Hypsea, who was torn to pieces by his sister

Media, and his limbs scattered on the road, in order to stop her father's pursuit of her, when she eloped with Jason, and assisted him in carrying off the golden fleece.

ABSYRTIDES, Apsyrtides, or Absorus, in ancient geography, islands in the gulf of Carnero, in the Adriatic, separated by a narrow channel, and joined by a bridge; so called from Absyrtes, who was said to have been murdered there by his sister. They are now called *Cherso* and *Osero*.

ABUARISCK, a town and principality of Arabia, on the Red Sea, extending from 15°, 2'. to 17°, 40'. N. Lat.; yielding little more than salt from its arid hills, although watered by several streams. The principal sea port is Gesar.

ABUBEKER, the immediate successor of Mahomet, succeeded him A.D. 632, taking the title of caliph, vicar or successor, to show his inferiority, it is said, to the prophet, a title which all his successors have since adopted.

ABUKESKO, or Aslani in commerce, Turkish names given to the Dutch dollar.

ABULFARAGIUS, (Gregory,) the son of Aaron, a physician and prelate of Armenia, born at Malatia, in 1226. He was elected primate of the Jacobites in 1266, an office which he held for 20 years. He wrote, an *Epitome of Universal History*, which was published, with a Latin translation by Dr. Pocock, in 1663.

ABULFAZEL, Vizier and historiographer to Akber, the great mogul, and author of Ayeen Akberry. Few particulars are known of his life, but he bears a high character for learning and elegance as a writer; he was assassinated in 1664, on his return from a mission to the Deccan.

ABULGHAZI, (Bayatur,) khan of Tartary descended from Jenghiz khan, was born in 1605 at Urgens. He endured a long series of misfortunes before his accession to the throne of Kharazn in 1645, in which he continued twenty years, having by his courage rendered himself formidable to all his enemies. In 1665, he resigned his sceptre in favour of his son, and undertook a genealogical history of the Turks, which was completed by his successor, and is considered the most authentic history extant of the Turks and Tartars. It was procured by Count Strahlenberg when a captive in Siberia, and has been very generally translated into the European languages.

ABUNDANTIA, or Copia, a heathen goddess generally crowned with garlands of flowers, and pouring all sorts of fruit out of a horn which she holds in her right hand. On a medal of Trajan, she is represented with two cornucopiæ.

ABUNDANT Notion, in logic, that which includes more marks and characteristics, than are absolutely necessary for distinction.

Abundant Number, in arithmetic, a number, the sum of whose aliquot parts is greater than the number itself. Thus the aliquot parts of 12, being 1, 2, 3, 4, and 6, they make, when added together, 16. It is opposed to a *deficient* number.

ABUS, in ancient geography, a name for the confluence of the Ure, the Derwent, the Trent, &c. forming the mouth of the Humber.

ABUSIR, or Busir, a town of Egypt, the ancient Busiris on the right bank of the Nile, 40 miles S. of Damietta; also, two fortified towns near the sea, 120 miles W. of Alexandria, and forming the first point of Egypt, seen from the West.

ABU-TEMAN, called the Prince of Arabian poets, flourished from A.D. 805 to 845. 'No one could ever die,' it was said, 'whose name had been praised in his verses.' Sir Wm. Jones speaks of a compilation of poems by Abu-teman, with great commendation; and professor Carlyle selects some of his most elegant specimens of Arabian poetry from this author.

ABUSE', *v.* & *n.*
Abu'ser,
Abu'sive,
Abu'sively,
Abu'siveness,
Abu'sage,
Abuse'ful,
Abu'sion,

Ab: *utor, usus*, to use from; to put to a contrary use; to use ill in any way; to insult, to take an unfair advantage of; to violate, or defile; to misapply, to mispend.

I see how thine *abuse* hath wrested so thy wittes,
That all it yeldes to thy desire, and followes thee by fittes. *Surrey.*

Was it not enough for him, to have deceived me; and, through the deceit, abused me; and, after the *abuse*, forsaken me: but, that he must now, of all the company, lay want of beauty to my charge. *Sidney*, b. ii.

Ros. No: I will not cast away my physick but on those that are sick. There is a young man haunts the forests, that *abuses* our young plants with carving Rosalind on their barks; hangs odes upon hawthorns, and elegies on brambles; all forsooth deifying the name of Rosalind. If I could meet that fancy-monger, I would give him some good counsel, for he seems to have the quotidian of love upon him. *Shakspeare's As You like it.*

Happy are those persons who use the world and *abuse* it not, who possess a part of it, and love it for no other ends but for necessities of nature, and conveniences of persons, and discharge of all their duty and the offices of religion, and charity to Christ, and all Christ's members. *Jeremy Taylor*

They that use this world, as not *abusing* it; for the fashion of this world passeth away. 1 *Cor.* vii. 31.

He has fixed and determined the time for our repentance, beyond which he will no longer await the perverseness of men, no longer suffer his compassion to be *abused*. *Rogers's Sermons.*

The world hath been much *abused* by the opinion of making; the work itself I judge to be possible; but the means, hitherto propounded, are in practise full of error. *Brown's Natural History*, No. 126.

Nor be with all these tempting words *abused*;
These tempting words were all to Sappho us'd. *Pope.*

ABUT', Abut'ment, Abutt'al, } Abuttan, from Bota. The first outward extremity of any thing; to border on the surface or edge of, to touch the boundary of any thing in juxta-position.

Two mighty monarchies,
Whose high, upreared, and *abutting* fronts
The narrow perilous ocean parts asunder.
Shakspeare's Henry V

The Looes are two several corporations, distinguished by the addition of east and west, *abutting upon* a navigable creek, and joined by a fair bridge of many arches. *Carew.*

ABUTILON, in botany, a genus of mallows called by Linnæus Sida, which see.

ABYDOS, in ancient geography, a town built by the Milesians in Asia, on the narrowest part of the Hellespont, opposite to Sestos on the European side. Here Xerxes constructed his

famous bridge, and Ovid makes it the scene of the loves of Leander and Hero. The inhabitants are called by some writers, a soft and effeminate people, much given to detraction; hence the proverb, *Ne temere Abydum;* but when Philip, the father of Perseus, besieged the place, they nobly devoted themselves to death, in preference to captivity.

Abydos, in ancient geography, a town of Egypt, between Ptolemais and Diospolis Parva, towards Cyrene; famous for the palace of Memnon and the temple of Osiris; into which singers and dancers were forbid to enter. This city, reduced to a village under the empire of Augustus, now presents to our view only an heap of ruins without inhabitants; but to the west of these ruins is still found the celebrated tomb of Osymandes. The entrance is under a portico 60 feet high, and supported by two rows of massy columns, loaded with hieroglyphics. Beyond it, is a temple 300 feet long and 155 wide. Upon entering the monument we meet with an immense hall, the roof of which is supported by 28 columns, 60 feet high, and 19 in circumference at the base. They are 12 feet distant from each other. The enormous stones that form the ceiling, perfectly joined, and incrusted, as it were, one in the other, offer to the eye nothing but one solid platform of marble, 126 feet long, and 26 wide. Monsieur Chevalier, formerly governor of Chandernagore, who resided 20 years in that country, carefully visited this monument on his return from Bengal. He remarked here the gods *Jaggrenat*, *Gonez*, and *Vechnou* or *Wistnou*, such as they are represented in the temples of Indostan.—A great gate opens at the bottom of the first hall, which leads to an apartment, 46 feet long by 22 wide. Six square pillars support the roof of it; and at the angles are the doors of four other chambers, but so choaked up with rubbish that they cannot now be entered. The last hall, 64 feet long by 24 wide, has stairs by which one descends into the subterraneous apartments of this grand edifice. The Arabs, in searching after treasure, have piled up heaps of earth and rubbish. The walls, the roof, and the columns of this edifice, have suffered so little from the injuries of time, that did not the hieroglyphics mark its antiquity, it would appear to have been newly built. To the left of this great building we meet with another much smaller, at the bottom of which is a sort of altar, probably the sanctuary of the temple.

ABYLA. See Abila.

ABYO, or Abuyo, one of the Philippine islands in the E. Indies, E. of Layla. Lon. 124°, 15′. E. Lat. 10°, 6′. N.

ABYSM′, *n.* } *α.βυσσος*, without bottom. Bot-
Abyss′. } tomless. Hence the essential character of an abyss is unfathomable depth, profundity.

> And brutish ignorance, ycrept of late
> Out of drad darkness of the deep *abysm*.
> *Sp. Tears of Muses*, 188.

> O! the unfathomable *abyss* of eternity! how are our imaginations lost in the conceptions of it!
> *Stillingfleet's Sermons.*

> Nor second he that rode sublime
> Upon the seraph wings of ecstacy,
> The secrets of the *abyss* to spy.
> *Gray's Progress of Poetry.*

ABYSS, in the Septuagint, denotes the water which God created at the beginning along with the earth, which encompassed it round, and which our translators render by *deep*, Gen. i. 2. Abyss is also used for an immense cavern in the earth, wherein God is supposed to have collected all those waters on the third day, which in our version, is rendered the *seas*, and elsewhere the *great deep*. Dr. Woodward and others, suppose that there is a mighty collection of waters in the bowels of the earth, communicating with those of the ocean, by means of certain hiatuses or chasms, passing between them and the bottom of the sea; but so, that the ordinary surface of the abyss, is never level with that of the ocean. The existence of such abyss or receptacle of subterraneous waters, is controverted by Camerarius; but the arguments on each side of this controversy may be seen collected and amplified, in *Cockburn's Inquiry into the Truth and Certainty of the Mosaic Deluge*, p. 271, &c. Vid. also, *Whitehurst's Inquiry into the Original Formation of the Strata*, &c.; also *Journal des Sçavans*, lviii. *Mem. of Literature*, viii. and *Jamieson's Mineralogy*, v. iii.

Abyss, in antiquity, the temple of Proserpine; so called on account of the immense fund of gold and riches deposited there, and as some say, hidden under ground.

Abyss, in heraldry, denotes the centre of an escutcheon; in which sense, a thing is said to be borne in abyss, *(en abysme,)* when placed in the middle of the shield, clear from any other bearing: He bears azure, a fleur-de-lis, in abyss.

ABYSSINIA.

ABYSSINIA, Abassia, Habesh, or Upper Ethiopia, an extensive kingdom of Africa, lying between the 7th and 16th degrees of N. lat. and 30° and 40° E. long. It is bounded on the east by the Red Sea, on the north by Senaar, on the west and south by Senaar and Kordofan, together with some vast barbarous regions, the names of which are scarcely known to Europeans. Mr. Pinkerton computes the superficial area at 770 miles in length, by 550, its medial breadth, in which perhaps he has not erred egregiously; although from the indefinite nature and shifting demarcation of its boundaries, the true dimensions of this country are difficult to ascertain.

The ancients knew nothing accurately of this extensive region, and therefore included it, together with the adjacent territories, under the comprehensive name of Ethiopia; a term which they applied indiscriminately to all nations of a black complexion, and even to Arabia, Persia, Chaldea, and Assyria. Ethiopia Proper, called

by the Jews, Cush and Ludim, was bounded on the N. by Egypt, extending to the Lesser cataract of the Nile, and the Elephantine island; on the W. by Libya Interior; on the E. by the Red Sea, and on the S. by unknown parts of Africa. The Africans were divided into the eastern and the western Ethiopians, the latter of whom were also called Hesperians.

The Ethiopian kingdoms, of which the ancients had any knowledge, were two, the first Meroe, situated on a peninsula, which they erroneously supposed to be an island, formed by the union of the Nile with the Astaboras and the Astapus, (Blue River and Tacazze.) Its metropolis of the same name stood upon the Nile, in lat. 16°. 26′. Mr. Bruce in passing through Senaar, saw near Chendi immense ruins, which probably belonged to this celebrated capital of Ethiopia. The second kingdom, unknown until the Greeks under Alexander had extended their navigation along the eastern coast of Africa, was that of the Axumitæ, situated upon the Red Sea, and occupying part of the Abyssinian province of Tigre. Its capital Axum, in a state of decay, remains to exhibit the ruins of its former greatness. It was from the port Adulis, in this territory, that the ancients derived the finest ivory.

When Mr. Salt was last in Abyssinia, it was divided into three distinct and independent states.

TIGRE the most powerful was under the dominion of Ras Welud Selasse, who claimed the monopoly of all the muskets imported, and likewise of the salt. This division of Abyssinia comprehends about four degrees of lat. and the same of long. bounded by a strong sea-coast, and inhabited by a warlike people.

1. *Tigrè* the first sub-division of this region, bounded by the territories of the Baharnegash, the river Mareb and the Tacazze is a wealthy province, measuring 200 miles from N. to S. and 120 from E. to W. It consists of a range of hills intersected by deep vallies and cultivated plains.

2. *Agamè*, E. of Tigrè, consists of a rich and fertile level, at considerable altitude, enjoying a favourable climate. It is remarkable for the salt plain in its vicinity, also for the strength of its eastern frontier, near the Taltal.

3. *Enderta*, a mountainous province S. of Agamè, is celebrated for its capital, Antalo, in which the Ras resides for the sake of protecting the southern provinces from the Galla.

4. *Wojjerat*, S. of the preceding, is a wild district full of forests, in which the lion, elephant, and rhinoceros are frequent.

5. *Wofila*, contiguous to Wojjerat, is a small low division, bordering on the lake Ashangee, where the Galla profess Christianity, and mingle with the native Abyssinians.

6. *Lasta* is a rugged and mountainous district, the heights of which are almost inaccessible. To the north are two mountainous districts, between which and the Tacazze, are two low ones, inhabited by *Christian Agows*.

7. Still farther to the north lies *Avergale*, a narrow region stretching for about fifty miles N. and S. along the Tacazze, and inhabited like the preceding by the Agows.

8. *Samen*, E. of the Tacazze, is the highest land in Abyssinia, running N. and S. about 80 miles, with a medial breadth of about 30.

9. *Shire* is the most picturesque part of Abyssinia, abounding with fine landscapes, flowery meadows, and shady groves. It lies to the west of Axum, and connects itself with the contiguous regions of

10. *Zemben*, a valuable district between Samen and Tigrè Proper.

11. The eleventh and last division of Tigrè is called the kingdom of *Baharnogash*.

AMHARA, the second independent state, is, according to Bruce, a mountainous region, 120 miles long, and 40 broad, containing the rock Geshen, once the residence of the royal family. This province is now almost entirely in possession of the Galla, whose chief GUXO is the enemy of Ras Welud Selasse, and enjoys an absolute power on the W. side of the Tacazze, and is strengthened in a considerable degree by his connexion with the southern Galla: the cavalry of this prince has been estimated at 20,000, and is derived chiefly from the district of Begemder; Gondar is under his jurisdiction. The men in this part of the country were reputed formerly the handsomest in Abyssinia.

The third division of this country, now entirely separated from the before mentioned by the Galla, consists of the united provinces of SHOA and EFAT, and is supposed to contain a larger portion of Ethiopian literature and manners than any other part of Abyssinia.

Efat, a fine district between the ninth and eleventh degrees of lat., consists principally of high land, running N. and S., and declining on each side to an extensive plain. Numerous rivers flow on both sides from the lofty regions, and fall into the Nile and Hawash, of which latter, two branches, sweeping round to a considerable extent, nearly encircle the province. The present ruler residing at Ankobar the capital, is the grandson of Yasous, whom Bruce mentions (as Dofter Esther told Mr. Salt incorrectly,) as having visited Gondar while he was there. The chief dependence of this province is upon its cavalry, who are both skilful and courageous.

Shoa lies on a lower level than Efat, and is extremely rich in pasturage. Its vallies are deep and beautiful, well watered by streams and rivers. The districts of Walaka and Gondar, dependent on these united provinces, are of no inconsiderable importance.

Walaka, between the rivers Geshen and Samba, is memorable as the province where the only surviving prince of the family of Solomon was preserved after the massacre by Judith, in consideration of which, great privileges were conferred upon the inhabitants. It is also memorable for the monastery of Demba Libanos, where the saint Tecla Haimanout was bred, the famous founder of the power of the clergy.

The Macrobii of the ancients, according to Bruce, the present Kuara, S. of Dembea, is remarkable for a colony of Pagan blacks in its lower region, derived from the black slaves, who accompanied the Arabs after the invasion of Mahomet. One of the great officers of state has kettle drums of silver, which he alone

has the privilege of beating through the streets of Gondar.

The general appearance of Abyssinia is wild and magnificent, overspread with forests, morasses, deep vallies, and beautiful rivers. Travelling is exceedingly difficult, but delightful from the charms of romantic variety, ever opening upon the eye. The mountains are remarkable for their elevation, and in the opinion of some, exceed the Alps and Pyrenees. Some of them appear like obelisks and pyramids, while others are flat and square, grouped with the utmost irregularity, and exhibiting an almost infinite diversity of forms.

The mountains of Abyssinia generally are arranged in three ridges, of which the middle is the loftiest, and at the same time the most rugged and barren. E. of the kingdom are the heights of Taranta, which Bruce represents as so bare, that he found no possibility of pitching a tent there. On the lower part of the mountain he found the tree called kolquail in a state of high perfection, on the middle olives, which had no fruit, and on the upper part, the Oxycedras or Virginia cedar, called Arze by the natives. On the top is a small village named Halai, inhabited by poor shepherds, who keep the flocks of the rich people in the town of Dixan below. They are of dark complexion, and have black hair, curled artificially; they wear a girdle of coarse cotton cloth, swathed six times round their middle, and carry with them two lances and a shield made of bulls' hides; besides these weapons they commonly carry in their girdles a crooked knife with a blade about 16 inches in length, and near the lower part three in breadth. Here are also abundance of cattle; milk-white cows with wide horns, fine hair like silk, with dewlaps down to the knees; and black sheep with soft hair instead of wool. On the top of the mountain is a plain, which, at the period mentioned by our traveller, was sown with wheat. The air seemed excessively cold, although the thermometer was not below 59° in the evening, and on the western declivity, the cedars had degenerated into shrubs and bushes.

Towards the centre of the kingdom, on the north west part of the mountains of Samen, is the celebrated Lamalmon, which Bruce tells us, he ascended by a winding path, not quite two feet broad, on the brink of a dreadful precipice, and frequently intersected by the beds of torrents which lay in vast irregular chasms of the mountains; the summit from below had the appearance of being sharp pointed, but was in reality, a large plain full of springs, and containing the sources of almost all the rivers in this part of the empire. These springs boil out of the earth, sending forth such quantities of water as would be sufficient to turn a mill. A perpetual verdure prevails upon the mountains; and Bruce thought that, with moderate industry, three harvests might be reaped annually. The Gauza lies in the south of the kingdom; beside which, the mountains of Adowa in Tigré, Amda Gideon, or Jews' Rock, in Samen, and the triple ridge of Afonnasha, Litchambard, and Amid Amid, supposed by the traveller already named, to be the Mountains of the Moon, are the most celebrated. From all the Abyssinian mountains gold is washed down by the torrents in the rainy seasons.

Of the mineralogy of Abyssinia little is known, although from its mountainous character, but one opinion upon the subject has hitherto been formed. Near Weach are low hills of granite rocks, resting on beds of micaceous earth. In Tigré the soil is sandy, and the rocks composed of slate, schistus and granite lie in perpendicular strata, although in Geralta and Enderta, the strata are horizontal. But the great salt plain, fifty miles west of Amphila, on the road to Massowa, forms one of the most wonderful phenomena in Abyssinia. It is crossed in sandals made from the leaves of a species of the palm, and is four days' journey from N.W. to S. E. The plain is perfectly flat, and for the first half-mile the salt is soft, at a greater distance it becomes hard and crystallized, like ice on which snow has fallen after it has been partially thawed; branches of pure salt occasionally rising above the surface. For about two feet immediately under the earth it is hard and pure; at a greater depth it becomes coarse and soft, till exposed to the air. It is cut with an adze into pieces of the shape of a whetstone, and passed among the natives as money. The Galla frequently attack the workmen employed in cutting the salt from the plain; and Balgudda, a protector of the salt caravans, derives his emolument from the duty imposed on its exportation. A camel, the usual load of which is 200 pieces, pays 11; a mule, carrying 80, pays nine; an ass, pays six; but when it is brought away by men, no duty is paid.

The principal river of Abyssinia is the Bahr-el-Azrek, or Blue River. It originates in two springs, arising from a small hillock, in a marsh of Sacala, near Geesh, and flows into the lake Dembea; emerging from which, it sweeps its semicircular course round the provinces of Damot and Gojam; after which, taking a northerly direction through Senaar, as far as Wed Hogela, in the 16th degree of latitude, it unites with the Bahr-el-Abiad, or principal branch of the Nile, originating in the mountains of the Moon. The Tacazzé rises W. of Antalo, from three small springs in the plains of Magilla, and joined by the river Arequa, runs through Senaar to the Nile, carrying with it nearly one-third of the water which falls on the whole empire. This river is extremely pleasant, being shaded with fine lofty trees, and the water remarkably clear. At the ford, where Bruce crossed, this river was 200 yards over, running very swiftly over a bottom of pebbles. At the very edge of the water the banks were covered with tamarisks, beautifully supported by a back ground of tall and stately trees, that never lose the charms of their foliage. It is however, infested with crocodiles and hippopotami, and the neighbouring woods are full of lions and hyænas. Two rivers of Abyssinia, the Hanazo and the Hawash, flow towards the entrance of the Red Sea, and the Jemma. The Maleg, a large and important stream, after a parallel course on the W. joins the Abyssinian Nile. The Mareb forms the boundary between Tigrè, and the king-

dom of the Baharnagosh. The principal lakes are the Dembea, commonly called Tzana, having in the midst of it an island of the same name. That of Lawasa in the southern region, together with Ashangee and Haik, near the rocks of Geshen and Ambazel.

The climate is cold, and for six months of the year, viz. from April to September inclusive, constantly rainy. During the other six months, the sun being vertical, and the sky cloudless, the heat is excessive through the day; but, still the nights are so cold, owing to the length of the rainy season, and the perpetual equality of the days and nights, that the ground feels disagreeable to the soles of the feet. The mountainous nature of the province generally, nevertheless exposes different situations to the various effects of heat and cold, dryness and humidity, and of a free circulation and stagnation of the atmosphere; those of the natives who live upon the hills, are healthy and sprightly, whilst those who live in the vallies, marshes, or sandy deserts, experience an excessive heat, with a humid suffocating atmosphere. To avoid the inconvenience occasioned by the overflowing of the rivers, during the rainy season, the inhabitants have built many of their towns and villages upon mountains; they are, however, generally mean and slight, consisting of only one story. On Lamalmon, one of the highest of these hills, Mr. Bruce observed the thermometer stood at 32° in the depth of winter; the wind N.W. clear and cold. A light hoar frost fell with the wind, which vanished a quarter of an hour after sunrise, but there appeared no sign of congelation; but upon Amid Amid, he remarked that hail lay for three hours in the forenoon. One of the natives describing a fall of snow, for which no term had been previously invented, uses the following language: "This village (Zinzenam) has its name from an extraordinary circumstance that once happened in these parts; a shower of rain fell, which was not properly of the nature of rain, as it did not run upon the ground, but remained very light, having scarce the weight of feathers, of a beautiful white colour like flour; it fell in showers, and darkened the air more than rain, and liker to mist. It covered the face of the whole country for several days, retaining its whiteness the whole time, then went away like dew, without leaving any smell or unwholesome effect behind it." Mr. Salt, nevertheless in his visit to Abyssinia, found snow upon the mountains of Samen; and Mr. Pearce, in his passage over them, experienced a heavy fall. The thermometer in March, April, and May, averaged, according to the former gentleman, 70° at Chelicut, 65° at Antalo, 95° on the banks of the Tacazzé, and upon the mountains of Samen, was below the freezing point.

The inhabitants of Abyssinia are especially subject to fevers of different kinds, which are commonly fatal on the third day; after which period, those who survive, commonly recover. The tertian fever is particularly common. Fevers in Abyssinia not unfrequently terminate in intermittents; and if long continued, in dysenteries, which are often mortal. That species of dysentery beginning with a constant diarrhœa if it commence with the rainy season, is seldom cured. Bark, ipecacuanha, water, and fruit not over ripe, are sometimes administered with success; ipecacuanha in particular, provided the season be favourable, either removes it, or changes it to an intermitting fever, which yields to the bark. Another endemial disease is the '*hanzeer*,' (the hogs or swine) a swelling of the glands of the throat, and the parts under the arms; which by unsuccessful attempts to produce suppuration, and opening the tumours, becomes a running sore resembling the evil. Swellings of the whole body, especially the arms, thighs, and legs, accompanied by ulcers in the nose and mouth, are common in this country. These diseases sometimes yield to mercurials, and the last is speedily cured by antimonials. *Farenteit*, or the worm of Pharaoh, commonly attacks those who are in the habit of drinking stagnant water. It appears in all parts of the body, and is a worm with a small black head, and a white hooked beak, and a white body of a silky texture, resembling a small tendon. The natives seize it by the head, and wind it gently round a piece of silk, or on a bird's feather, and then extract it without much inconvenience. But the most terrible of all diseases, is the *elephantiasis*; for which, no cure has ever been discovered. See ELEPHANTIASIS. To the alternations of scorching heat and chilling cold, thin clothing, the use of stagnant putrid water, for four months in the year, &c. the endemial diseases of Abyssinia are attributed.

The variety of elevation in different parts of the country, occasions a proportionate variety of soil and productions. Corn is produced in great abundance. Teff is their chief article for bread; and where the grounds are unfit for the production of this, the tocusso plant is raised, yielding a black bread for the lowest classes. Although wine is not made in more than one or two places, there is every where the greatest profusion of fruits. Sena, cardamom, ginger, and cotton, are produced in great quantities. A species of rose grows upon large trees, and is in fragrance much superior to those which grow on bushes. The Balessan balm, or balsam plant, which produces the balm of Gilead mentioned in scripture, is found among the myrrh trees, on the coast of the Red Sea, all the way to Babelmandel. Sassa, myrrh, and opocalpasum are common in the same region. The ensete is an herbaceous plant, in Narea, which thrives chiefly in swampy places, and forms a considerable part of the vegetable food of the natives. The kolquall is a tree of which the lower part alone is woody, the upper being herbaceous and succulent; it makes a beautiful appearance, bearing a fine golden coloured flower, which ripens to a deep crimson fruit. The geshe-el-aube is a kind of grass, about Ras-el-Feel, which grows to the height of nearly three feet and a half. The gaguedi tree, running to the height of about nine feet, is a native of Lamalmon, and produces beautiful yellow flowers, which like the helianthus, are turned towards the sun. The wansey tree, common throughout the whole of Abyssinia, flowers the first day on which the rains cease; it grows to the height of 18 or 20 feet, and is highly

teemed by the Abyssinians, and by the Galla 'en worshipped. Kuara, a beautiful tree grow- ig in the southern and western parts of Abys- nia; producing a fruit resembling a red bean, 'hich in the early ages was used as a weight or gold. From this circumstance, Mr. Bruce nagines the imaginary weight carat, is derived. The wooginoos, or brucea antidysenterica, com- non in valleys throughout the whole country, is in antidote to the dysentery. Cusso, or banksia anthelmintica, is a beautiful tree, so called from ts being a strong anthelmintic. Nook, or nuk, resembling our marigold, produces abundance of oil. The lehem, or toberne montana, a tree common near the lake of Dembea, is remarkable for its beauty and fragrance; it grows to a con- siderable size, the extremities of its branches trailing on the ground, covered with flowers from top to bottom, each cluster containing between 85 and 90; open or shut the fruit is taken, but has rather a harsh taste. The anguah, found near the Tacazzé, produces a gum resembling frankincense. The leaves of the geesh, are put by the natives into their maize, and sometimes reduced to powder, and mixed with other ma- terials, of which they make sowa. The mergom- bey, a species of solanum, is used as a cathartic; and, from the niche, or niege, a species of the sesanum, they extract vegetable oil. A species of narrow ficus, near Shela, called by the natives chekunit, of which the inner bark is converted into matches for fire arms. Near Adowa, Mr. Salt found a new and beautiful species of amaryllis, bearing 10 or 12 spikes of bloom on each stem, emerging from one receptacle, as large as those of the belladonna. It is sweet scented, like the lilly of the valley, and has a white corolla, each petal being marked down the middle with a slight streak of bright purple. The bulbs are frequently two feet under ground.

Numerous plants and trees of Abyssinia, are however, yet undescribed; although Mr. Salt in his two recent journies added eight genera, and 128 species, to our vocabulary. The process of fructification is, in many instances, very singular. Although the same part of the tree flowers only once in 12 months, the blossoms appear and the fruit ripens, first, on the western boughs, next on the southern, then on the northern, and finally, on the eastern; which continues to pro- duce blossoms and fruit, till the commencement of the rainy season. The leaves of the trees being generally of a rough texture, and varnished, are admirably adapted to resist the rains.

The quadrupeds of Abyssinia are among the most remarkable in the world; and have, ac- cordingly, attracted the attention of travellers. Many of the cow species have no horns, but are distinguished by bosses on their backs; others, have horns of a prodigious size, as the galla, or sanga, whose horns are capable of holding ten quarts each. The horns of one of these animals are in the Museum of the College of Surgeons, in London. They are however, by no means common, being brought only by the Cafilas, or salt caravans, as valuable presents from the south. The sheep are small and black; the horses strong and beautiful; goats, mules, asses, and camels, are common. Of dogs there are two species, one of which lives in packs in the villages, like the paria dog in India; the other, is kept for game, especially guinea fowl, in taking which it is very expert. Cats are found in every house, and rats are numerous in the fields.

Of wild animals, Abyssinia furnishes vast numbers. There is a great variety of antelopes, one of which is supposed to be allied to the chamois. Several species of the monkey, wild- boar, porcupine, cavy, (nearly allied to that of the Cape) hares, and squirrels, are plentiful, but are thought unclean; also, an undescribed spe- cies of lemur, the size of a cat, with a long tail, faintly striped with black and white, and white bushy hair at the end; and clear white hair all over the body, except on the back, where there is a large oval spot covered with short deep black hair, of which every man in Tigrè is proud to have a piece on his shield. Elephants are hunt- ed by the Shangalla for their teeth. The cawe leopard is rare and very shy, being only found in the interior districts. The two-horned rhino- ceros is also rare, being found only in the forests of Wojjerat, and the low country, near the Funge. Of its horns, the foremost is two feet long, having no connexion with the bone of the head. The opinion of Sparrman is not improbable, namely, that the animal can raise or depress them at pleasure. The skin of this rhinoceros has no folds in it, as that of the one-horned species has, but is of sufficient strength to be made into shields; as is also that of the buffalo. Zebras are com- mon in the southern regions, and their manes are used to decorate the collars of the horses belong- ing to the most distinguished chiefs on days of state. Wild asses and lions, are found in the sandy districts, near the Tacazzé, and the skin of the latter richly ornamented, forms a dress like that worn by the Caffre chiefs. Whoever kills one of these animals, wears the paw on his shield. Of the leopard there are several species, one of which is black, and extremely rare, whose skin is worn only by governors of provinces. The lion-cat, tiger-cat, or grey lynx, and wild cat, are not uncommon. Civet is procured from the libet, and is an article of commerce. Wolves, foxes, sea foxes, and jackals, are numerous in every part of the country. But of all the quad- rupeds of Abyssinia, none exceed the merciless hyæna. "They were a plague" says Mr. Bruce, "in every situation, both in the city and in the field, and surpassed the sheep in number. Gon- dar was full of them, from the time it turned dark, till dawn of day; seeking the different pieces of slaughtered carcases, which this cruel and unclean people expose in the streets without burial." The hyæna, Mr. Salt remarks, has a singular cry, consisting of three distinct deep- toned cries, then silence for a few minutes, suc- ceeded by the same kind of noise. The hippopo- tami are chiefly found in the deep pits, like lochs between the fords of the Tacazzé; where they roll and snort like a porpus, but are not able to remain longer than five or six minutes at a time under water. Their colour is a dusky brown, like the elephant, and their usual length 15 feet. Whips, to brush away the flies in hot weather, are made of their skins, the butt-ends of which,

are adorned with hair from the tail of the camel-leopard.

The birds of Abyssinia exhibit every variety of appearance and plumage. Many species of the eagle, vulture and hawk, are found, especially after the tropical rains. These carnivorous birds feed at first upon the fish washed from the salt-springs, where they had been nourished by the force of the inundation, and left after the subsiding of the waters: when these fail, they turn their attention to the bodies of elephants and other beasts, slain by the hunters in the low-lands; rats and field-mice become their next prey, to which may be added the cattle slaughtered by the Abyssinian armies, and the dead bodies which remain upon the field of battle. Many of the birds of Abyssinia feed upon insects, others upon grain, seeds, and fruits. It is an advantage of granivorous birds, that, as the country is crossed by mountains that divide the seasons, and the rains in different parts fall at different periods, they have but a short passage from time to time to supply themselves with food. Of the numerous species of pigeons, all except one, which occupies the eaves of houses, &c.; are migratory. The owls are large and beautiful. The swallows, common in Europe, appear in passage at the very season when they leave that continent: numerous other kinds however are found, which are unknown in Europe. The large birds, resident in the mountains of Samen and Taranta, have tubular feathers, the hollow part being filled with yellow dust, which, agitated by the motion of the animal, issues out in great abundance. The dust expressed from the wing of a nisser, or golden eagle, appeared, says Mr. Bruce, through a microscope with a strong magnifying power, like fine feathers. One of these birds measured eight feet four inches from wing to wing, and nearly five feet from the tip of his tail to the termination of his beak. The rachamah, or black eagle, with several other species, called erkoom, moroc, sheregrig, and waalia, are particularly described by Mr. Bruce, to which Mr. Salt has added a new species, called goodie-goodie, about the size of a falcon, the colour deep brown, and the breast a clear white; the crows have nearly an equal proportion of black and white. The black feathers of the raven are intermixed with brown ones, the tip of his beak white, and a tuft of white feathers on his head, somewhat resembling a chalice or cup. Web-footed water-fowl are generally scarce, but storks and snipes are numerous. There is but one species of goose, called the golden goose, or goose of the Nile, which is common through all the South of Africa. A new species of the vulture has been recently discovered. Ostriches are sometimes met with in the low districts to the north. The hern inhabits marshy ground. The solitary hornbill is often seen in the district of Tigrè. The Egyptian goose, allied to the *Anas Lybica*, is seen in some parts occasionally. Quails, guinea fowls, and partridges, abound. Amongst other rare birds brought home by Mr. Salt from Abyssinia, may be mentioned the following: A new species of bucco, since called *Bucco Saltii*, which clings to the branches of trees, like the woodpecker; a variety of the upupa erythrorhynchos, with a black tail; it feeds on the figs of the ficus sycamorus; a nondescript species of the merops; a new species of tanapa, which perches on the backs of cattle, and feeds upon the grubs which live upon them in hot weather; the columba Abyssinica, which flies wild among the daro trees; the Erodia amphilorsis, supposed to be a new genus of the Arodea Pondiceriana; also the Cursorius Europæus, an extremely rare bird, shot on the sandy plains traversed by the river Tacazzé.

Of the insects produced in Abyssinia, the most dreadful is the tsaltsalya, a species of the fly somewhat larger than a bee, with colourless wings of pure gauze, placed separately, like those of a fly. This insect is distinguished by a large head and sharp upper jaw, armed at the end with a strong pointed hair, about a quarter of an inch in length, the lower jaw being furnished with two of these hairs, whilst the legs are serrated in the inside and covered with down. Its motion is rapid, like that of a gad-fly, producing a jarring noise, accompanied by a humming, which is no sooner heard than the utmost consternation prevails amongst the cattle, who use every effort to escape his attack. The thick skin of the camel is no security against the proboscis of this dreadful insect, which, whenever it wounds, injects a venom which causes the part to swell, break, and mortify, to the certain destruction of the animal. Of the ravages of the Abyssinian locust, Mr. Salt gives a most dreadful account. Bees are domesticated in the province of Wojjerat, and white honey is produced in great quantities, and sold at Antalo.

The large snake called boa, about the thickness of a man's thigh, and upwards of twenty feet in length, is frequent in Abyssinia. The grassy verge of large pools affords him an agreeable resort; his chief subsistence is antelopes and deer, which he swallows piece-meal after crushing their bones. The cerastes, or horned viper, is commonly about thirteen or fourteen inches in length, and its poison is contained in a bag under its canine teeth. This reptile moves in all directions with great rapidity, springing suddenly upon its victim after approaching with its head averted to a proper distance. The reality of the incantation of serpents and scorpions, which in some is natural, and in others produced by medical preparations, is asserted by Mr. Bruce.

The torpedo and binny are amongst the most remarkable fishes, the latter of which is good for food. It grows to a considerable size, and its body is covered all over with beautiful scales resembling silver spangles.

The agriculture of Abyssinia is not in a state of great perfection; the worst grain is used for seed; and as almost every man cultivates for the support of his own family, it is seldom sold. The ploughs are rudely formed from the root or branch of a tree, and drawn by oxen; although in some cases iron ploughshares are employed. The land is twice ploughed, and afterwards the clods broken by women: the corn, when half ripe, is weeded by men, women, and children, singing as they work. The harvests are reaped by females, who, when strangers pass, utter a

sharp shrill cry, the Liralect of Syria, where the same custom is in vogue. It is produced by trilling the tongue against the roof of the mouth, and is, in effect, a constant repetition of the syllable *al*, uttered with the utmost rapidity. The grain, when gathered, is in most places secured from the weather by a covering of tanned kid skins. The plain of Larai, near Dixan, is in a state of high cultivation, and is rendered eminently productive by the constant practice of irrigation. In appearance, it greatly resembles the vale of Evesham.

With respect to the government of this country, nothing can be more despotic, there being no legal control over the absolute will of the sovereign; and yet, from the want of adequate military force, his authority is capable of being set at defiance, in any of the districts, by the inferior governors; so that hereditary succession, in Abyssinia, imposes but a feeble restraint on those civil wars and commotions, which continue to barbarize the people.

The ceremony of coronation consists in anointing the king with plain oil of olives, which, when poured upon the crown of his head, he rubs into his long hair with both his hands. In former times it was of a more splendid description. The king, arrayed in crimson damask, with a great chain of gold about his neck, his head bare, and mounted on a horse richly caparisoned, advanced at the head of his nobility, passed the outer court of his palace as far as the paved way before the church, where he was met by a number of young girls, daughters of the ambares, or supreme judges, with many other noble virgins, standing on the right and left of the court. Of these, the two most distinguished in point of rank held in their hands a crimson cord of silk, stretched across from one company to another, about breast high, as if to prevent the king's passing into the church. When this was prepared, the sovereign advanced at a moderate pace, displaying, as he passed, his skill in horsemanship; and being stopped by the string, the damsels asked who he was; to which he replied, "I am your king, the king of Ethiopia." The virgins then answered him, "You shall not pass, you are not our king." Retiring some paces, he again presented himself, and the same question was repeated, when he answered, "I am your king, the king of Israel;" the same reply was still given by the girls. But the third time, on being asked who he was, he replied, "I am your king, the king of Zion," and drawing his sword, cut the string asunder. Upon this, the damsels cried out, "It is a truth, you are our king; truly you are the king of Zion." Upon this, they began to sing hallelujahs, in which they were joined by the army and the whole concourse of the king's attendants. The king, in the mean time, advanced to the foot of the church stair, dismounted and sat down upon a stone resembling the altar of Anubis or the dog-star. A number of priests approached in procession. The king was then anointed, crowned, and accompanied half up the stairs by ecclesiastics, singing as they ascended. At an aperture made in one of the steps he remained stationary, and was fumigated with myrrh, aloes, and cassia; after which divine service was celebrated, and he returned to the camp, where 14 days were spent in feasting and rejoicing.

The king is saluted like the ancient Persian monarch with the title of "king of kings;" and the royal person is approached with every external sign of adoration; nor in his presence does any one venture to rise from the ground till he receives orders to that effect. When he resides abroad or gives audience, his head is perfectly covered, and his eyes only are seen, while one hand is placed upon his mouth. He communicates with his subjects by means of an officer named Kal-Hatze, the voice or word of the king. When in council he sits enclosed in a balcony with lattice windows and curtains, through a hole in the side of which he speaks to the Kal-Hatze. When in the field he is attended by an officer called Lika Magwass, who carries his shield and lance. Such formerly was the respect paid to him, that no king ever fell in battle, and even now he is often secured by arraying himself in his royal insignia.

The administration of justice in Abyssinia is deplorable, and complainants stand before the palace from day-break to evening, uttering loud cries in their respective languages. So accustomed is the king to these querulous tones of sorrow, that when the rains prevent such as are really distressed from repairing to the capital, a set of vagrants are provided whose object it is to raise the cry of artificial sorrow, lest he should feel a lonely quietness. The phrase adopted on all occasions is, *Rete O jau hai*, Do me justice, O king!

No satisfactory information has at present been obtained with respect to the population of Abyssinia. The account of Alvarez is, that it is one of the most populous regions of the globe. From Mr. Bruce, on the other hand, it appears that although in so barbarous a state, it may be supposed that every tenth person joins the army, yet it is difficult to raise a force of more than 30,000. It is probable that the truth lies between these two extremes.

The devastations committed by the Abyssinian army in their march, says a celebrated traveller are such that they leave nothing living behind them, not "even the vestige of an habitation, but fire and the sword reduce every thing to a wilderness and solitude. The beasts and birds, unmolested, have the country to themselves, and increase beyond all possible conception. The slovenly manners of this people, who, after a battle, bury neither friends nor enemies; the quantity of beasts of burthen that die perpetually under the load of baggage, and variety of mismanagement; the offal and half-eaten carcases of cows, goats, and sheep, which they consume on their march: all furnish a stock of carrion sufficient to occasion contagious distempers, were there not such a prodigious number of voracious attendants who consume them almost before putrefaction. There is no giving the reader any idea of their number, unless by comparing them to the sands of the sea. While the army is in motion, they are a black canopy, which extends over it for leagues. When encamped, the ground is dis-

coloured with them beyond the sight of the eye, and all the trees are loaded with them." In Abyssinia, the number of criminals executed for high treason, whose bodies are cut in pieces and thrown about the streets, invite the hyænas to the capital, in the same manner as the birds of prey are invited by the carrion of the camp. To keep them off "an officer called Serach Massery, with a long whip begins cracking and making a noise worse than twenty French postilions at the door of the palace before the dawn of day. This chases away the hyænas and other wild beasts: this too is the signal for the king's rising, who sits in judgment every morning fasting, and after that, about eight o'clock, goes to breakfast."

The houses of Abyssinia are in general thatched and mean; those of the grandees are spacious, but the only approach to architectural grandeur is to be seen in their churches, which are built on commanding eminences of a circular form, with conical thatched roofs, surrounded with pillars of cedar; within which is commonly a refreshing arcade.

Gondar, the metropolis of Abyssinia, is built upon a hill of considerable height, the top of which is flat. It consists of about 10,000 families. The houses are mostly of clay, and the roofs thatched in the form of cones. The king's palace at the west end of the town, consists of four stories, flanked with square towers, commanding a fine view of the country southward as far as the lake Tzana. It was formerly a considerable edifice; but having been often burnt, most of it is now in ruins. The audience chamber is 120 feet long. The palace and its contiguous buildings are surrounded by a stone wall 30 feet high, with battlements and a parapet roof, from which the street is seen to great advantage. Koscam the palace of the Iteghe, is situated on the southern side of the Mountains of the Sun. It is a square tower of three stories, with flat roof and battlements, encompassed by a wall which is a mile in circumference, including the richest church in the kingdom. Higher on the hill are the houses of the people of rank, who are for the most part relations of the Iteghe.

Axum, the ruins of which are very extensive, was the ancient capital of Abyssinia, supposed to have been constructed in the time of Abraham. Among the ruins are 40 obelisks of granite; but without hieroglyphics; also the traces of a magnificent temple, originally 110 feet in length, with two wings on each side, a double porch, and an ascent of 12 steps. Sire is larger than Axum, and is situated on the brink of a steep narrow valley. The houses are built of clay, and covered with thatch. Adowa, a town of great importance in the province of Tigré, does not contain more than 300 houses; although by reason of the inclosures of a tree, called the wanzey, surrounding each of the houses, it occupies a spacious area. It stands on the declivity of a hill, on the west side of a small plain, surrounded by mountains, and is watered by three streams, which never become dry, even in the most arid seasons. Masuah is situated on an island, and the houses, except about 20, which are of stone, are built of poles and bent grass. It carries on a considerable trade, but upon small capitals; property where the hand of power is unlimited, being too precarious to risk a venture in valuable commodities. Gondar and all the neighbouring country depend for the necessaries of life upon the Agows, who inhabit the province at the sources of the Nile, and come down to the number of 1000, or 1500 at a time, loaded with wheat, honey, butter, cattle, hides, wax, &c. to the capital.

The natives of this country are of a dark olive complexion, and are so averse to white, that they dislike white grapes on account of the colour. Their dress consists of a large folding mantle with a blue and yellow border, wrapped round them and bound with a sash. Close drawers are also common, to which the priests add a vest of white linen next the skin. They are commonly girt with a belt of white cloth; or among the higher orders, of red Indian cotton with girdles of silk or worsted, brought from the Levant. On the head they wear a small shawl of white cotton, with the crown exposed. Their principal liquor is called maize, made with honey, fermented with barley, and strengthened with the root of the *Rhamnus inebrians*, called *sadoo*. The liquor is drank out of Venetian decanters, called *brulhes*. The common drink amongst the lower classes is made of the bread left at their feasts, and parched barley: it is called *sowa*, and is drank out of horns.

Marriage amongst the Abyssinians is generally a civil contract, and for the most part imperfectly observed. The female, who is seldom consulted on the occasion, is carried to the house of her husband, either on his shoulders or those of his friends. The bride and bridegroom are sometimes seated on a throne of turf, shaded with boughs, round which the relations vociferate and dance. Marriage by civil contract, can be dissolved at pleasure, and requires for this purpose, nothing more than the assent of one or other of the parties. It is renewed again as often as it is agreeable to both parties; who, after they have been divorced, and connected with others, cohabit together as before. "I remember," says Bruce, "to have been once at Koscam, in the presence of the Iteghe, when in the circle there was a woman of great quality, and seven men who had all been her husbands, none of whom was the happy spouse at that time." Ladies of rank retain their estates and maiden names, and assume great superiority over their husbands. There is no distinction between legitimate and illegitimate children; and in case of separation, they are equally divided; the eldest son falls to the mother's first choice, the eldest daughter to the father, &c. If the numbers are unequal after the first election, the rest are divided by lot. The dowry which consists of gold, cattle, musquets, and cloth, is also returned in case of separation. Princesses of the royal blood are not permitted to marry foreigners; and when they take the air, they go in great state, with 400 or 500 women attendants. In some cases marriage is entered into by religious contract, and the sacrament taken imme-

diately after the ceremony; but these occasions are seldom. The king himself only sends a message to the lady he chooses. The usual period of marriage is, in males about ten years old, in females younger; and although in some parts the same man cohabits with several women, and provides them with separate residences; one only is deemed his lawful wife. The women are of a healthy constitution, active, and moderately handsome, having neither flat noses nor thick lips like the negroes. They stand in little need of midwives, which is indeed the case in most countries of the torrid zone. They appear in public, the same as in Europe, without being forbidden the conversation of the men.

When a person is diseased, especially if his disease be the Tigrè-ter, his relations shew him all the gold and silver ornaments, fine clothes, &c. which they can collect, making at the same time, a dreadful noise with drums and musical instruments, to drive out the devil, who, as they imagine, produces the disease. As death approaches, the drums, &c. are silent, and are succeeded after the decease by howling, and tearing the hair and skin from the temples. The body is immediately washed, fumigated with incense, sewed up in its former apparel, and buried in great haste. After the burial, commences the toscar, or feast of the dead. An image of the deceased in rich garments, is set upon his favourite mule, and carried through the city, accompanied by other mules, &c. in gay apparel, together with a number of hired female mourners, crying out, as in Ireland, "Why did you leave us? had you not houses and land?" On the return of the procession, an immense number of the people are feasted, and a repetition of this feast at intervals, is given by the different relations; who vie with each other in profusion and liberality. The property of the deceased then descends to his children and relations; and if these are wanting, is divided between the priests and the poor.

In case of murder, the criminal is generally given up to the relations of the deceased, who take him to the market-place, and shortly despatch him with their knives and spears. A person accused of any crime, is immediately on his apprehension, tied by his garments to another, and if he runs away and leave his garments behind him, it is thought a certain proof of guilt. Disputes are commonly decided by the Ras, before whom each party stakes a mule, together with a considerable quantity of gold, slaves, salt, &c. on the veracity of his statement; and these, should his assertion be controverted, are forfeited to the Ras.

The cruel custom of cutting the *shulada*, the mention of which subjected Mr. Bruce to the imputation of romance, has been confirmed on the testimony of subsequent travellers in Abyssinia. It consists in cutting pieces of flesh or raw steaks from the living animal, and eating them raw, and even while yet quivering with life; after which the wound is closed and the animal driven forward. Mr. Bruce relates, that near Axum he fell in with three soldiers "driving a cow. They halted at a brook, threw down the beast, and one of them cut a pretty large collop of flesh from its buttock; after which they drove the cow gently on as before." In another place he tells us that the flesh was taken from the upper part of the buttock, after which the skin was flapped over the wound, fastened with a skewer, and a cataplasm of clay put over all. The following description of one of their feasts will throw a great light upon Abyssinian manners: "A number of people of the best fashion in the villages, of both sexes, courtiers in the palace, or citizens in the town, meet together to dine between twelve and one o'clock. A long table is set in the middle of a large room, and benches beside it," for the accommodation of the guests. "A cow or bull is brought to the door, and his feet strongly tied. The skin that hangs down under his chin and throat," called the dewlap in England, "is cut only so deep as to arrive at the fat, of which it totally consists;" and is managed with such dexterity, that by the separation of a few small blood vessels, six or seven drops of blood only fall upon the ground. Having satisfied, as they imagine, the Mosaic law, by pouring these six or seven drops of blood upon the ground: "two or more of them fall to work: on the back of the beast, and on each side of the spine they cut skin deep, then putting their fingers between the flesh and the skin, they begin to strip the hide of the animal half way down his ribs, and so on to the buttock, cutting the skin whenever it hinders them commodiously to strip the poor animal bare. All the flesh on the buttock is cut off then, and in solid square pieces, without bones or much effusion of blood; and the prodigious noise the animal makes, is a signal for the company to sit down to table. There are then laid before every guest, instead of plates, round cakes about twice as thick as a pancake, and something thicker and tougher. It is unleavened bread of a sourish taste, far from being disagreeable, and very easily digested, made of a grain called teff. Three or four of these are generally put uppermost for the food of the person opposite to whose seat they are placed. Beneath these are four or five of ordinary bread, and of a blackish kind. These serve the master to wipe his fingers on, and afterwards the servant for bread to his dinner. Two or three servants then come, each with a square piece of beef in his bare hands, laying it upon the cakes of teff placed like dishes down the table. By this time all the guests have knives in their hands, and the men have large crooked ones, which they put to all sorts of uses during the time of war: the women have small clasp knives. The company are so ranged that one man sits between two women; the man with his long knife cuts a thin piece, which would be thought a good beef-steak in England; while you see the motion of the fibres yet perfectly distinct and alive in the flesh. No man in Abyssinia of any fashion whatever feeds himself, or touches his own meat. The women take the steak and cut it length ways like strings, about the thickness of your little finger, then cross-ways into square pieces, something smaller than dice. This they lay upon a piece of the teff bread, strongly powdered with black pepper or cayenne, and fossil salt;

they then wrap it up in the tef bread like a cartridge: in the mean time the man having put down his knife, with each hand resting upon his neighbour's knee, puts his head forward, and opening his mouth, turns to the one whose cartridge is first ready, who stuffs the whole of it into his mouth, which is so full that he is in constant danger of being choked. This is a mark of grandeur; the greater a man would seem to be, the larger a piece he takes in his mouth; and the more noise he makes in chewing it, the more polite he is thought to be. Having dispatched this morsel, his next female neighbour holds forth another cartridge, which goes the same way, and so on till he is satisfied. He never drinks till he has finished eating; and before he begins, in gratitude to the fair ones who fed him, he makes up two small rolls of the same kind and form, each of his neighbours opening their mouth at the same time, while with each hand he puts their portion into their mouths. He then falls to drinking out of a large handsome horn. The ladies eat till they are satisfied, then all drink together, '*Vive la joye et la jeunesse.*' A great deal of joke and mirth goes round, very seldom with any mixture of acrimony or ill-humour. At this time the unfortunate victim at the door is bleeding, indeed, but bleeding little. As long as they can cut off the flesh from his bones, they do not meddle with the thighs or the parts where the great arteries are. At last they fall upon the thighs likewise, and soon after the animal bleeding to death, becomes so tough that the cannibals who have the rest of it to eat, find very hard work to separate the flesh from the bones with their teeth like dogs." Such is Bruce's description of an Abyssinian feast; and although that of Mr. Salt in some respects softens the impressions produced by his predecessor, he nevertheless represents the barbarity of the inhabitants in a light almost equally degrading.

The languages spoken in Abyssinia and the neighbouring districts are a corruption of the Geez called Tigrè, Gafat, Amharic, Agow, Falashan, Teheretch, Agow, Galla, and Shangalla. The Amharic, the modern language of Abyssinia, is an Arabic dialect, more simple than the Geez in the form of its verbs. The Falasha is spoken by the tribes professing the religion of the Jews, who formerly ruled in Dembea, Samen, and near the Augrab; and Kahha is one of the ancient Ethiopian tongues. The people of Gafat speak a corrupt dialect of the Amharic.

The Abyssinians compute their time by the solar year, after the manner of the ancient Egyptians. Their month consists of thirty days, to which, in the month of August, is added five days and a quarter to complete the year. The year commences with the 29th or the 30th of August, which is the 1st of their month *Mascaram*; and to every fourth year they add a sixth day. Their common epoch is from the creation of the world, from which they reckon 5500 years to the birth of Christ, rejecting the odd eight years of the Greeks, who made that period. They have other epochs, as from the councils of Nice and Ephesus, but in ecclesiastical computations, they follow the golden number and epact, invented in the reign of Severus by Demetrius, the twelfth patriarch of Alexandria. They also compute time, by calling their years after the names of the Evangelists, whose writings are read in order every year in their churches; thus, for example, they would say of any events, "They happened in the days of Saint Matthew," that is, in the first quarter of a year, while the writings of Saint Matthew were read in their churches. Their computation of the day is very arbitrary. The beginning of the day comprehending the duration of the twilight they call naggé. From the beginning of evening twilight, to the rising of the stars, they call méset. Midday is called kater, or culmination; and every other part of the day is described by pointing out the place in the heavens where the sun was at the time of which they are speaking.

The use of money being unknown, the revenue is paid in bullion gold. Agowmidre pays annually to the king 1000 ounces of gold, 1000 dabres of honey, and 1000 or 1500 cattle. Damel pays 800 ounces of gold, and thus the income of government is levied in different proportions all over the country. Fossil salt supplies the want of money, and passes current in square pieces. At Masuah several coins have been introduced. The Venetian sequin is equal to two and a quarter pataka; the pataka, or imperial dollar to 28 harfs; one harf to four diwani; one diwani to ten kibur; and one kibur to three boorjoorke or grains, which latter consists of small glass beads of all descriptions and colours, broken or entire. The wakea, or ounce, is equal to ten derims or drachms, and twelve ounces make a liter, *rotal*, or Abyssinian pound. A gondar or wekea is equal to six drachms forty grains troy weight, and is divided into ten drachms of forty grains each. The ordinary value of a wakea is about 76 of the salt pieces mentioned above. The grain measure used in Abyssinia is the ardeb, containing ten measures called madaga, each equal to twelve ounces Cairo weight. An ardeb of grain costs two derims, or two patakas, An ardeb of teff is the same, and six or eight ardeb of tocusso are equal to an ounce, or ten derims of gold.

The commerce of Abyssinia is confined mostly to the shores of the Arabian gulf, and its manufactures are few and insignificant. They unravel the threads of the blue cloth of Surat, and weave them into their own webs; and procure a black dye from earth, and red, light blue, and yellow, from vegetables. Fine cloth is manufactured at Gondar, and coarse at Adowa, and the latter, besides its common use, circulates as money. The natives of Abyssinia tan hides to great perfection, through the use of the plant merjombey, a species of the solanum, and the juice of the kolquall tree.

The Abyssinians appear in every respect greatly below the rank of civilized nations. They seem indeed, by their churches and other ruined places, to have had a knowledge of architecture. But the workmen were sent for from other countries; so that when these fabrics were reared, especially the imperial palace built by Fr. Paez, a Spanish Missionary, the people flocked from all parts of Ethiopia to view it, and admired it as a new wonder of the world. Gold, silver, copper, and iron, are the

principal ores with which their mines abound in this extensive part of Africa: but not above one-third part is made use of by way of merchandize, or converted into money; of which they have little or no use in Abyssinia. They cut their gold indeed into small pieces for the pay of their troops, and for the expences of the court; but this is a modern custom among them; the king's gold, before the end of the 17th century, was laid up in his treasury in ingots, with intent to be never carried out, nor ever used in any thing but vessels or trinkets for the service of the palace.

Mr. Bruce informs us, from the annals of Abyssinia, that, in the reign of Solomon, the Abyssinians were converted to Judaism, and the government, ecclesiastical and civil, modelled according to what was then in use at Jerusalem. Some ecclesiastical historians affirm, that the conversion of the Abyssinians to Christianity, took place in the days of the Apostles, and was effected by the Ethiopian eunuch, whom Philip baptized. Whatever truth may be in that tradition, it appears that Frumentius, who was ordained about the year 333, was their first bishop, and instructed them in the religion of the Greek church of Alexandria. At present they are a mixture of Moors, Pagans, Jews, and Christians. This last was the reigning and established religion, but in a very low state of degradation, when father Jerome Lobo visited it in 1624, as well as when Mr. Bruce travelled through it. This diversity of people and religion is the reason, that the kingdom in different parts, is under different forms of government, and that their laws and customs are extremely various.

The Abyssinians are described as a branch of the Copts or Jacobites, with whom they agree in admitting but one nature in Jesus Christ, and rejecting the council of Chalcedon, on which account they are called Eutychians and Monophysites. The church is governed by a bishop or metropolitan, styled Abuna, appointed by the Coptic patriarch of Alexandria, residing at Cairo. Next in dignity is the Komos, or Hegumenos, a sort of arch-presbyter, who has the inferior clergy, together with the secular affairs of the parish, under his inspection. The deacons are of the lowest order of priesthood. The canons never marry. The monks, at their admission, vow aloud before their superiors to keep chastity, but they add, in a whispering tone, '*as you keep it.*' The debtarahs, or chanters, who assist in the musical parts of the service, are in higher esteem than the Komos, though not of equal rank. The emperor confers all benefices except that of Abuna, and takes cognizance of all ecclesiastical causes. The monks are extremely ignorant, and are of two kinds, viz, those of Debra Libanos, and those of St. Eustathius. Their superior in the north west of the country, is the Itchegué. He is ordained by two chief priests holding a veil or white cloth over his head, and a third repeating a prayer; after which they all join together in singing psalms.

Though the Abyssinians profess Christianity, they practise circumcision, which they extend to both sexes. They observe Saturday and Sunday for sabbaths; oblige women to perform the legal purifications, and abstain from meats forbidden in the law of Moses. Their Lent continues 52 days, during which they never taste food till after sunset. On the feast of Epiphany, which, according to the Abyssinians, is the 11th of January, they assemble near brooks, into which, after receiving the priest's blessing, they jump, leaping, dancing, and shouting. In the performance of baptism, their priests are engaged, one with incense, another with a golden cross, and a third with the consecrated oil from the patriarch of Alexandria. The candidate is first washed over with water, then crossed on the forehead with some of that water, over which the incense has been waved, and the consecrated oil dropped into. If the candidate be a Mahometan, every joint and limb is crossed with the consecrated oil; he is then wrapped in a white linen cloth, and partakes of the sacrament. No unbaptized person may enter a church. Great numbers of pilgrims, in a yellow dress, with cords round their waists, resort to the beautiful plains of Walasse. The Christians near Dixan, are distinguished by a cross on their breast, arm, &c. They say prayers over whatever they eat, drink, receive, or give, and then blow on it, turning their heads to the east. When they kill animals they turn their backs to the west. They never kill the goodie-goodie falcon, and when a traveller meets one he watches it,—if it sit still with its breast towards him till he is past, it is a good omen,—if its back be towards him, it is unpropitious,—if it fly away, he returns. It is generally believed that every worker in iron at night, transforms himself into an hyæna, and devours human flesh. One of their saint's days is consecrated to Balaam's ass, another to Pilate and his wife, because Pilate washed his hands before he condemned Christ, after the message received from his wife. They at least equal the church of Rome in miracles and legends of saints, which greatly embarrassed the Jesuits; to whom they told such miracles in proof of their religion, that the missionaries were obliged to deny miracles to be any proof at all. Prayers for the dead, invocation of saints and angels, &c. &c. are common. Images in painting decorate their churches, but they abhor all images in relievo except the cross. They admit the apocryphal books with the apostolic canons and constitutions to be genuine, but consider the Canticles a love-song of Solomon to Pharaoh's daughter. The Jews in this country retain their ancient distinction, Caraites and Talmudists. Ludolf mentions another sect upon the frontiers, between them and the Caffres, supposed to have descended from the captives taken by the kings of Assyria and Babylon. They were never incorporated with other Jews, but have always been *salaxa*, or strangers. Their Bible is in the corrupt Talmudic dialect.

Acacia, *ακακια* or *ακαζω*, to sharpen; in botany, a name given by Pliny to a thorny tree of Egypt, supposed to have yielded the gummi Arabicum. In the Linnæan system it is the mimosa nilotica.

The common acacia of this country is the

Robinia-psuedo-acacia of Linnæus: and the rosa acacia (so called from its rose coloured flowers) is the Robinia hispida of that writer.

In the Materia Medica an inspissated juice of the first of them is used as an astringent: and is sometimes successfully imitated by the juice of sloes boiled to the same consistence.

ACACIANS, in ecclesiastical history, a sect of heretics, of the fourth century, so named from Acacius, bishop of Cæsarea, who denied the Son to be of the same substance with the Father. Their founder was successor to Eusebius, and surnamed Luscus, from being blind of one eye.

ACACIUS, (St.) bishop of Amida, in Mesopotamia, in 220, distinguished by his piety and charity, sold the plate belonging to his church, to redeem seven thousand Persian slaves, and giving each of them some money, sent them home. Their king, Veranius, was so affected with this instance of benevolence, that he desired to see the bishop: and the interview resulted in a peace between that prince and Theodosius I.

AC'ADEME, ACAD'EMY, ACADE'MIAN, ACADEM'ICAL, ACADEM'ICALLY, ACADEMI'CIAN, ACADEM'ICK, ACADE'MIST. Academia, a grove in the suburbs of Athens, deriving its name from the proprietor Academus, who adorned it with spacious walks, so that it became the resort of the Socratic or Platonic sect of philosophers, since called *academics*. *Academy* has since been used to designate a literary or scientific society, university, or school.

But ye withdrowen frome this man, that he hath been nourished in my studies or scholes of eleatices, and of *achademicies*, in Greece.

Chaucer's Bœcius, b. i.

Our court shall be a little *academe*,
Still and contemplative in living arts.

Shakspeare's Love's Labour Lost.

Amongst the *academies*, which were composed by the rare genius of those great men, these four are reckoned as the principal, namely, the Athenian school, that of Sicyon, that of Rhodes, and that of Corinth. *Dryden's Dufresnoy.*

Academical study may be comprised in two points: reading and meditation.

Berkeley's Minute Philosopher.

A young *academic* shall dwell upon a journal, that treats of trade, and be lavish in the praise of the author; while persons, skilled in those subjects, hear the tattle with contempt.

Watts's Improvement of the Mind.

While through poetic scenes the genius roves,
Or wanders wild in *academic* groves.

Dunciad, b. iv.

He drew him first into the fatal circle, from a kind of resolved privateness; where, after the *academical* life, he had taken such a taste of the rural; as I have heard him say, that he could well have bent his mind to a retired course. *Wotton.*

It is observed by the Parisian *academists*, that, some amphibious quadrupeds, particularly the sea-calf or seal, hath his epiglottis extraordinarily large.

Ray on the Creation.

ACADEMY.

ACADEMY, originally intended a villa or grove, situated about six stadia, or three quarters of a mile from Athens, the seat of literature and the arts, where Plato taught the substance of his philosophy. The origin of the name is by some derived from Cadmus, commonly called the Phœnician, because he introduced the learning of Egypt into Greece, and brought the sixteen simple letters of the Greek alphabet from Phœnicia. Its origin, however, is more properly ascribed to Academus, or Ecademus, to whom it at first belonged, and who bequeathed it to the citizens for a gymnasium. It was diversified by Cimon with fountains, trees, and walks, for the convenience of philosophers in their private meditations, surrounded with a wall built by Hipparchus, and rendered more solemn by becoming the burial place of illustrious men.

Plato purchased a small garden for 3000 drachmas, equal to £116. 10*s*. 6*d*. of our money, and delivered lectures for the benefit of all who attended. In allusion to this circumstance, all public places for the association and resort of learned men have been since called academies. Cicero had a small villa near Puzzuoli, called Academia, in which he entertained his friends, and composed his book De Natura Deorum, also his academical questions. Academy is now used in a general sense, to signify a society of learned men, formed for their own improvement, and the promotion of the arts. Ptolemy Soter, it is said, founded an academy at Alexandria *for the encouragement of learning and the sciences*, provided with a collection of books, which afterwards became the finest library in the world, commonly called the "Alexandrian Library;" and Theodosius established an academy at Constantinople, furnished with a number of professors in every department of science and knowledge, intended to rival the institution of Rome destroyed by the Goths at the close of the fourth century.

An academy is different from an university. The latter consists of graduates in the several faculties; of professors who teach in the public schools; of regents or tutors, and students who learn under them; whereas the former is not intended to teach, but to improve. It is not strictly for students to learn in, but for distinguished proficients to confer in, and communicate their lights and discoveries to each other for the general improvement. The first academy of which we read was that of Charlemagne, established at the request of Alcuin his preceptor, to improve the language of the country, as well as elicit a general attention to literature and the arts. During their academical conferences, each member delivered a statement of the ancient authors he had read, and a short commentary upon them, assuming at the same time, the name of the ancient author which gave him most satisfaction. Alcuin took the name of Flaccus,

Augilbert, of Homer; Adelard, bishop of Corbile, was called Augustin; and the king himself, David. The institution perished at the death of Alcuin, and literature seemed as if banished from the world. Although many eminent characters arose, in the dark ages that followed, resembling meteors that dart through the midnight gloom, there was no union of effort, no combination of genius, no interchange of thought, no associations that could promote or even protect knowledge; and had not the muses on their banishment from the academic haunts of public patronage, retired into the private cells of monastic superstition, and there preserved the compositions of antiquity, every spark of light must have been extinguished. After the overthrow of the Roman empire by the Turks about the year 1453, several eminent Greek scholars settled in the West of Europe, chiefly in Italy, under the sanction of Pope Nicholas and the Medicean family. These imported with them the treasures of Grecian knowledge and antiquity, and forming themselves into academies, and intellectual societies, schools, libraries, and museums, began to spread over the face of Europe. Of these useful institutions we shall at present merely attempt an enumeration. The first class of them comes under the head of

Academies of Antiquities.—*The Academy of Cortona* is designed for the study of Etrurian Antiquities, which are very numerous and extensive. The principal is called Lucomon, a name derived from the ancient governors of Hetruria, and the institution imposes a tax of dissertation on each member in his turn.

The Academy of Antiquities at Upsal, is designed for the illustration of Swedish antiquities, as also the cultivation and improvement of the Northern languages.

In the 15th century, under the pontificate of Paul II. an attempt was made at Rome to establish a similar institution, but it was defeated by the persecuting spirit of the papal hierarchy. And although resumed by Leo X. with apparent success, it gradually dwindled to insignificance, and some others that arose from its ruins were shortly extinguished.

The Academy of Inscriptions and Medals at Paris commenced in the generous exertions of M. Colbert in 1663, under the patronage of Louis XIV; it was designed for the study and explanation of antique monuments, also for the perpetuation of memorable events (especially those of the French monarchy) by coins, relievos, inscriptions, &c. The number of members at first did not exceed four, from which circumstance it acquired the name of *Petite Academy*. But on July 16, 1701, the institution was greatly enlarged, and consisted of 10 honorary members, 10 pensioners, 10 associates, (each of whom had two declarative voices,) and 10 eléves, or pupils. Shortly after the class of eléves was suppressed, and added to the associates; then a yearly president and vice president were appointed by the king, and other inferior managers whose offices were perpetual. The earliest and most considerable attempt of this academy, was a complete history of the most important events of the reign of Louis, accomplished by means of medals. This they effected as far as the elevation of the Duke of Anjou to the crown of Spain, besides which they published several volumes of essays in the form of memoirs. The motto of the society was '*vetat mori*,' and Mercury is represented on one of their medals, sitting and writing with an antique styler on a table of brass, leaning with his left hand upon an urn full of medals, whilst others on a board are lying at his feet, the legend "Rerum gestarum fides," and on the exergue "Academia regia inscriptionum et numismatum, instituta M.DC.LXIII. intimating that the Royal Academy of Medals and Inscriptions ought to give to future ages a faithful testimony of great actions. The usefulness of this and other French Academies has been prevented by the political changes and events connected with the late revolution.

The Academy of Herculaneum was established at Naples in 1755, when a museum was formed for the bestowment and preservation of the antiquities excavated from the ruins of Herculaneum and Pompeia, by the marquis Tanucci, minister of state. The primary object of the society was, to explain the paintings discovered at these places, for which purpose the members met every fortnight, when the paintings were submitted to a corresponding number of Academicians, who made a report upon them at the next sitting. In 1775, the first volume appeared, and has been succeeded by several others under the title of *Antichita di Ercolano*, exhibiting engravings of the most valuable paintings, statues, marble figures, bronzes, medals, utensils, &c. accompanied by explanations from the society.

The Neapolitan Academy of History and Antiquities was established at Naples by Joseph Buonaparte in 1807, consisting of 40 members, 20 appointed by nomination from the king, who were individually to present him for his choice, names of three candidates for every one wanted to complete the number. A grand meeting was to be held every year, when prizes were to be awarded, and analyses of the works read. Eight thousand ducats were to be annually allotted for the current expences, and two thousand for prizes to the authors of four works, at the discretion of the society. The subsequent revolutions in the political state of Naples prevented the permanent usefulness of this institution.

A Parisian Academy for the Discovery of Celtic Antiquities, was established in 1807. It contemplated, first, The elucidation of history, customs, antiquities, and monuments of the Celts, particularly in France. Secondly, the etymology of all the European languages by the Celto-Briton, Welsh, and Erse; and third Druidical remains. Fourth The history and settlements of the Galatæ in Asia. Lenoir, the keeper of the museum of French monuments was president. A Fasciculus, containing 150 or 160 pages, was to be printed monthly. The engravings, &c. under the direction of Lenoir. The devices are, *Gloriæ majorum*, and *Sermonem patrium, moresque requiret.*

Academy for the Illustration of Tuscan Antiquities, established at Florence, was founded in 1807, &c. has published volumes of essays and researches.

Academies of Medicine.—*The Leopoldine Academy*, or the *Academia Naturæ Curiosum*

was founded in Germany, in the year 1652 by I. L. Bauchius, a celebrated physician of Sweinfurt, in the circle of Franconia, who invited other physicians to meet for the purpose of communicating extraordinary cases that had fallen under their observation, and was afterwards elected president of a society formed upon the basis of such communications. In January 1652, they held their first meeting. The president proposed subjects for discussion, and their works were, at first, published separately; but, in the year 1670, they agreed to publish a volume of memoirs every year. The first of these, called "*Ephemerides*," appeared in 1684, and was followed by others under different titles. In 1687 the emperor Leopold took this society under the royal protection, endowed it with certain privileges and immunities, dignified the presidents with the title of "Counts palatine of the holy Roman empire," and honoured it with the title "*Cæsareo Leopoldina Naturæ Curiosorum Academia*;" or the "Leopoldine Academy." The institution has no fixed residence, or regular assemblies, but a bureau or office, established first at Breslau, and afterwards at Nuremberg, where all communications are received. The Academy consists of one president, two adjuncts or secretaries, and colleagues or members. The colleagues, at their admission, oblige themselves first, to give in a written treatise upon some subject out of the animal, vegetable, or mineral kingdom, not previously handled by any member of the society; and, secondly, to wear as a symbol of the academy, a gold ring on which is a book open with an eye on the front, and on the opposite side the motto of the Academy, "*Nunquam otiosus*," never idle. *See Buchaeri Hist. Acad. Naturæ Curiosorum*, Hal. 1756. Societies of the same name have been established on the Continent, as at Palermo in 1645, Venice in 1701, Geneva in 1715, Spain in 1652.

The Royal Academy of Surgeons at Paris, was instituted in 1731. The members of which publish their own observations and discoveries, in which they endeavour to lay down a complete system of surgery. The institution proposes a question annually, and awards a gold medal, value 500 livres, to the best dissertation upon the subject.

The Academy of Surgery at Vienna, instituted in 1783, originated in Francis II. and was placed under the direction of Brambilla. The institution formerly consisted of two professors and 130 pupils, but is now considerably enlarged. Contiguous is an extensive botanical garden, and a splendid edifice provided by the emperor, affording accommodation to professors, students, pregnant women, patients for clinical lectures, servants, &c.; also a voluminous library, complete set of chirurgical instruments, philosophical apparatus, specimens for illustrations of natural history, preparations in wax, &c. together with a comprehensive variety of anatomical and pathological preparations. Medals, each of 40 florins value, are annually bestowed on those students, who return the best answers to certain chirurgical questions.

Cosmographical Academies.—*The Cosmographical Academy at Venice*, called the Argonauts, was instituted about the eighteenth century, by means of Vincent Coronelli, for the improvement of geography. The device is, the globe, accompanied with the motto "*plus ultra*." The primary object of the institution is the publication of correct maps, celestial and terrestrial, accompanied with geographical, historical, and astronomical descriptions, definitions, &c. Each member subscribes to defray the expences, and receives one or more copies of each piece. All the globes, maps, writings, &c. are published by the society. To facilitate the objects of the institution, three societies were settled, one under F. Mons, provincial of the Minorites in Hungary; another under F. Baldigiani the Jesuit, professor of mathematics in the Roman college; a third under Abb. Laurence, au rue Payenne au Marais.

Scientific Academies. — *The Neapolitan Academia Secretorum Naturæ* was instituted at Naples in 1560, to advance the knowledge of mathematical and physical science; but was soon crushed by an interdict from the church of Rome.

The Academia Lyncei which succeeded the former, was established at Rome, by prince Frederick Cesi, to promote the improvement of natural philosophy. It became eminent in consequence of the discoveries made by its members, as in the case of Galileo.

The Academy del Cimento flourished in the seventeenth century under the auspices of Prince Leopold, afterwards Cardinal de Medicis. To this institution belonged Paul de Buono, who, in 1657, invented an instrument consisting of a globular shell of gold, to demonstrate the incompressibility of water. To the same Academy belonged Vincent Vivani, Francis Redi, Count Laurence Magalotti, (who published "Saggi di Naturali Esperienze," a curious work, translated into our language by Waller,) and Alphonso Borelli, who wrote "De Motu Animalium."

The Academy degl' Inquieti at Bologna, afterwards incorporated into that of Della Tracia, met in the house of Eustachio Manfredi in 1690; hence, that gentleman is often represented as the founder. Their badge was a representation of of the planetary system, surrounded by a serpent with a tail in its mouth. Their motto was "*Mens agitat*," hence their name *Inquieti*. Their very admirable discourses were collected and given to the world in 1667, under the title of *Pensieri Fisico-Matematici*. In 1714 it was new modelled, and united with the Bononian institute, richly endowed by the Popes, and defended by the civil power. The director was also dignified with the title of president; the society itself called *the Academy of the Institute* and afterwards *Academia Clementina*, from the patronage of Clement. Ladies were admitted into the society, and several of them elevated to professorships. Anna Manzolini was professor of anatomy, &c. The library contains 120,000 volumes, a cabinet of natural history, numerous manuscripts, &c.; and the building consists of 40 rooms, besides halls underneath.

La Sociéta Scientifica Rossunensa degl' Incuriosi, was established at Rossano, in Naples, in 1540. On its establishment, it was an academy

of belles lettres, and became an academy of sciences in 1695, when Don Giacinto Gimma the abbot, divided the members into grammarians, rhetoricians, poets, historians, physicians, mathematicians, philosophers, lawyers, and divines. The greatest honour the academy can confer is, giving a written permission from the president to assume the title of academist, which is not granted till the proposed publication has been sanctioned and approved by all the academy. From this law even the president is not exempt. No academist may publish against the writings of another without the consent of the academy.

Italy has been celebrated for its academies. Jarckius reckons 550, and 25 in the city of Milan. Some of these are gone to ruin; many have acquired lasting fame: the Academy of Filarmonici at Verona, the Academy of Ricovaltro at Padua, and others. In the latter Sig. Vallisnieri wrote his ingenious dissertation.

The Royal Academy of Sciences at Paris was founded by Louis XIV. in 1666, who, after the peace of the Pyrennees, ordered M. Colbert to associate a few men of learning to communicate their discoveries to each other for the promotion of the general improvement. The minister accordingly formed a society of gentlemen, in high repute for philosophy and mathematics, history, and belles lettres. Gentlemen of different departments assembled in different days of the week. History and rhetoric were soon after united to another French academy, which proposed the improvement of the language; and the royal academy consisted of two great divisions, philosophy, and mathematics. The king, in 1669, appointed a new set of regulations, by which he made four kinds of members, honorary, pensionary, associates, and eléves. The last three were to contain each 20 persons, the first only 10. The honorary members were to be all inhabitants of France; the pensionaries to reside in Paris. Of the associates, eight only might be foreigners, and the eléves to be resident in Paris. A president was to be named by the king from the honorary members, the secretary and treasurer to be perpetual. Of the pensionaries, three were to be astronomers, three chemists, three geometricians, three botanists, and three anatomists. The remaining two were intended for secretary and treasurer. Of the associates, two were to apply to geometry, two to botany, and two to chemistry. The eléves applied themselves to the same sciences as their pensionaries, and might not speak except when called on by the president. No person might be admitted for associate or pensionary, unless known to the world by authorship, or the invention of some machine, &c. &c. The society's motto was, *Invenit et perfecit.*

The Duke of Orleans in 1716 very much extended the institution, suppressed the class of eléves and introduced two other classes, one consisting of twelve adjuncts and six free associates, who were not obliged to pursue any particular study. A vice-president was to be chosen annually by the king from the honorary class, with a director and sub-director from the pensionaries. In 1785, the king superadded several other classes, as natural history, agriculture, mineralogy, and physics. He likewise introduced several political changes into the constitution The society consisted of eight classes, viz. astronomy, geometry, physics, mechanics, chemistry, and metallurgy, anatomy, botany, and agriculture, natural history, and mineralogy.

This institution, by computing the meridian, and sending out persons to make observations, has been of great service to the world. Memoirs of the society have been published almost every year since its establishment in 1669. To each volume is prefixed an abstract of the history of the academy, and eulogiums on such members as have died within the year. M. Rouille de Meslay, counsellor to the parliament of Paris, founded two prizes, one of 2500, the other of 2000 livres, to be alternately distributed by parliament every year; the subject for the first to be physical astronomy, for the second navigation and commerce.

The history of the academy to the year 1697, was published by Du Hamel. After that period it was continued by Fontenelle in his "Histoire de l'Academie Royal des Sciences; avec les Memoires de Mathematique et de Physique, tirez des Registres de l'Academie, Histoire de l'Academie Royale des Sciences depuis son Etablissement en 1666, jusqu'en 1699," en 13 tomes, 4to.

In 1793, the convention dissolved the institution, on the ground of its being a supposed bulwark of royalty, and established another under the name of the *National Institute*. The memoirs to this period are published in 139 quarto volumes. Other academies of considerable importance are established in the principal cities of France, as the *Academie des jeux Floraux*, at Toulouse; *Royal Academy of Sciences*, at Toulouse, *Academy at Caen*, Rouen, and many others. That at Dijon contains, in a handsome saloon, the busts of eminent men, natives of the city, as Buffon, Bossuet, Piron, Crebillon, De Brosses, Freret, &c.

The Royal Academy of Sciences at Berlin, established in 1700, was formed by Frederic II. king of Prussia, after the model of that of England, with the addition of belles lettres. In 1710 some alterations took place, and the president became one of the counsellors of state. The members consisted of four classes, the first including physics, medicine, and chemistry. The second, mechanics, astronomy, and mathematics; the third, history, particularly German history and language; the fourth, oriental learning, which was adopted as a means of facilitating the spread of the gospel among the heathen. The first business of every class was to choose a director, who held his station for life: of these Leibnitz was the first director. The classes had free communion with one another.

Though the society originated in Frederic II. at so early a period, it was not till 1743 that it enjoyed any considerable share of the royal favour; when Frederic III. took upon himself in person, the entire management, chose a proper president, invited the most distinguished scholars on the continent to Berlin, and adopted the most vigorous measures to raise the institute into celebrity. In gratitude for these distinguishing marks of favour, the society agreed to hold their

two public assemblies, one in January, on the king's birth-day, and the other in May, on the day of his accession to the throne. On the latter occasion, a gold medal is awarded for the best dissertation, the subject of which is to be successively philosophy, metaphysics, mathematics, and general erudition. The Berlin cabinet of curiosities, and the public library were added by an act of the crown; and in order to expand the views of the academy, and promote among the people a more general attention to the arts, the king, in 1798, appointed a directory consisting of four members to undertake the entire management of the funds, a president, and two additional members, to be chosen from among men of business. Each class had a director of its own, elected for life; and the appointment of officers was at the nomination of the academy, subject however to the confirmation of the king. A number of volumes have been published by the names of "*Memoires de l'Academie Royale des Sciences et Belles Lettres à Berlin.*" A history of the institution has also been given to the public. The regulations of 1798 have greatly tended to liberalize the views of the academy, and to direct their attention to subjects of general utility.

The Imperial Academy of Sciences at Petersburgh, originated with the Czar, Peter the Great, who, during his travels on the continent, having observed the manifold advantages arising from literary institutions, resolved on forming an academy in his own dominions. With the assistance of Wolf and Leibnitz, he had projected the plan of the proposed institution, and invited several learned foreigners to become members, when death put an end to all his designs, and extinguished all the hopes, expectations, and solicitudes of that great and distinguished man. Czarina, Catherine I. nevertheless, adopted his views, and approving the plan already laid down, put it into execution in 1725, when the society held their first meeting before the duke of Holstein, and many other persons of rank and eminence. In the ensuing August the czarina herself attended the meeting, on which occasion the celebrated Bulfinger, a German naturalist, delivered an oration on the utility of the loadstone and needle for the discovery and calculation of longitude. Impressed yet more deeply with the importance and excellence of the institution, she immediately devoted £4982 per annum to its support, admitted fifteen members, eminent for literature and science; and under the title of professors, honoured them with pensions. The most distinguished of these individuals were Nicholas and Daniel Bernoulli, the two De Lisles, Bulfinger, and Wolf. In 1721, a gymnasium was added to the academy, and afterward an university, the professors of which gave lectures in the various branches of learning.

Peter II. disapproved of the society, and proceeded to stop the salaries of its members. By his example, the institution was neglected by persons of rank, and languished for want of support. It revived, however, under the empress Anne, and flourished during the successful presidency of the celebrated Baron Korfe, but after his death, an ignorant person being appointed to the office, the most eminent members quitted the kingdom.

A second revival took place upon the accession of czarina Elizabeth, when the original plan was enlarged, the internal government improved, and most of the eminent members, who had relinquished, were induced to return; and two natives of genius and ability, who had prosecuted their studies in foreign universities, Lomonosoff and Rumorsky, attached themselves to the institution. Catherine II. took the institution under her auspices. An Academy of Arts was added (but afterwards separated in 1764). The influx of learned and ingenious foreigners inspired new vigour: expeditions were sent over the whole empire, for the purpose of obtaining knowledge, and as the funds were inadequate to this large scale of expenditure, the empress made an immediate donation of £2000, to be renewed as often as circumstances might require. The annual income of the society, was now calculated at £10,659, and its annual sale of books, maps, almanacks, memoirs, &c. nearly 80,000 rubles.

The scientific expeditions were to enquire into the quality of earth and waters; the most successful mode of cultivating the barren spots of land; the diseases of men and cattle, together with methods of cure; the breeding of cattle, more especially sheep; the management of bees and silkworms; the properties of minerals, plants, and every species of botany, of which they were to bring collections illustrative of the science, according to the most approved system, so as to form a complete "*Rossica Flora.*" Besides these, they were also to investigate the most proper places for fishing, hunting, &c.; to rectify the longitude and latitude of places, and to make geographical, astronomical, and meteorological observations; to trace the course of rivers; make exact charts; observe the customs, dress, manners, language, religion, history, traditions, and antiquity of different nations, with which they were to combine every other species of information that might tend to enlighten the institution, and discover the internal state of their native empire. The existence of such a society proves, that learning had not vanished from the North; and the number of excellent publications which have since dawned upon the world, evince that the hopes inspired by the wide perambulations of the society were not disappointed. In these Pallas, Gmelin, Stolberg, Guldenstaedt, and others, have immortalized their names.

The academy is at present composed of a president, director, fifteen professors, and four adjuncts. The professors receive an annual stipend of from £200 to £600: the adjuncts are pensioned. The meetings are twice a-week, and the public assemblies are held thrice a-year. Belonging to this society, and immediately contiguous, is a fine library, containing upwards of 36,000 curious volumes and manuscripts: also a museum, rich in native productions, and containing a choice cabinet of coins, antiquities, &c. The various branches of natural history have their corresponding apartments into which they are scientifically distributed. The motto of the society is *Paulatim*, and their device a tree, bearing unripe fruit. Their transactions were first published in 1728, entitled, "*Commentarii Aca-*

demiæ Scientiarum Imperialis Petropolitanæ ad ann. 1726." This title distinguished all their works till 1747, when the transactions were called, "*Novi Commentarii Academiæ*," &c. In 1777, they were called, *Nova Acta Scientiarum Imperialis Petropolitanæ*. Their works hitherto had been published in Latin. They are now written partly in French, attended by a preface called "*Partie Historique*." They have published in the whole 14 volumes of memoirs. The first of the new commentaries appeared in 1750, the twentieth in 1776, and two volumes are printed every year.

The academy has been often torn by dissensions, and a few years ago, was almost annihilated; but by an edict of the empress, it was immediately re-modelled, arose and shone forth afresh upon the world, in a late series of publications, "*Nova Acta*," &c.; and still continues to spread its light over the dark region of this extensive empire.

The Academy of Sciences at Bologna, commonly called the *Institute of Bologna*, was originally founded by count Marsigli in 1712; for the better cultivation of physics, mathematics, anatomy, medicine, chemistry, and natural history. Its history was written by M. D. Limiers, from memoirs furnished from the founder himself, and printed at Amsterdam in 1723; from which it appears that an academy for architecture and painting, previously founded by pope Clement XI. was incorporated with this, and that the city purchased, and appropriated to its use the palazzo Celesi, for the convenience of having the library, museum, observatory, schools, and professors' apartments under the same roof. At the entrance is the following inscription—*Bononiense Scientiarum et Artium Institutum, ad publicum totius orbis usum.*

The Academy, Imperial and Royal, of Sciences and Belles Lettres at Brussels, was founded in 1773, and has published many volumes of interesting memoirs.

The Royal Academy at Stockholm, or Royal Swedish Academy, originated in six persons of learning, among whom may be mentioned the celebrated Linnæus. These gentlemen met on the 2d of June, 1739, and formed themselves into a private society, for communicating to each other the result of their literary investigations. This society soon drew a considerable share of the public attention; and in 1741, on the 31st of March, was incorporated by the king, under the title of the *Royal Swedish Academy*. The society receives no pension from the crown; but its funds have been gradually augmented by subscriptions, legacies, and private donations. Of its professors, three persons only receive salaries, viz. a professor of experimental philosophy, and two secretaries. Those professors, who reside at Stockholm, become presidents by rotation, each continuing in office for three months. The election of native members is held in April; that of foreign members in July: both classes of members are admitted without fees. The dissertations are all written in the Swedish language, and published four times in the year. The annual publications compose an octavo volume. The first 40 volumes, published in 1779, are called the Old Transactions: the next year commencing a series of New Transactions. Any person who sends a treatise worthy of publication, receives the Quarterly Transactions gratis, and a silver medal, value 3s. Agricultural dissertations are published separately, under the title of *Œconomica Acta*. Premiums and medals are awarded annually by the society, for the encouragement of agriculture, &c. The public meetings of the institution are sometimes honoured with the royal presence. In 1799, the academy was divided into seven distinct classes. First, general and rural œconomy, containing 15 members. Second, commerce and mechanics, containing 15 members. Third, exterior physics and natural history. Fourth, interior physics and natural philosophy, each containing 15 members. Fifth, mathematics, containing eighteen members. Sixth, medicine, containing 15 members. Seventh, belles lettres, language, and history, containing 12 members. Into such repute had the society arisen, by the eminence and devotedness of its members, that in 1800 the sale of almanacks alone brought in the sum of £400.

The Royal Academy of Sciences at Copenhagen, originated in the occasional meetings of six learned men, whom Christian VI. in 1742, ordered to arrange his cabinet of medals; and who, enlarging their plan by degrees, at length formed a regular institution, under the patronage of the count of Holstein, whose primary object was, to make researches into the history and antiquities of their country, and to explain them. In the year 1743, his Danish majesty, at the instigation of the count, took the academy under his patronage, and endowed it with a fund; directing the members to add to the number of their former pursuits those of history, physics, and mathematics. The institution has published 15 volumes in the Danish language, a great proportion of which have been translated into Latin.

The American Academy of Arts and Sciences, was established in 1780, by the council and house of representatives in the province of Massachusetts Bay, designed to promote the study of American antiquities and history; also to determine the uses to which its natural productions might be applied; together with the study of medicine, mathematics, philosophy, astronomy, meteorology, geography, agriculture, manufactures, commerce, with every other art and science that might tend to enlighten the population, and to advance the interest, honour, and happiness of an independent people. The members were never to be more than 200, or fewer than 40. Since the year 1785, when they published their first volume of memoirs at Boston, the academy has been progressively improving.

The Royal Academy of Sciences at Lisbon, was founded in the year 1779, by the duke De Lafoens, uncle to the queen. It contained 24 effective members, divided into three classes occupying the departments of natural sciences, mathematics, and national literature; 36 free members, a few literary foreigners, with many scientific correspondents. The sovereign himself became president, and the revenue allowed by government enabled them to establish a museum, observatory, and printing-office. The first volume of their memoirs appeared in 1797; and in addition to their

Memorias de Litteratura Portugueza; Memorias Economicos, and other literary transactions, they have published *Colleccao de Livros ineditos de Historia Portugueza.*

A Geographical Academy, established at Lisbon, in 1799, principally with a view to illustrate the geography of Portugal, has provided the world with an accurate map of this country, so long a desideratum in literature.

The Royal Neapolitan Academy was established in 1779, and has published valuable mathematical researches and memoirs.

The Royal Academy of Turin was established by the late king, when duke of Savoy. The first volume of memoirs appeared in 1759, published in Latin, with the title of *Miscellanea Philosophica Mathematica Societates privatæ Taurinensis.* The continuations of which have been since published in French. Le Grange, the most celebrated Oriental member of this academy, astonished the scientific world by the novelty and profoundness of his papers, in the first volume of these Transactions and Memoirs.

The Academy of Sciences, Belles Lettres, and Arts, was established at Padua, by the senate, near the close of the 18th century; consisting of 24 pensionaries, 12 free associates, 24 pupils, 16 associates from the Venetian states, 24 foreigners and honorary members. A few volumes of Memoirs have been published in Italian.

The Academy of Sciences and Belles Lettres of Genoa, was established in 1783, consisting of 32 members; poetry seems to be the point to which they have directed their attention.

The Academy of Milan originated in the contracted efforts of a literary society, who published a sheet of observations weekly, on scientific subjects, general criticism, belles lettres, &c. About 1767, a regular society was formed, whose transactions are published, under the title of *Scelta d'Opuscoli Scientifica.*

The Academy of Sciences at Sienna, was instituted in 1691. Their first volume of transactions was published in 1761; and their publications under the name of *Atti dell' Academia di Siena*, have appeared occasionally, ever since.

The Academy of Sciences at Verona, was established about 1780, by M. Longua, whose chief object was to form an association of the principal scientific men in all parts of Italy, for the purpose of literary communication and publishing memoirs. The first volume of which, accordingly appeared in 1782, under the title of *Memorie di Matematica e Fisica, della Societa Italiana*, containing the celebrated names of Boscovich, the two Fontanas, and Spallanzani. Academies of a similar description are also established at Mantua, Pisa, and Pavia.

An Academy of Sciences was established at Manheim, by Charles Theodore, elector palatine, in the year 1755. It is divided into two classes, *historical* and *physical*, according to the plan originally furnished by Schœpflin. The latter was subjected in 1780, to a subdivision into the *physical* and *meteorological.* The historical and physical memoirs are published, under the title of *Acta Academia Theodoro Palatinæ.* The meteorological observations are published separately, under the title of *Ephemerides Societatis Meteorologicæ Palatinæ.*

The Electoral Bavarian Academy of Sciences, at Munich, was established in 1759, and published memoirs under the title of *Abhandlungen der Baierischen Akademie.* When the elector became king, he new-organized the society, with a view to give it the precedence over all the literary institutions of Europe. After which, he placed it under the immediate superintendence of the ministry; the privy-counsellor Jacobi, a man of excellent scientific and literary attainments, being president.

The Electoral Academy at Erfurt, was instituted by the elector of Mentz, in 1754, consisting of protector, president, director, assessors, adjuncts, and associates. Their memoirs are now published in German, although they originally appeared in Latin.

The Hessian Academy of Sciences at Giessen, have also published memoirs, under the title of *Acta Philosophica Medica Academiæ, Scientiarum Principalis Hessiacæ.* Likewise in the Netherlands, at Flushing, and Brussels, there are scientific academies which have published Memoirs.

The Royal Irish Academy arose 1782, from an association of gentlemen, most of them connected with the university, who held weekly meetings for the purpose of reading dissertations on literary and scientific subjects. Indulging the hope of advancing the interests of literature on a more extensive scale, they soon after widened their plan, admitting only such names as were already illustrious, and might do honour to their new institution. This re-organization became the basis of the *Royal Irish Academy*, which professes to unite the advancement of the arts and sciences, antiquities, and every species of literature. Their papers have been numerous; and since 1787, when their first volume appeared before the public, many others have been added.

A Society was formed in Dublin, similar to the Royal Society in London, as early as 1683, but it declined; and although the plan was revived, under the presidency of the earl of Pembroke, then lord-lieutenant, it was still unsuccessful. In 1740, a physico-historical society arose out of its ruins, which has likewise perished. The state of the population has been exceedingly unpropitious to the cultivation of literature and philosophy.

An Ecclesiastical Academy was instituted at Bologna, in Italy, 1687, chiefly with a view of examining the discipline, doctrine, and history, of the different ages of the church.

ACADEMIES OF ARTS.—*The Royal Academy of Arts in London*, established in 1768, was instituted for the encouragement of designing painting, sculpture, &c. This society is under the patronage of the king, and under the direction of 40 eminent artists of the first rank, in their several professions; who paint from living models, and of whom, nine are annually elected, to attend by rotation, for the purpose of setting the figures, and of examining the performances of the students. There are also a president, a council, and other officers, besides separate professors of painting, architecture, anatomy, and perspective, who annually deliver public lectures on the subject of their respective departments. The academy is open to all students who are desirous

of cultivating the studies to which it is directed; and, there is an annual exhibition of paintings, sculptures, and designs, many of which have distinguished merit.

The Academy of Arts at Petersburg, was instituted by the empress Elizabeth, in 1758, and annexed to the Academy of Sciences; but in 1764 was formed into a separate institution by the empress Catharine, at the suggestion of count Shuvalof; and the number of scholars increased from 40 to 300. The annual revenue was augmented from £4000, its original income, to £12,000. A large circular building fronting the Neva, was constructed for the use and accommodation of the members. The scholars are admitted at the age of six, and continue until they have attained the age of 18; during which time they are instructed in reading, writing, arithmetic, the French and German languages, and drawing. At the age of 14, they are at liberty to choose any of the following arts, which are branched out into four classes. First, painting in all its branches, history, portraits, battles, landscapes, architecture, mosaic, enamelling, &c. Second, engraving on copper-plates, seal-cutting, &c. Third, carving on wood, ivory, and amber. Fourth, watch-making, turning, instrument-making, casting statues in bronze and other metals, gilding, varnishing, imitating gems and medals in paste and other compositions. Prizes are annually distributed to those who excel, and from the aggregate number of those who have attained four prizes, 12 are selected and sent abroad, at the public charge, their travelling expences defrayed; and, on their settlement in any town, a salary of £60 conferred upon them for the first four years. There is a suitable collection of paintings and models, provided for the imitation of the students, some of which are taken from the best antique statues in Italy, and are of the same size as the originals.

The Academy of Painting and Sculpture at Paris, is known to have been instituted at a very early period. The academy of St. Luke, was popular in the 14th century, and in 1430, received many privileges from Charles VII.; subsequently confirmed in 1584, by Henry III.; after which, it became united with the society of sculptors, who met near St. Denys. In consequence of the continual disputes which arose between the sculptors and painters, the academy languished; but, was afterwards revived by M. Le Brun, Sarazin, Corneille, and other gentlemen of distinguished eminence in their professions, who obtained in favour of it, an arrêt of council in 1648. In 1655, they obtained from cardinal Mazarine, a brevet and letters patent, registered in parliament; in return for which they chose the cardinal for their protector, and the chancellor for their vice-protector; and, by the friendly interposition of another minister, M. Colbert, obtained in 1683, a pension of 4000 livres, which enabled them to widen their plan, and tended greatly to facilitate the objects of the society. The academy, shortly after, was made to consist of a protector, vice-protector, director, chancellor, four rectors, a treasurer, four adjuncts, four professors, two of whom lectured on anatomy and geometry, honorary counsellors, a historiographer, two ushers, and a secretary. Twelve of the most eminent members were selected, each of whom attended in rotation for a month, for the purpose of setting a living model in the proper lights and attitudes, for the imitation of the students, employed in taking draughts and carving images. For this purpose, he provided a naked man, of tall figure and good proportions, whom he placed before them in the most easy and natural positions, this was called setting the model; on some occasions, he provided two, and formed a juxta position of models; this was called setting the group. He likewise employed a woman of a graceful appearance, and proportionate stature, whom he placed before the students in the same manner. It is to this careful selection of subjects, and to the copying from the life, more than to an extraordinary measure or warmth of genius, that we attribute the formation of those elegant models, and the draught of those beautiful sketches and designs, for which this academy for a considerable period, has been so highly celebrated; and which, have tended not a little to call forth the emulation of kindred societies, and to have awakened in many places on the continent, a relish for those ancient arts, which had so long lain dormant. Three prizes, for designs, were distributed among the eléves every three months, and four others for painting and sculpture, annually.

A similar Institution was established at Rome, by Louis XIV, wherein those who had won the annual prizes at Paris were supported three years, with a view to their further improvement.

An Academy of Drawing and Sculpture, was established at Manheim, in 1775, by Charles Theodore, elector palatine, with a view of promoting the fine arts.

An Academy of Painting and Sculpture has been founded at Stockholm, containing nine professors, and about 400 scholars. The institution annually distributes three large and three small medals, awarded for the encouragement of rising genius. Those students who most distinguish themselves are also indulged with permission to travel into France and Italy, at the expence of the society. In the hall of this institution are the ancient figures of plaster, presented by Louis XIV. to Charles XI.

The Academy of Painting, Sculpture, &c. at Vienna, was founded in 1705, on principles nearly similar.

An Academy of the Fine Arts was established at Turin in 1778, who held their meetings in the king's palace.

An Academy of Architecture was established at Milan, about the year 1380, by Galeas Visconti; and about the middle of the last century, an academy of the fine arts was established there, in which the pupils were furnished with originals and models: prizes were also distributed annually. This institution, before the effects of the French revolution reached Italy, was one of the best establishments of that kind in the kingdom. In the hall were some admirable pieces of Corregio, and several other ancient paintings and statues of distinguished merit, amongst which we may mention the small bust of Vitellius, and a statue of Agrippina of most exqui-

site beauty, although it wants the head and arms.

The Academy of the Fine Arts at Florence had long fallen into decay, but was restored by the late Grand Duke. It contained halls for plaster figures, and nudities for the sculptor and painter. In the hall for plaster figures, were models of all the finest statues in Italy, arranged in two rows; but this, and all similar institutions in Italy, have suffered greatly by the French.

An Academy of the Fine Arts was established at Modena, in which was an extensive saloon, containing many casts of antique statues. It contains also the skull of Corregio; but since it was plundered by the French, it has dwindled into a petty school for drawing from living models. Venice and Mantua contain academies of a similar description.

An Academy for Painting, Sculpture, and Architecture was founded at Madrid, by Philip V. of which the minister for foreign affairs is president: prizes are distributed every three years. At Cadiz is a petty institution, in which a few students are supplied by government with the means of drawing, modelling, &c.

An Academy of Architecture in Paris was established by M. Colbert, in 1671, consisting of a company of skilful architects.

Musical Academies.—*The Academy of Ancient Music in London* was instituted in 1710, by several eminent performers and gentlemen, to promote the study of vocal harmony. A library was attached, consisting of the best compositions in MS. and print. The gentlemen of the chapel-royal, the choir of St. Paul's, with the boys, assisted in the design. In 1731, a charge of plagiarism against Bononcini, one of the members, nearly destroyed the institution. Dr. Green, Bononcini's friend, withdrew, taking with him the boys of St. Paul's; and, in 1734, Mr. Gates, master of the children of the royal chapel, withdrew. Afterwards it became a musical seminary for the instruction of youth; and by the activity of Dr. Pepusch, the academy continued to subsist.

The Royal Academy of Music in London, arose from the principal of the nobility and gentry uniting to promote the performance of operas, composed by Handel, and performed under his conduct at the theatre in the Hay-market. So extensive was the attention and patronage called forth in favour of the society, that the subscriptions amounted to £50,000. The king conferred upon it the title of Royal Academy, and made a donation of £1000. It consisted of a governor, deputy-governor, and 20 directors. A contest between Handel and Senesino, one of the performers, in which the directors favoured the latter, dissolved the institution, after it had subsisted nine years.

An Academy of Dancing was erected by Louis XIV. endowed with great privileges.

An Academy of the Law once existed at Berytus; and another of the Situentes at Bologna.

Academies of History.—The *Royal Academy of Portuguese History at Lisbon*, was instituted in 1720, by John V.; consisting of a director, four censors, a secretary, and 50 members, each of whom is expected to discuss some point of the civil or ecclesiastical history of the nation, either in Latin or Portuguese. In ecclesiastical history the prelates, synods, councils, churches, monasteries, eminent characters, relics, places famous for miracles, &c. within the diocese under discussion, are to be distinctly related in twelve chapters. The civil history extends from the invasion of the Romans to the present time, to improve their knowledge of which, each country member is obliged to search the registers where he lives, and make copious extracts, and original observations. They meet once every 15 days. The academy struck a medal in honour of their prince, containing, on the front, his effigy, with the inscription, 'Johannes V. Lusitanorum Rex;' and on the reverse, he was represented as raising up History, which appeared almost prostrate before him, with the legend, 'Historia Resurges.' Underneath is an abbreviature of the following words: 'Reg ia Acad emia Hist oriæ, Lusit anæ Instituta VI. Idus, Decembris, mdccxx.'

The Academy of Suabian History at Tubingen, was formed for the purpose of publishing the best historical writings, compiling memoirs, writing the lives of eminent historians, &c.

The Academy of History at Madrid, was formed, about 1730, by a few individuals, who agreed to assemble occasionally for the purpose of preserving and illustrating the historical monuments and memoirs of Spain. They drew up a few simple rules, which, in 1738, were confirmed by a royal cedula of Philip V. The society consists of 24 members, who have already published editions of Mariana, Sepulveda, Solis, and the Ancient Chronicles relative to Castile, several of which were before unknown. All the diplomas, charters, &c. belonging to the principal cities and towns from the earliest period, are in their possession. The device of the institution is, a river at its source; the motto '*In patriam populumque fluit.*' The academy has long been employed in preparing a Geographical Dictionary of Spain.

Academies of Belles Lettres, Language, &c.—*The Academy of Umidi, at Florence*, afterwards called *Academia la Florentina*, or the Florentine Academy, was instituted in 1549, by the grand duke, Cosmo I., and has always been composed of the most eminent men in Italy. It has paid particular attention to Italian poetry, and has given excellent Italian translations of the Greek and Latin historians.

The Academy of Humourists originated at the marriage of Lorenzo Marcini, a Roman gentleman, on which occasion many persons of rank were present. It being the time of carnival, the gentlemen, to afford diversion for the ladies, recited verses, sonnets, speeches, and comedies, at first extemporaneously, but afterwards by memory and premeditation. The invention of this species of amusement gave them the denomination of Belli Humori. At length, acquiring a relish for these exercises, they resolved to form an academy of Belles Lettres, and altered their title to that of Humoristi, taking for their device a cloud, which, after being formed of the saline exhalations from the sea, falls upon the earth in a gentle shower, refreshing and fertilizing

wherever it comes. Their motto was selected from Lucretius, '*Redit agmine dulci.*'

The Academy of Arcadi was instituted in the same city about 1690, to promote the study of poetry and the belles lettres. It is composed of princes, cardinals, and other ecclesiastics, as well as wits of both sexes. It is called Arcadian because, to avoid disputes about pre-eminence, they obliged themselves by a regulation to appear masked as Arcadian shepherds. The number of members, within ten years from its establishment, amounted to 600. They hold seven meetings a year in a field, a grove, or in some gentleman's garden. Six of these meetings are employed in reciting the poems of the Arcadi residing in Rome; all of whom, except ladies, and cardinals, read their own compositions. The seventh meeting is devoted to the compositions of absent members, the recitation of which commonly affords great entertainment, the pieces being written in all the different dialects of Italy. The government of the institution is entirely democratical, allowing of no prince or protector, but only a custos, elected every olympiad, (or fourth year) with the power of appointing 12 others to assist him in the administration, whom he may change yearly at discretion. Under these, for the sake of order, are two sub-custodes, one vicar, or pro-custos, and four deputies, or superintendents annually chosen. The modes of election are five. The first by acclamation, when princes, cardinals, &c. are admitted. The second is by annumeration, used in favour of ladies and academical colonies, where votes are taken privately. The third representation, established in favour of universities, where the young gentry are educated, who can recommend one or two members to be ballotted for privately. The fourth, surrogation, whereby new shepherds are introduced in the room of those that are deceased or expelled. The seventh, destination, whereby, when there is no immediate vacancy, persons of merit are destined to succeed the first vacancy, and receive the title of Arcadi, before an opportunity shall occur for their final admission. All the members at their initiation receive new pastoral names, in imitation of the ancient Arcadians. There are colonies of Arcadians in many other cities in Italy, which are branches of the original institution.

The Royal Academy at Caën was established by letters patent in 1705, though held in private 50 years before that period, in the house of M de Brieux. In 1707, M. Foucault, intendant of the generality of Caën, procured the king's letters patent, by which the society was raised into a perpetual Academy.

An Assembly of men of letters, formed at Lyons in 1712, wanted only letters patent, to constitute a royal academy inferior to few in France.

The Academia della Crusca at Florence, or *Academia Furfuratorum*, though formed in 1582, obtained no celebrity till 1584, when it attracted the public attention by reason of a dispute between Tasso and several of its members. It has produced an Italian Dictionary of great merit. In this institution Torricelli, the disciple of Galileo, delivered his discourses on the wind, the power of percussion, mathematics, and military architecture. It is sometimes called the *Bran Academy*, on account of its sifting out words, and rejecting barbarisms, with a view to the refinement of the Italian language. It is now united with the Fiorentina and Apatista, under the general name of Reali Academia Fiorentina.

The Academy of Fructiferi arose in 1617, from an assembly of princes and persons of distinction, who met to refine and perfect the German language. It flourished long under the princes of the empire, who were commonly chosen presidents. The number of members, in 1668, amounted to no fewer than 900. A history of the institution has been written in German by George Neumarck.

The Academie Françoise, or the French Academy, arose from the private meeting of a few men of letters, in the house of M. Conrart, in 1629; and six years afterwards was formed into an academy by cardinal Richelieu, intended for refining and ascertaining the French language and style; comprehending at the same time in its plan, grammar, poetry, and eloquence. Originally the number of members was limited to 40, out of whom a director, chancellor, and secretary, were to be chosen; the latter for life, the former for two months only. The members enjoyed many privileges, one of which was the *droit de committimus*, by which they might refuse to answer or appear before any court, except that of the king's household. At first they met in cardinal Richelieu's apartment, then in that of chancellor Seguier, and afterward, three times a-week in an apartment of the Louvre, now called l'Academie Françoise. At their separation, 40 silver medals were distributed among them, having on one side the head of the king of France, and on the reverse *protecteur de l'academie*, with a laurel and this motto, *à l'immortalité*. This proved an excellent means to secure attendance, those who are present receiving the overplus otherwise intended for those who are absent. Religious orders were deemed inadmissible, and expulsion was resorted to only in case of heinous malefaction. To compass their primary object, they not only gave rules, but examples of good writing; and no fewer than 20 of their orations have been printed; but the style has been ridiculed as having a tendency to enervate rather than refine the language. They have produced, nevertheless, a variety of publications; and their speculations, if not exceedingly profound, are however, very beautiful and entertaining; and will be read with pleasure by every one who has cultivated a lively relish for the beauties of rhetoric and belles lettres. The publication of a complete Dictionary of the French Language constitutes their highest celebrity; the derivation of words, the settling of phrases was an employment of 50 years, and was at length completed in 1694. The history of the institution has been written by M. Pelisson, and M. l'Abbé d' Olivet.

A similar institution was founded at Petersburg in 1783, on a plan at first suggested by the princess Dashkof. It was established and endowed by the late empress, and consists of 60 members.

The Royal Swedish Academy, founded in 1786, was intended for the improvement of the

language, purifying it of barbarisms, ascertaining its extent, and reducing it under nine fixed and definite laws; also for the cultivation of the higher graces of poetry and eloquence. It was formed on the plan of the French Academy, and pensions have been granted to some of its members by Gustavus III. A medal is struck by the institution every year, in honour of some illustrious Swede.

The Royal Spanish Academy at Madrid, was founded by the duke d'Escalona. The first meeting was held in his palace in 1713, and in 1714 the king became protector. It consists of 24 members, including the director and secretary, whose object is to improve the language by a careful selection of those terms and phrases, which have been employed by the best Spanish writers, and expunging all low, obsolete expressions and barbarisms; also to distinguish the former from the latter in a dictionary for that purpose. To encourage this undertaking, the academicians are allowed all the immunities and privileges enjoyed by the domestic officers in the king's service, even those in the royal palace. The academy is not to put any thing to the press without permission from the council. Their device is a crucible on the fire, with this motto, "Limpia, fya, da esplendor." "It purifies, fixes, and gives brightness."

ACADEMY is also a term for schools and other seminaries of learning. Of these institutions the Jews had several; the most celebrated are those of Tiberias and Babylon, in which the Jewish Doctors instructed the youth in the Hebrew language, and explained to them the Talmud, and the secrets of the Cabbala. The Romans had two institutions of this kind, where youth were instructed in general literature and science; one at Rome founded by Adrian, the other at Berytus in Phœnicia. The former was famous for the sciences, the latter for the law.

In consequence of the revival of literature, about the 16th century, public schools or academies were formed all over Europe; at Padua, Modena, Naples, Capua, Toulouse, Salamanca, Cologne, and Lyons. The academy of Paris surpassed all the rest in its extended scale, of education, the ability of its professors, and the multitude of students by whom it was attended; and was hence distinguished by the title of University, to denote its embracing the whole circle of science. Soon after which, other schools of learning formed themselves upon the same model, and obtained the same title. In the 16th century, academies were founded by the Lutherans at Jena, Helmstadt, and Altorf; and by the Calvinists in Franeker, Leyden, Geneva, and many other places.

The dissenters of England, in consequence of the introduction of certain oaths after the restoration of Charles II. to which they cannot conscientiously subscribe, have been excluded from the Universities, and have formed academies among themselves. Success has amply rewarded their exertions; and the dissenting ministers in these institutions are not only educated and supported on the foundation, but in some respects enjoy advantages not found in the universities. In many of them, they attend six years; have public examinations once every year; and, different from the universities, the students are expected to attend the *whole* of the time, with the exception of a few weeks allowed after the vacation, to visit different congregations, in the capacity of ministers.

The importance of these institutions to so large a part of the community as the protestant dissenters, must be obvious; and their support, entirely by voluntary subscriptions, evinces a degree of public feeling, worthy of the cause in behalf of which they are established.

The oldest of these academies is Homerton. In this institution two foundations are united; one as old as the restoration, the other as recent as 1730. It was removed from Mile End, and had at that time three professorships, filled by Dr. D. Fisher, as classical tutor; Dr. Conder as divinity tutor; and Dr. T. Gibbons, the biographer of Dr. Watts, as professor of rhetoric and belles lettres. The classical chair of this institution has always stood high. It is filled at present by Dr. Pye Smith, author of some excellent classical publications. The academy receives 20 students, and has furnished some of the most valuable ministers and able theologians that have appeared amongst protestant dissenters.

The Old College at Hoxton, or as it was originally called, *The Evangelical Academy*, was founded in 1783, and removed to its present situation in 1791. It has professors in languages, logic, mathematics, rhetoric, and belles lettres, divinity, elocution, &c. Dr. Harris is the resident tutor. At present it receives about 40 students, who are examined every year before a public assembly of ministers and literary gentlemen, in the Latin, Greek, Hebrew, Samaritan, Arabic, and Chaldee languages and other departments of literature, science, and theology; after which three of the students deliver orations in the academy chapel adjoining the institution, and a report is made accordingly of the meeting. Some of the most eminent men of the present day were educated at this institution. This institution has recently been enlarged; and a handsome building, for the purposes of it, has been erected at Highbury, near Islington. The general plan of the institution is common to all dissenting academies, particularly the public examinations.

The New College at Hackney was formed on Arian and Unitarian principles. High hopes of literary eminence were entertained from the names attached to its original foundation. Dr. Kippis, editor of the Biographia Britannica, Gilbert Wakefield, who seceded from the national church, and Mr. Belsham presided over its concerns. Dissensions however prevailed, and it dwindled away. It is now revived on Calvinistic principles, and is become an important and useful institution; Rev. T. Collison, A.M. is the resident tutor.

Rotheram, near Sheffield, is famous for an Academy of considerable eminence, that flourished as early as 1756. The late Dr. Williams presided for many years, and was a man of eminent attainments. His reply to Bishop Tomline's publication, entitled, A Refutation of Calvinism,

is considered by eminent judges to be the best defence of modern Calvinism. The academy has no connexion with the original one of Heckmondwicke; but was pronounced a new institution by a committee of the founders held at Halifax on the 11th of September, 1794. It has supplied many able theologians and useful ministers.

An Academy of considerable eminence subsists at *Gosport*, and was lately under the presidency of Dr. Bogue, an eminent theologian recently deceased. In this institution missionary students are educated by the London Missionary Society, by which they are sent to every part of the world. The general laws and regulations are similar to those of other dissenting institutions.

At Newport Pagnel is an Academy for the education of dissenting ministers under the superintendence of T. P. Bull, A. M.

At Axminster also is a similar important institution, under the superintendence of the Rev. Mr. Small, a gentleman of ability and erudition. Both these institutions have furnished many useful and excellent ministers.

The Academy at Wymondly is an extensive and liberal institution, originally established by the late Dr. Doddridge. This establishment has been justly celebrated for classical learning and erudition.

The Academy at Idle is under the superintendence of the Rev. W. Vint and other gentlemen of eminence, whose labours have contributed, in no ordinary degree to the extensive usefulness and success of the institution.

The Academy at Blackburn, lately under the superintendence of the Rev. J. Fletcher, A. M. occupies a very conspicuous place amongst dissenting institutions, and is in a prosperous condition. It has furnished many useful ministers. The academies already named belong to the Calvinistic denomination of independent dissenters.

The York Academy, established 1786, on the basis of the original academy at Warrington, is an English presbyterian institution, and has been associated with the celebrated names of Dr. J. Taylor, Hugh Farmer, Job Orton, &c. Dr. Aikin also, father of Mrs. Barbauld, Dr. Priestley, and Dr. Enfield were successively tutors at this place. Dr. Thomas Barnes presided in this establishment at its removal to Manchester in 1786; and was one of the principal founders of the Manchester Literary and Philosophical Society. The classical and mathematical chairs have been justly celebrated. In 1803, it was removed to York. The number of students educated is 20.

The Baptist denomination have several institutions, conducted on an extensive scale, and their usefulness cannot be too highly appreciated.

The first of these is at Bristol, and was lately under the superintendence of Dr. Ryland, whose erudition and talents were well known to the country. The number of students is considerable. Missionary students are educated here.

Stepney Academy is of respectable rank as a dissenting institution, and is under the presidency of Rev. Dr. Newman. The number of students is considerable.

The Academy at Bradford is an institution on the same scale as that at Idle. It is under the care of Dr. Steadman, whose labours in it have been very important. The general laws of these institutions are similar to those of the independent denomination. There are other similar dissenting institutions at Abergavenny, Exeter, Carmarthen, Wrexham, and others which our limits compel us to omit.

A Political Academy was formed at Paris before the revolution, consisting of six gentlemen, who met on certain days of the week, where they perused political papers, &c. the more effectually to qualify themselves for his majesty's service.

An Academy was formed at Berlin, in 1703, by Frederic I. to educate the nobility of the court suitably to their extraction. The king paid all extraordinaries, which rendered the expence moderate. It was called the Academy of Princes, but is now much decayed.

MILITARY ACADEMIES.—The Romans had military academies established all over Italy, which they called Campi Martii, where the youth were trained for war at the public expence.

These institutions were not uncommon in Greece, and were superintended by *Tactici*, who taught the higher offices of war.

We have three seminaries of this description: the Naval Academy at Portsmouth, the Royal Military Academy at Woolwich, and the Royal Military College at Farnham and Sandhurst.

The Naval Academy at Portsmouth, was founded by George I. in 1722, although the official warrant is dated 1729. Originally the warrant specified but 40 young gentlemen, fifteen of whom were to be the sons of commissioned officers in the navy. The navy commissioner of Portsmouth was ex-officio governor. Two masters were appointed to instruct the students in navigation and the introductory sciences; and an additional master for writing and drawing. The annual expence was about £1169. In 1806, an order was issued for a new and enlarged establishment, denominated, *The Royal Naval College at Dock Yard, Portsmouth*, of which the first lord of the admiralty was to be governor; and a lieutenant governor and inspector was to be provided, who should be a post-captain in the navy. A professor of mathematics is appointed, who receives £8 annually from each student. There is also a master, a graduate of one of the universities, who teaches classics, moral philosophy, geography, history, &c.; and a writing-master, who teaches, besides writing, arithmetic, algebra, and geometry. There are masters who teach French, drawing, dancing, fencing, &c. The master attendant of the dock-yard gives lessons on nautics, &c. illustrated by vessels in the harbour. The master shipwright of the dock-yard attends the students once a-week, through the dock-yard, illustrates to them the principles on which ships are built, &c. The gunner teaches gunnery, the use of the firelock, &c. The students remain three years, and before they are admitted, their friends give a bond of £200 that they shall enter the sea service. The three years that they remain stands for two of the six years they are required to serve as midshipmen before advancement. The first year they are at sea, they keep journals, draw head-lands, &c. &c.; and when the ship comes into port, they are to attend the

rofessor, who examines them. The institut on, by an act of parliament, 1806, was extended l eyond the original design of educating cadets for the navy. An education for shipwrights was established. The professor of the Naval Academy instructs them; and before an apprentice can be taken, he must pass an examination in the first six books of Euclid, and in French, and is then bound to the dock-yard seven years; six of which he spends at the academy, and one at sea. The salary of the apprentices is £60, increasing yearly to £140. They spend half the day with the professor, and half with the master shipwright. From this class, officers and superintendents of naval architecture are commonly chosen.

The Royal Military Academy at Woolwich, established by George II. in the year 1741, was intended to instruct "raw and inexperienced people belonging to the military ordnance in the several parts of the mathematics, necessary for the service of the artillery," &c. In 1776, the number of cadets amounted to 48, and in 1798 to 140. The building in the royal arsenal being in an unhealthy situation, the academy was removed to buildings erected for that purpose on Woolwich Common; 128 cadets were lodged, and 60 were received at the royal arsenal. In 1810, the East India Company withdrew their cadets, who amounted to 40, and the extra cadets who, for want of room were placed chiefly at Marlow, were taken into the college. The academy now consists of 200 cadets, 72 of whom reside in the arsenal. There is one master for every 16 cadets. The whole number may be enumerated as follows: a professor of fortification, with two assistants; a professor of mathematics, with six assistants; two French masters; three drawing masters, one for figures, one for landscapes, and one for ground; the latter has an assistant. There is also a dancing-master, a fencing master, two modellers, and a lecturer on chemistry. Lectures are also given on philosophy. The inferior parts of education are taught at the arsenal, the higher branches on the Common. The cadets are the sons of noblemen, gentlemen, or military officers. They are considered as the 1st Company of the Royal Regiment of Artillery, and are divided into companies, with proper officers, &c. Each cadet receives 2*s.* 6*d.* per day, which covers his expences. Monthly reports are given of the advancement of each in his respective studies, and commissions are distributed according to their merit.

The Royal Military College at Farnham, in Surrey, and at Sandhurst, near Bagshot, was originally settled at *High Wycombe* and *Great Marlow*. That at High Wycombe commenced in 1799, when there were 34 cadets. In 1801 it was denominated the Royal Military College by his majesty's warrant, and a supreme board of commissioners appointed to superintend its concerns. In 1802, by his majesty's warrant, a junior department was formed. Another warrant, issued in 1808, places both departments, forming one college, under the governor and lieutenant-governor. The number of cadets of the junior department was to be 412; and to be divided into four distinct companies, each 103. They are, first, orphan sons of officers who have died or been disabled in the service. They are to be admitted free of expense, but to bring their first suit of uniform, and to be provided with linen,&c. Secondly, the sons of officers serving, who pay a sum annually, according to their rank, of from £10 to £60; and, thirdly, sons of noblemen and gentlemen who pay each not less than £100 per annum. The studies are mathematics, philosophy, history, geography, fortification, military drawing and landscape, arithmetic, classics, French, German, writing, &c. There are four masters of fortification, five of military drawing, three of landscape drawing, four of history, geography, and classics, six of French, one of German, seven of mathematics, three of fencing. This course lasts from three and a half to four years. The candidate before admission, must pass examination, and must be between 13 and 15 years of age. There are monthly and half-yearly examinations previous to any of the cadets receiving commissions from the college, on which occasion, if the examiners approve their proficiency, they have certificates of qualification to serve as officers in the army. The third class may purchase commissions at any time, but cannot obtain them from the college till their proficiency is approved. The senior department is intended for the instruction of officers in the higher parts of their profession. For this purpose they study mathematics, gunnery, fortification, military drawing, castramentation, surveying, reconnoitring of ground, the disposition and the movement of troops, and all the rules and principles requisite in different circumstances of offensive and defensive war, &c. &c. together with the French and German languages. There are six professors: one for mathematics, one for fortification, two for military drawing, one for French, and one for German. The number of students is 37. No officer is admitted till he is 21 years of age, and has served with his regiment three or four years. Each student pays thirty guineas annually; and is obliged, the latter part of the time, to keep a horse. If an officer concludes his studies, and passes his examination with credit, he receives a certificate signed and sealed that he is fit for a staff appointment. The students wear uniforms, are subject to the articles of war, and receive 2s. 6d. per day. In 1801, 500 acres of land being purchased at Sandhurst near Bagshot, spacious buildings were erected, and the junior department removed there, the senior department remaining still at Farnham. The East India Company, having withdrawn their cadets from the institution already mentioned, have established one at Hertford, for which see HERTFORD.

ACADEMY FIGURE, in painting, is a technical name for an outline of the human subject taken from the life. Also the copy of such a draught.

ACADIA, or ACADIE, a country in N. America, so called by the French, while they had possession of it, now NOVA SCOTIA, which see. It is still the name of a small picturesque settlement of the French, on the river Montreal, Lower Canada.

ACÆNA, in antiquity, *ακαινα*, Gr. a Grecian decemped, or ten-foot rod, used in measuring their lands.

ACÆNA, in botany, a genus of plants belong-

ing to the class tetrandria, order, monogynia. There is only one species, a native of Mexico.

ACAJAIBA, or ACAJOU, in botany, a name given by some authors, to the tree that produces the Cashew nuts. It is the ANACARDIUM OCCIDENTALE of Linnæus, which see.

ACALANDRUS, in ancient geography, a river falling into the bay of Tarentum, near Metapontum. *Pliny* iii. 2.

ACALEPHE, in botany, the nettle of Theophrastus and Dioscorides.

ACALEPHE, in ornithology, a water-fowl, mentioned by Nicander; also in zoology, a sea animal, mentioned by Aulus Gellius.

ACALYPHA, in botany, the three-seeded mercury, a genus of plants belonging to the class monoecia, order monodelphia. There are five species, all natives of Virginia.

ACAMAS, in ancient history, the son of Theseus, who followed his father to the siege of Troy, and being sent along with Diomedes to the Trojans, to solicit the restoration of Helen, Laodice, one of Priam's daughters, had a son by him, called Munitus. He was one of the Grecians who afterwards concealed themselves in the wooden horse; also a son of Antenor, the Trojan; and a Thracian monarch, who assisted king Priam in the Trojan war.

ACAMANTIUM, a city of Phrygia.

ACAMATOS, from *α* negative *καμνω*, to be wearied. In medicine that position of a limb, which is equally distant from flexion and extension.

ACANACEOUS. See ACANTHACEOUS.

ACANAPHORA, in botany, a name given by some, to the *jacea*, or common knap-weed.

ACANGIS, adventurers, or ravagers; a name given by the Turks to their hussars, who are sent out to procure intelligence, and ravage the enemy's country.

ACANOR, a particular kind of chemical furnace. See ATHANOR.

ACANTHA, from *Ακανθα*, Gr. a thorn, in anatomy, the protuberances of the vertebræ of the back, commonly called *spinæ dorsi*, or the spine.

ACANTHA, in botany, the prickle of a plant.

ACANTHA, in zoology, the spine, or prickly fins of fish.

ACANTHABOLUS, in surgery, from *Ακανθα*, a thorn, and *βαλλω*, to cast away. An instrument for extracting prickles, thorns, &c. In figure it resembles a pair of pincers; but is sometimes made crooked for more conveniently entering the fauces.

ACANTHACEOUS, from *ακανθα*, *aculeum*, prickly, a term sometimes applied to plants of the thistle kind.

ACANTHALZUCA, in botany, the echinopus, or globe thistle.

ACANTHE, in botany, a name formerly given to the artichoke.

ACANTHIAS, in ichthyology, a name given by some authors to the thorn-back, a fish, the skin of which is used by our artificers in polishing, and called by them simply fish-skin.

ACANTHICE, mastich, a gum, yielded by the herb helxine.

ACANTHINUM LIGNUM, is used by some writers for Brazil wood.

ACANTHION, among naturalists, a plant of the thorn, or rather of the thistle kind: whose down, being cleansed from the prickles, was manufactured into a kind of stuff, not unlike silk.

ACANTHIS, in ornithology, a bird mentioned by Virgil, Georg. iii. supposed to be the linnet.

ACANTHONOTUS, or NASUS, in ichthyology, a genus of fish of the Indian seas, described by Black as characterised by an elongated body, dorsal fins with spines on the back and abdomen.

ACANTHOPTERYGII, in ichthyology, from *Ακανθα*, a thorn, and *πτερυγιον*, a fin. A class of fishes, in the Linnæan system, the character of which is, that the rays of the fins are bony, and some of them prickly at the extremities. This class contains 17 genera.

ACANTHOS, or ACANTHUS, a town of Egypt, near Memphis, now *Bisalta* or *Dachour*.

ACANTHOS, a maritime town of Macedonia, W. of mount Athos, now called *Erisso*. Near this was Xerxes's ditch, or canal, whereby he attempted to separate Athos from the continent, to convey his ships without doubling the mount into the Singitic bay. Also a town of Epirus, and an island mentioned by Pliny, v. 32.

ACANTHUS, bear's-breech, or brank-ursine, in botany, a genus of the angiospermia order, belonging to the didynamia class of plants; and ranking in the 40th natural order, personatæ. See BOTANY.

ACANTHUS, in architecture, an ornament representing the leaves of the acanthus, used in the capitals of the Corinthian and Composite orders. To the Corinthian capital this ornament adds its characteristic beauty: "The whole plant," as Mr. Elmes elegantly observes, "surrounds with its aspiring leaves, the vase or ball of the capital, as if attempting to lift up the abacus that covers the whole; they then turn down and form themselves into graceful volutes."

ACANTHUS, a name given by Theophrastus to the acacia tree.

ACANTHURUS, in ichthyology, a subdivision of the Linnæan genus, chætodon, containing 15 species, according to Dr. Shaw.

ACANTICONE, in mineralogy, of the genus of flint. It was formerly considered as a variety of common actinolite; but Werner and Haüy have proved it a distinct species, nearly allied to augite, it is the pistacite of Werner, the arandilite of D'Andrada, and the thallite of La Metherie.

ACANZII, Turkish light horse, the avant guard of the grand signior's army.

ACAPATLI, in botany, the piper longum of Linnæus, or the plant which produces long pepper.

ACAPELLA, in church music, denotes that the instrumental and vocal are to continue in unison.

ACAPNON, *ακαπνον*, in botany, a name of the sampsuchum, or marjoram: also of dry wood.

ACAPULCO, or LOS REYES, a considerable town and port in Mexico, on the South Sea, the capital of New Spain. A ship annually sails hence to Manilla, in the Philippine Islands, near the coast of China, laden with precious metals

and other goods to the value of £350 or 400,000: the metals alone being generally worth £250,000; and another returns in July or August, with diamonds, rubies, and other precious stones; the carpets of Persia; the camphire of Borneo; benjamin and ivory from Pegu and Cambodia; muslins, waste cottons, gold dust, tea, China ware, silk, and cabinets of China and Japan; besides cinnamon, cloves, mace, nutmegs, and pepper. The goods brought to Acapulco are carried to the city of Mexico by mules and pack-horses; and from thence to Vera Cruz on the North Sea, in order to be shipped for Europe. Acapulco itself is an inconsiderable place, containing not more than 4000 inhabitants, except at the annual fair on the arrival of the Manilla galleon. Ships arrive at the port by two inlets, separated from each other by a small island, the entrance into them in the day time is by means of a sea-breeze, and the sailing out by night is effected by a land-breeze. A passage has been recently cut through the mountains to give increased circulation to the air; but its unhealthiness, as a residence, seems incurable, and the inhabitants are the constant prey of the cholera morbus and bilious fevers. Earthquakes are also common; and the insects that choke the atmosphere intolerable to Europeans. A wretched fort, 30 pieces of cannon, and a small garrison defend it. But the harbour is equally extensive, safe, and commodious; surrounded by lofty mountains, which are so dry, that they are destitute of water. The air here is hot, heavy, and unwholesome; to which none can habituate themselves, except certain negroes that are born under a similar climate, or mulattoes. Lon. 100°. W. lat. 16°, 50′. N.

ACARA, in ichthyology, the name of a fish caught in the fresh waters of the Brazils, and esteemed a very delicate and well-tasted one. It seldom exceeds three or four inches in length, and has a high back like the perch.

ACARAAYA, or Garanha, in ichthyology, the name of a fish caught on the Brasilian shores, which grows to three feet in length, and is the shape of our carp. It is eaten in Brasil, both fresh and salted.

ACARAI, or Acaria, a town of Paraguay in South America, built by the Jesuits in 1624. Lon. 51°, 5′. W. Lat. 26°, 0′. S. Also a river of Paraguay.

ACARAMUCU, in ichthyology, the balistes monoceros of Linnæus. See Monoceros.

ACARAPEBA, in ichthyology, the name of a small American fish, called also *braseme*. It seems a kind of Smaris.

ACARAPINIMA, in ichthyology, the name of a Brasilian fish, of the Cantharus kind.

ACARAPITAMBA, in ichthyology, the name of a fish caught in the Brasilian seas, of an oblong figure, resembling the mullet, and growing to two feet or more in length. Its mouth and teeth are very small.

ACARAPUCU, in ichthyology, the name of a well-tasted fresh-water fish, of Brasil growing to eighteen inches in length.

ACARAUNA, in ichthyology, an American fish, of which there are two species; the one called *Acarauna*, without any addition; and the other *Acarauna Quadrata*, or the *Square Acarauna*; and by our sailors the *old wife*.

ACARI, or Acaris, in natural history, an animalcule bred in wax; said by Aristotle to be the least object of human sight.

Acari, a cape, river, and settlement, lon. 75°. 8′. W. Lat. 15°, 15′. S. in the province of Cumana, Peru. Also a river in Para, Brazil, which enters the Amazon at its mouth.

ACARIGUA, a river and settlement in the province of Venezuela, South America. The former rises near the town of Araure, and discharges itself into the La Portuguesa.

ACARNA, in botany, a name given by Theophrastus and others to the artichoke.

ACARNAN, in ichthyology, the name of a small sea fish very common in the Mediterranean, and called by the fishermen *fravolino* or *perogolino*. It differs little from the erythrinus, except in colour.

ACARNANIA, anciently Curetis, the first country of Free Greece, or Greece Proper, bounded on the W. by the Sinus Ambracius, and separated from Ætolia by the river Achelous, on the E. and by the Sinus Ambracius from Epirus. The people were called *Acarnanes*, denoting persons unshorn; other Ætolians, to the E. of the Achelous, being called *Curetes*, by Homer, from being shorn. According to Lucian, they were noted for effeminacy and incontinence; hence the proverb, *Porcellus Acarnanius*. This country was famous for an excellent breed of horses; so that Ακαρνινος ιππος, is a proverbial saying for a thing excellent in its kind. It is now called *la Carnia* and *il Despotato*.

ACARNAR, Acharnar, or Achernes, a star of the first magnitude, in Eridanus, invisible in our latitude.

ACARON, or Accaron, called *Ekron* in Scripture, which see.

ACARTUM, in chemistry, red lead.

ACARUS, in entomology, the tick, or mite, a genus of insects belonging to the order of aptera, or such as have no wings. They are of the chætodon genus of Linnæus; which includes also the black acarauna and the acarauna altera major of Willoughby; and the acarauna maculata of others.

ACASTUS, in classic history, the son of Pelias, king of Thessaly, and a famous hunter, married Hippolyta, who being disappointed in her passion for Peleus her step-son, she accused him to her husband of attempting her virtue; for which he was exposed to wild beasts. But Vulcan, by Jupiter's order, rescuing Peleus, he made successful war on Thessaly, and slew Acastus and Hippolyta. Also, the second Athenian Archon.

ACATALECTIC, *n. s.* ακαταληκτικος, Gr. A verse which has the complete number of syllables, without defect or superfluity.

ACATALEPSIA, Acatalepsy, from α privative, and καταληψις, comprehension. In philosophy, incomprehensibility; that which cannot be conceived.

ACATALUS, in botany, the juniper berry.

ACATAPEC, a settlement of the province of Tehuaca, New Mexico; also the name of several small settlements of South America.

ACATERY, or ACATRY, anciently an officer of the king's household, designed for a check between the clerks of the kitchen and the purveyors.

ACATHARSIA, in medicine, an impurity of the blood or humours.

ACATHISTUS, in ecclesiastical affairs, a hymn anciently sung in the Greek church, *ακαθιστος*, i. e. without sitting, on the Saturday of the fourth week in Lent, in honour of the Virgin, for having thrice delivered Constantinople from the barbarous nations.

ACATIUM, in ancient navigation, a boat or pinnace used for military purposes. Also the large sail placed in the middle of a ship. *Poll. Onon.* ii. 81.

ACATLAN, the name of six small native settlements, in New Mexico.

ACAULIS, or ACAULOUS, in botany, terms applied to plants, the flowers of which have no pedicle or stalk to support them, but rest immediately on the ground, such as the carline thistle, &c.

ACAYUCA, a town and district of New Mexico, on the coast of the North Sea, 100 leagues S. E. of Mexico. Also a settlement in New Spain, containing 100 Indian families.

ACBAR, in mythology, an idol of enormous size, which the Arabians are said formerly to have worshipped; an idolatry from which, with difficulty, Mahomet restrained them.

ACBAR. See AKBAR.

ACBERPOOR, or ACBERPURA, a town in the province of Oude, Hindostan, and one of the remaining possessions of the Nabob. It stands in N. lat. 26°, 27′. and E. long. 82°, 35′. South of Fyzabad about 30 miles.

ACBERPOOR, also called AJETMUL, a town in the district of Etaweh, province of Agra, Hindostan, 25 miles N. of Caunpoor. N. lat. 26°, 23′. E. long. 82°, 30′.

ACCA LAURENTIA, the nurse of Romulus and Remus, and wife of Faustulus, the shepherd of king Numitor. She was called *Lupa* from her loose character; whence the fable of their king being suckled by a wolf. To her honour the Accalia were dedicated; though some writers suppose them to have been instituted in honour of another courtezan. *Plut. Quæst. Rom. in Romul.* This feast was also called Laurentalia.

ACCA, (St.) bishop of Hagustaldt, or Hexam, in Northumberland, in 709. He ornamented his cathedral magnificently, and erected a library. Acca was famous for his skill in church music, and wrote *Passiones Sanctorum*, and *Pro illustrandis Scripturis, ad Bedam*. He died in 740, having enjoyed the see of Hexam 31 years.

ACCABA, a chain of mountains between Palestine and Arabia Petræa, N. E of the Red Sea, immediately by the Mount Hor of Scripture, northward. It is a range which the Mecca pilgrims are constantly passing, and on which many of their camels are lost. Also a fortress of this neighbourhood, 150 miles E. S. E. of Suez. It was the Ezion-geber of Scripture, used by Solomon; and the Berenice of Ptolemy.

ACCADEMIA, among musicians, a concert.

ACCAPITARE, ACCAPTARE, or ACAPTARE, from *ad*, to, and *caput*, the head, because vassals own their lords for their head. In old law, the act of becoming vassal to a lord, or yielding homage to him. Accapitum, or Accapitamentum was the money paid by the vassal.

ACCAWAW, INDIANS, one of the aboriginal tribes of Guiana. They lived amicably with the Dutch settlers; but were much addicted to the use of vegetable poisons on their arrows and spears.

ACCEDAS AD CURIAM in the English law, a writ of the court of Chancery, where a man has received, or fears, false judgment in an inferior court.

ACCEDAS AD VICE-COMITEM. a writ directed to the coroner, commanding him to deliver a writ to the sheriff, who having a *Pone* delivered to him, suppresses it.

ACCEDONES, or ACCENDONES, from *accedo*, to accede. In Roman antiquity, a species of gladiators, who excited or animated the combatants in the public games.

ACCEDE, *v.*
ACCESS′,
ACCESS′ARINESS,
ACCESS′ARY, or ACCESS′ORY, *n. & adj.*
ACCESS′IBLE,
ACCESSION.

Ad. *cedo;* to go to or towards, supposing a fixed point to which we are advancing; to come near to, or approach, in order to render assistance, or to confer a benefit. Hence, to assist, to agree to, to bestow a favour. Accession also signifies addition, increase.

Beside all this, he was ful greuously;
For vpon him he had an hote *accesse*,
That day by day him shooke full petously.
Chaucer, of the Blacke Knight.

When we are wrong'd, and would unfold our griefs;
We are deny'd *access* unto his person,
Ev'n by those men that most have done us wrong.
Shakspeare.

Away, I prythee,
Do as I bid thee. There's no more to say,
Accessible is none but Milford way.
Shakspeare's Cymbeline.

He grants what they besought;
Instructed, that to God is no *access*
Without Mediator; whose high office now
Moses in figure bears.
Milton, b. xii. l. 239.

They anon,
With hundreds and with thousands, trooping came,
Attended: all *access* was throng'd: the gates
And porches wide; but chief the spacious hall
Thick swarm'd.
Milton's Paradise Lost, b. ii.

As for those things, that are *accessary* hereunto; those things, that so belong to the way of salvation, &c. *Hooker*, b. iii. sec. 3.

For, as relapses make diseases
More desperate than their first *accesses*. *Hudibras.*

The reputation
Of virtuous actions past, if not kept up
With an *access* and fresh supply of new ones,
Is lost and soon forgotten. *Denham's Sophy.*

He, (the Earl of Strafford,) had taken upon him the government of Hull, without any apprehension or imagination that it would ever make him *accessary* to rebellion. *Clarendon's History of Rebellion.*

And here th' *access* a gloomy grove defends;
And here th' unnavigable lake extends;
O'er whose unhappy waters, void of light,
No bird presumes to steer his airy flight.
Dryden's Æneid, vi.

They go, commissioned to require a peace;
And carry presents, to procure *access*.
Dryden's Æneid, viii. 209.

And vain were reason, courage, learning; all,
Till power *accede*; till Tudor's wild caprice
Smile on their cause. *Shenstone's Ruined Abbey.*

With longing eyes, and agony of mind,
The sailors view their refuge left behind;
Happy to bribe with Indies richest ore,
A safe *accession* to that barren shore.
Falconer's Shipwreck.

ACCEL'ERATE, *v.* Accelera'tion, Accel'erative. } Ad: *celero*, celer, to hasten to; to move with increased speed or quickness.

Take new beer, and put in some quantity of stale beer into it; and see whether it will not *accelerate* the clarification, by opening the body of the beer, whereby the grosser parts may fall down into lees.
Bacon's Natural History, No. 307.

By a skilful application of those notices, may be gained the *accelerating* and bettering of fruits, and the emptying of mines, at much more easy rates, than by the common methods. *Glanville, Scepsis.*

If the rays endeavour to recede from the densest part of the vibration; they may be alternately *accelerated* and retarded, by the vibrations overtaking them. *Newton's Optics.*

Spices quicken the pulse, and *accelerate* the motion of the blood, and dissipate the fluids; from whence leanness, pains in the stomach, loathings, and fevers.
Arbuthnot on Aliments.

The degrees of *acceleration* of motion, the gravitation of the air, the existence or non-existence of empty space, either coacervate or interspersed, and many the like, have taken up the thoughts and time of men in disputes concerning them.
Hale's Origin of Mankind.

Lo! from the dread immensity of space,
Returning, with *accelerated* course,
The rushing comet to the sun descends,
And, as he sinks below the shading earth,
With awful train projected o'er the heavens,
The guilty nations tremble.
Thomson's Autumn.

ACCELERANDE, in music, a direction to performers to quicken the time.

For Acceleration of the gravitation of bodies. See Gravity.

For Acceleration of the motion of compressed bodies. See Dilatation.

For Acceleration of the motion of pendulums. See Mechanics and Pendulum.

For Acceleration of the motion of projectiles. See Projectile.

Acceleration of the fixed stars, in astronomy, the difference between the revolution of the *primum mobile*, and the solar revolution; which has been computed at three minutes and 56 seconds.

Acceleration of a planet. The increase of its real diurnal motion, above its mean diurnal motion.

Acceleration of the moon, is a term used to express the increase of the moon's mean motion from the sun, compared with the diurnal motion of the earth. See Astronomy.

ACCELERATORES urinæ, in anatomy, muscles which serve for rejecting or expediting the passage of the urine. See Anatomy.

ACCENDENTES, or Accensores, in ecclesiastical writings, a lower order of ministers in the church of Rome, whose office is to light and trim the candles, or tapers.

ACCENDO, *v.* Accension. } Ad: *cendo*. To set fire to; to light up. Obsolete.

ACCENSI, in the Roman armies, a reserve of soldiers, thus denominated, *quia accensebantur, ad censum adjiciebantur*. They were sometimes also called *velites* and *velati*, because they fought clothed but not in armour; sometimes *adscripticii*, and *adscriptivi*; sometimes *rorarii*. The *accensi*, Livy observes, were placed at the rear of the army, because little was expected from them; they were taken out of the fifth class of citizens. Also an inferior order of officers appointed to attend the Roman magistrates, whose office it was to call assemblies of the people, before the judges, and at the public games. They also used to cry the hour.

AC'CENT, *n.* & *v.* Accent'ual, Accentua'tion, } Ad: *cano*, accino, accentum; to sing to; to sing in concert; to sound according to prescribed rules of utterance. Accentuation applies to the marks in books, directing the accent.

How many ages hence
Shall this, our lofty scene, be acted o'er,
In states unborn, and *accents* yet unknown!
Shakspeare's Julius Cæsar.

Winds! on your wings to heav'n her *accents* bear!
Such words, as heav'n alone is fit to hear.
Dry. Virg. past. 3.

The tender *accent* of a woman's cry
Will pass unheard, will unregarded die;
When the rough seamen's louder shouts prevail,
When fair occasion shews the springing gale.
Prior

'Tis the clime of the east, 'tis the land of the sun,
Can he smile on such deeds as his children have done?
Oh! wild as the *accents* of lovers' farewell
Are the hearts which they bear, and the tales which they tell. *Lord Byron's Bride of Abydos.*

Accent, among grammarians, is a certain mark or character placed over a syllable, to direct the stress of its pronunciation. We generally reckon three grammatical accents in ordinary use, all borrowed from the Greeks: viz. the *acute accent* (´), which shows when the tone of the voice is to be raised. The *grave accent* (`), when the note or tone of the voice is to be depressed The *circumflex accent* (^), is composed of both the acute and grave, and points out a kind of undulation of the voice. The Latins have made the same use of these three accents.

Accents, among the Hebrews, have a grammatical, a rhetorical, and musical effect: though the first and last seem, indeed, to be the same; both being comprised under the general name of *tonic accents*, because they give the proper tone to syllables; as the rhetorical accents are said to be euphonic, because they tend to make the pronunciation more sweet and agreeable. There are four euphonic accents, and 25 tonic; of which some are placed above, and others below the syllables; the Hebrew accents serving not only to regulate the risings and fallings of the voice, but also to distinguish the sections, periods, and numbers of periods, in a discourse; and to answer the

same purposes with the points in other languages. Their accents are divided into *emperors, kings, dukes*, &c. each bearing a title answerable to the importance of the distinction it makes. Their emperor rules over a whole phrase, and terminates the sense completely; answering to our point. Their king answers to our colon; and their duke to our comma. The king, however, occasionally becomes a duke, and the duke a king, as the phrases are more or less short. The management and combination of these accents differ in Hebrew poetry from what they are in prose. The use of the tonic or grammatical accents has been much controverted: some holding that they distinguish the sense; while others maintain that they are only intended to regulate the music, or singing; alleging that the Jews sing, rather than read, the Scriptures in their synagogues. The best supported opinion is, that they were invented about the sixth century, by the Jewish doctors of the school of Tiberias, called the *Massoretes*.

Accents, among the Greeks, now seen both in manuscripts and printed books, have occasioned no less dispute about their antiquity and use, than those of the Hebrews. Isaac Vossius endeavours to prove them of modern invention; others contend, that the right pronunciation of their language being natural to the Greeks, it was needless to mark it by accents in their writings; and that, they only began to make use of them so late as the period in which the Romans, being curious to learn the Greek tongue, sent their children to study at Athens; a little before Cicero's time. Wetstein, Greek professor at Basil, in a learned dissertation, endeavours to prove the Greek accents of an older standing. He owns that they were not always formed in the same manner by the ancients; but thinks that difference owing to the different pronunciation which obtained in the different parts of Greece. He brings several reasons *à priori*, for the use of accents, even in the earliest days: as, that they then wrote all in capital letters equidistant from each other, without any distinction either of words or phrases, which without accents could scarce be intelligible; and that accents were necessary to distinguish ambiguous words, and to point out their proper meaning; which he confirms from a dispute on a passage in Homer, mentioned by Aristotle in his *Poetics*, chap. v. Accordingly, he observes that the Syrians, who have tonic, but no distinctive accents, have yet invented certain points, placed either below or above the words, to show their mood, tense, person, or sense.

The Chinese are said to have but 330 spoken words in their language; but these being multiplied by the different accents or tones, which affect the vowels, furnish a language tolerably copious. Magalhon makes the language the easier to learn on this account. The Siamese are also observed to sing rather than talk. Their alphabet begins with six characters, all only equivalent to a K, but differently accented. For though in the pronunciation the accents are naturally on the vowels, yet they have some to diversify such of their consonants as are in other respects the same.

Accent, in music, is a certain enforcement of particular sounds, whether by the voice or instruments, generally used at the beginning of bars.

The Accents of Sentences seem to have been almost totally overlooked, while those of words have been studied most minutely; it is indeed remarkable, that all mankind seem to agree in lowering the voice at the end of a period, and elevating it in interrogations, and the like. See *Bacon de Aug. Scient.* vi. 1. and Elem. Crit. ii.

ACCENTOR, in music, he that sings the leading part in a choir.

ACCEPT', *v.*
ACCEPT'ABLE,
ACCEPT'ABLENESS,
ACCEPTABIL'ITY,
ACCEPT'ABLY,
ACCEPT'ANCE,
ACCEPTA'TION,
ACCEPT'ER,
ACCEP'TION,
ACCEP'TIVE,
ACCIP'IENT.

Ad: *capio*; accipio, acceptum, to take to, to take to one's self; to receive what is offered, generally with pleasure or satisfaction: sometimes merely expressing assent.

The same epithete in several places *accepts* sundry interpretations. *Fuller's Worthies.*

What will God *accept* from us, if not prayers? *Hall's Contemplations.*

If it be little, he will *accept* it into grace and make it bigger. *Jeremy Taylor.*

Neither do ye kindle fire on my altar for nought. I have no pleasure in you, saith the Lord of hosts, neither will I *accept* an offering at your hand. *Malachi*, i. 10.

God is no respecter of persons; but, in every nation, he that feareth him, and worketh righteousness, is *accepted* with him. *Acts* x. 34, 35.

This is a faithful saying, and worthy of all *acceptation*, that Jesus Christ came into the world to save sinners. *St. Paul*, 1 Tim. iv. 15.

Do not omit thy prayers, for want of a good oratory; for, he that prayeth upon God's account, cares not what he suffers, so he be the friend of Christ; nor where nor when he prays, so he may do it frequently, fervently, and *acceptably*. *Taylor.*

By that *acceptance* of his sovereignty, they also accepted of his laws; why then should any other laws now be used amongst them? *Spenser's State of Ireland.*

If he tells us his noble deeds, we must also tell him our noble *acceptance* of them. *Shakspeare's Coriolanus.*

Thus I imbolden'd spake, and freedom us'd
Permissive, and *acceptance* found.
Paradise Lost, b. viii. l. 435.

You have been graciously pleased to *accept* this tender of my duty. *Dryden's Dedication to his Fables.*

Charm by *accepting*, by submitting sway;
Yet have your humour most, when you obey.
Pope.

Acceptance, in commerce, is the subscribing, signing, and making one's self debtor for the sum contained in a bill of exchange or other obligation. It is also applied in law, to such a receiving of rent as acknowledges a tenant, &c.

ACCEPTILATION, *n. s. acceptilatio*, Lat. A term of the civil law, importing the remission of a debt by an acquittance from the creditor, testifying the receipt of money which has never been paid.

ACCEPTOR, in commerce, the person who accepts a bill, and is bound to pay it.

ACCEPTORIUS MODIOLUS, in antiquities, the vessel employed in aqueducts for holding water, distinguished from the erogatonius, which was to deal it out.

ACCESSION, in law, is a method of acquiring property, by which, in things that have a close connection or dependence upon one another, the property of the principal thing draws after it the property of the accessory: Thus, the owner of a cow becomes likewise the owner of the calf. It sometimes likewise signifies consent or acquiescence.

ACCESSION, in medicine, denotes a fit, or return of some periodical disease. It is sometimes confounded with paroxysm: but they are different; an accession being the beginning of a disease, a paroxysm the height of it.

An ACCESSARY, in law, is of two kinds, i. e. an accessary before and after the fact. Accessories before the fact, are those who, though absent, yet procure, command, or encourage, another to commit a crime. Accessaries after the fact, those who receive or relieve the felon, knowing his felony. The latter are always considered as less criminal than the principal, (as in murder particularly,) the former equally so.

An ACCESSARY in felony shall have judgment of life and member, as well as the principal who did the felony; but not till the principal be first attainted, and convicted, or outlawed thereon. When the principal is pardoned without attainder, the accessary cannot be arraigned. Such was the law till lately; but now accessaries may be convicted without the principal. In the lowest and highest offences all are principals; as in riots, routs, forcible entries and other trespasses, which are the lowest offences. So also in the highest offence, which is high treason, there are no accessaries. It is the same as art and part in Scots law.

ACCESSORY NERVES, ACCESSORII, or PAR ACCESSORIUM WILLISII, so called from Dr. Willis, the discoverer; in anatomy, a pair of nerves, which, arising from the medulla in the vertebræ of the neck, ascend, and enter the skull, and pass out of it again with the par vagum, wrapped up in the same common integument; and after quitting them, are distributed into the muscles of the neck and shoulders. See ANATOMY.

ACCHO, a city of Galilee, on the coast of the Mediterranean, which formerly belonged to the tribe of Asher. It stood on the scite of the celebrated ACRE of ancient and modern times. See ACRE.

ACCI, or ACTI, in ancient geography, a town of Tarraconensis; supposed to be *Guadix*, to the east of the city of Granada, now greatly decayed. It is the Colonia Accitana of some repute among the Roman colonies. The people were called Gemellenses, because the colony was formed from the third and sixth legions.

ACCIACATURA, in music, is struck simultaneously with the whole harmony; and is thus opposed to the Appoggiatura. It is used with great effect in basses.

ACCIAIOLI, (Donata,) a man famous for his learning, and the honourable employments he possessed in Florence, his native country, in the 15th century. He wrote a Latin translation of some of Plutarch's Lives; Commentaries on Aristotle's Ethics and Politics; and the life of Charlemagne. He was sent to France by the Florentines, to sue for succour from Louis XI. against Pope Sextus IV, but died on his journey at Milan. His body was carried to Florence, and buried in the church of the Carthusians. The small fortune he left his children is a proof of his probity and disinterestedness. His daughters, like those of Aristides, were married at the public expence, as an acknowledgment of his services.

ACCIAIOLI, (ZANOBIO and JOHN,) were learned men of the same family, with the foregoing. The first was born at Florence, 1461; and patronized by Lorenzo the Magnificent, of whose son, when Leo X. he received the office of librarian to the Vatican. He published the Greek Epigrams of Politian; translations of Eusebius, Olympiodorus and Theodoret; and Orations, in praise of Naples and of Rome. He died in 1519. JOHN ACCIAIOLI was bred to the bar, at Florence, and lectured at Padua with great applause. He published 'Multa Doctissimorum Problematum Monumenta,' &c. and died at the close of the 16th century.

AC'CIDENCE, *n.*
AC'CIDENT,
ACCIDENT'AL,
ACCIDENT'ALLY.

Ad: *cado*, accedo, accidens, to fall to or at; to befall, to happen to; usually including surprise, chance, or unnecessary, that is, non-essential addition.

Thise cokes how they stamp, and strein, and grind,
(And turnen substance into *accident*,
To fulfill all thy likerous talent;—)
Chaucer, Pardonere's Tale.

If all the yeare were playing holidaies,
To sport, would be as tedious as to worke;
But when they seldom come, they wisht-for come,
And nothing pleaseth but rare *accidents*.
Shakspeare's 1st Henry IV. p. 50, act i. sc. 2.

Thy sin's not *accidental*, but a trade.
Shakspeare's Measure for Measure.

So shall you hear
Of *accidental* judgments, casual slaughters;
Of deaths, put on by cunning and forc'd cause.
Shakspeare's Hamlet.

Look upon things of the most *accidental* and mutable nature; *accidental*, in their production; and mutable, in their continuance: yet God's prescience of them is as certain in him, as the memory of them is, or can be in us. *South's Sermons.*

Ay, such a minister as wind to fire;
That adds an *accidental* fierceness to
Its natural fury. *Denham's Sophy.*

Although virtuous men do sometimes *accidentally* make their way to preferment; yet the world is so corrupted, that no man can reasonably hope to be rewarded in it, merely upon account of his virtue.
Swift's Miscellanies.

ACCIDENS, in philosophy, denotes what does not follow from the nature of a thing, but from some accidental qualities thereof in which sense it stands opposed to *per se*, which denotes the nature and essence of a thing. Thus, fire is said to burn *per se*, or considered as fire, and not *per accidens*; as a piece of iron, though red hot, only burns *per accidens*, by a quality accidental to it, and not considered as iron.

ACCIDENT, in grammar, a property attached to a word, without entering into its essential

definition. A word is said to be primitive, when it is taken from no other word in the language in which it is used: thus, *heaven*, *king*, *good*, are primitive words; but *heavenly*, *kingdom*, *goodness*, &c. are derivatives. Besides these accidents, which are common to all sorts of words, each particular species has its accidents: thus the accidents of the noun substantive are the gender, declension, and number; and the adjective has the accident of comparison. See the articles GRAMMAR and LANGUAGE.

ACCIDENT, in heraldry, an additional point or mark in a coat of arms, which may be either omitted or retained without altering the essence of the armour, such as abatement, difference, and tincture.

ACCIDENT, among physicians, is sometimes used for what is more generally called symptom.

ACCIDENT ABSOLUTE is a term used in the Roman Catholic theology for an accident, which subsists, or may possibly subsist, at least miraculously, and by some supernatural power, without a subject; such as the colour, flavour, figure and taste of the bread and wine in the eucharist, which remain after these elements, as it is stated, are changed into flesh and blood! The Cartesian Catholics, whose philosophy leads them to deny the existence of absolute accidents, have laboured hard, but in vain, to reconcile their philosophical with their religious tenets.

ACCIDENTS, in astrology, denote the most extraordinary occurrences in the course of a man's life: such as, a remarkable instance of good fortune, a signal deliverance, a great sickness, &c. Also certain casual dispositions, and affections, of the planets, whereby they are supposed to be either strengthened, or weakened, by their being in such a house of the figure.

ACCIDENTAL COLOURS, in optics, are those which depend upon the affections of the eye, in contradistinction to those which belong to the light itself. The impressions made upon the eye, by looking steadfastly at a particular colour, are various, according to the single colour, or combination of colours in the object; and they continue for some time after the eye is withdrawn, and give a false colouring to other objects. The Count de Buffon has endeavoured to trace the connections, which these accidental colours have with such as are natural, in a variety of instances. The subject has also been considered by De la Hire and M. Epenus: and M. d'Arcy has contrived a machine for determining the duration of the effects of light, and after several trials, finds that it continues about eight thirds of a minute.

ACCIDENTAL POINT, in perspective, is that point in the horizontal line where the projections of two lines parallel to each other meet the perspective plane.

ACCIPENSER, in ichthyology, a genus of fishes, belonging to the order of Nantes, and class Amphibia, in the Linnæan system. It has a single linear nostril: the mouth in the under part of the head, contains no teeth; and the cirri are below the snout, and before the mouth. There are three species of this genus, viz. the 1. ACCIPENSER HUO. 2. ACCIPENSER RUTHENUS, this has been called also ACCIPESIUS, and ONISCOS by Greek writers. 3. ACCIPENSER STURIO, or the sturgeon.

ACCIPITER, in ichthyology, a name given by Gellius, and some authors, to the fish *milvus* and *lucerna*. It is a species of the trigla; with the head a little acculeated, and with a singular fin, placed near the pectoral fins.

ACCIPITER, in the Linnæan system of zoology, the name of the first order of birds, the distinguishing character of which, is, their having a crooked beak. Of this order there are four genera: the vultur, falco, strix, and lanius, and seventy-two species. See ZOOLOGY.

ACCIPITER, in Roman antiquity and ornithology, the hawk, which, from its carnivorous nature, and its frequenting fields of battle, they considered as a bird of bad omen. Pliny, however, tells us, that in some cases, particularly in marriage, it was esteemed a bird of good omen, because it never eats the hearts of other birds; intimating thereby, that no differences in a marriage state ought to reach the heart. The accipiter was worshipped as a divinity by the inhabitants of Tentyria, an island in the Nile, being considered by them, from the sharpness of its sight, as the image of the sun; and hence we find that luminary represented, in hieroglyphics, under the figure of a hawk.

ACCIPITRINA, in botany, the hawk-weed, called also flix-weed, and sophia chirurgorum.

ACCISMUS, ακκισμος, a feigned refusal of something which a person earnestly desires: supposed to be formed from *Acco*, the name of a foolish old woman, famous in antiquity for an affectation of this kind. Accismus is sometimes considered as a virtue, sometimes as a vice, which Augustus and Tiberius practised with great success. Cromwell's refusal of the crown of England may be brought as an instance of an accismus. It is used in rhetoric, as a species of irony.

ACCITE', *v.* Ad: *cito*, anciently cito citum, to move to, to stir, to summon. Obsolete. See CITE.

When the place was redy, the kyng and the queene were *accited*, by Docter Sampson, to appere before the legates, at the forenamed place, the twentie and eight day of May. *Hall*, p. 756.

A nobler man, a brauer warrior,
Liues not this day within the city walles.
He by the senate is *accited* home
From weary warres against the barbarous Gothes.
Shakspeare's Tit. And. p. 31, act i. sc. 2.

Our coronation done, we will *accite*
(As I before remember'd) all our state;
And (heav'n consigning to my good intents)
No prince, no peer, shall have just cause to say,
Heav'n shorten Harry's happy life one day.
Shakspeare's Henry IV.

ACCIUS, the surname of a patrician family, at Rome, the ancestors of Azo, E. of Este, from whom the various princes of the Brunswick family, and the illustrious house of Hanover, are lineally descended. See AZO.

ACCIUS, (Lucius,) a Latin tragic poet, born, according to St. Jerome, A. U. C. 583. He adopted the most celebrated subjects of the Grecian stage; as Andromache, Andromeda, Atreus, Clytemnestra, Medea, Meleager, Philoctetes, &c. and one dramatic piece, entirely Roman, entitled *Brutus*. Two comedies, the Wedding and the

Merchant, have also been ascribed to him. His style has been censured as harsh; but he was so much esteemed by the public, that a comedian was punished for only mentioning his name on the stage.

Accius, an orator, of Pisaurum, against whom Cicero defended Cluentius.—Also a poet of the sixteenth century, on whom Julius Scaliger bestows great ecomiums.

ACCLAIM′, *v.* } Ad: *clamo*, to cry aloud
Acclaim′, *n.* } to; to give a shout of en-
Acclama′tion. } couragement and approbation.

It hath been the custom of Christian men, in token of the greater reverence, to stand, to utter certain words of *acclamation*; and, at the name of Jesus, to bow. *Hooker*, b. v. sec. 29.

Gladly then he mix'd
Among those friendly pow'rs, who him receiv'd
With joy and *acclamations* loud, that one
That (of so many myriads fall'n) yet one
Return'd, not lost. *Milt. Parad. Lost*, b. vi. l. 23.

Such an enchantment is there in words; and so fine a thing does it seem to some, to be ruined plausibly, and to be ushered to their destruction with panegyrick and *acclamation*. *South.*

Back from pursuit thy pow'rs, with loud *acclaim*,
Thee only extoll'd. *Milton's Par. Lost*, b. iii. l. 397.

The herald ends; the vaulted firmament
With loud *acclaims* and vast applause is rent.
Dryden's Fables.

Angus. Thou shalt be crowned:—
An iron crown, intensely hot, shall gird
Thy hoary temples; while the shouting crowd
Acclaims thee king of traitors.
Smollet's Regicide, act v. sc. 8.

ACCLAMATION, Acclamatio, in Roman antiquity, a shouting of certain words in a loud chant or peculiar and regulated tone, by way of praise or dispraise. The acclamations have been distinguished from applauses, as the former were given by the voice, the latter, by the hands; acclamation also was bestowed on persons absent, applause only on those present. They were of various kinds: ecclesiastical, military, nuptial, senatorial, synodical, scholastic, theatrical, &c. besides musical and rythmical acclamations; acclamations of joy and respect, and even of reproach and contumely. Sometimes the former were *Laudationes et bona vota*, or good wishes; the latter, *Execrationes et convicia*. Suetonius furnishes an instance of this last in the Roman senate, on occasion of the decree for demolishing the statues of Domitian, when the senators could not refrain from contumelious acclamations against the deceased. The like were uttered after the death of Commodus. Acclamations were repeated sometimes a greater, sometimes a lesser, number of times. On the theatres, in the earliest ages of the commonwealth, tney were artless and little more than confused shouts. Afterwards they became a sort of regular concerts. That mentioned by Phædrus which was made for Augustus, and proved the occasion of a pleasant mistake of a flute-player called *Princeps*, shows that musical acclamations were in use in that emperor's reign. Nero, passionately fond of music, took special care to improve and perfect the music of acclamations. When he played on the theatre, at the signal by clapping, 5000 soldiers began to chant his praise, which the spectators were obliged to repeat. The whole was conducted by a music-master. The honour of acclamations was chiefly rendered to emperors, their children and favourites; and to the magistrates who presided at the games. Persons of distinguished merit also sometimes received them, of which Quintilian gives us instances in Cato and Virgil. The most usual forms were, *Feliciter! Longiorem vitam! Annos felices!* The actors themselves, and they who gained the prizes in the games of the circus, were not excluded the honour of acclamations.

Military acclamations were those of the soldiers and the people in the time of triumph. The victorious army accompanied the general to the capital; and, among the verses they sung in his praise, frequently repeated Io triumphe, which the people answered in the same strain. They also gave their general the title of *Imperator* after some notable victory; a title which he only kept till his triumph was over. Those of the senate were usually given after a report made by some senator, to which the rest expressed their consent crying Omnes! omnes! or else, Æquum est! Justum est! Sometimes they began with acclamations, and sometimes ended with them without any debate. It was in this manner that all the elections and proclamations of emperors were conducted; something of which practice is still retained in the *Vivat Rex! Vive le Roi!* and *Long live the King!* of modern times.

The Greeks borrowed the custom of receiving their emperors in the public places from the Romans. Their form was Αγαθη τυχη! good luck. Luitprand relates, that at a procession where he was present, they sung to the emperor Nicephorus, πολλα ετη! that is, many years. Plutarch mentions an acclamation so loud, upon occasion of Flaminius's restoring liberty to Greece, that the very birds fell from heaven with the shout. The Turks practise something like this on the sight of their emperors and grand viziers to this day. The form among the Jews, was, hosannah.

As for the acclamations wherewith authors, poets, &c. were received, who recited their works in public, among the Romans; the assemblies were held with great parade in the capitol, temples, the Athenæum, or the houses of great men. Invitations were sent every where, to get the greater appearance. Men of fortune, who pretended to wit, kept able applauders in their service, and lent them to their friends. Others endeavoured to gain them by presents and treats. Philostratus mentions one, who lent money to men of letters, and forgave the interest to such as applauded his exercises. These acclamations were conducted much after the same manner as those on the theatre; but, they were suited both to the subject and to the person. There were particular ones for philosophers, for orators, for historians, and for poets. One of the most usual forms was *Sophos*, repeated three times. Martial comprehends several other forms in this verse:

Graviter! Cito! Nequiter! Euge! Beate!

Acclamations were, in process of time, received

into the acts of councils, and the ordinary assemblies of the church. The bishops, it is clear, were long elected by acclamation. The people expressed their approbation of the preacher variously, calling him, Orthodox! Third Apostle! &c. These acclamations being sometimes carried to excess, and often misplaced, were frequently prohibited by the ancient doctors, and at ength abrogated; though they appear to have been in some use as late as the time of St. Bernard.

Acclamation Medals, among antiquaries, such as represent the people expressing their joy in the posture of acclamation.

Accliv'ity, Ad: *clivus*, to the hill-top. The slope of the hill reckoned upwards, opposed to the declivity. Figuratively, that which takes an ascending course.

The men (of the Alps,) leaving their wives and younger children below, do (not without some difficulty) clamber up the *acclivities*, dragging their kine with them; where they feed them, and milk them, and make butter and cheese, and do all the dairy-work. *Ray on the Creation.*

Acclivity, in fortification, the talus of a rampart; or, more strictly, the steepness or slope of any work reckoned upwards. *James.*

ACCLIVUS, in anatomy, a muscle, otherwise called *obliquus ascendens abdominis.*

ACCLOY' or Cloy. See Cloy.

But better is, that a wights tong rest,
Than entermete him of soch doing,
Of which he neither rede can nor sing,
And who so it doth, full foule him self *acloyeth*,
For office, uncommitted, oft anoyeth.
Chaucer, fol. 247, col. 3.

As then, no winde at all there blew,
No swelling cloude *accloid* the aire;
The skie, like grasse (glasse) of watchet hew,
Reflected Phœbus golden hair.
Spenser's Elegy upon Astrophile.

At the well-head the purest streams arise:
But mucky filth his branching arms annoys,
And with uncomely weeds the gentle wave *accloys*.
Faerie Queene.

The mouldy moss which thee *accloyeth*.
Spens. Shep. Kal. Feb. 135.

ACCLOYED, among farriers, a horse's foot pricked in shoeing.

ACCOIL', or Coil. See Coil.

About the cauldron many cooks *accoil'd*,
With hooks and ladles, as need did require;
The while the viands in the vessel boil'd,
They did about their business sweat, and sorely toil'd.
Faerie Queene.

ACCOLA, in antiquities, a person who lived *near* a place; in distinction from incola, the *inhabitant* of a place. Thus the verse:

Accola non propriam, propriam colit incola terram.

ACCOLADE, Lat. from *ad*, to, and *collum*, the neck. A ceremony used in the conferring of knighthood. Some suppose it to have been the embrace, or kiss, which princes anciently gave the new knight, as a token of their affection; q. d. a clasping, or taking round the neck. An ingenious author will rather have it to be a blow on the neck; in imitation of that practised among the Romans, in the manumission of their slaves, when it is known a blow was given. John of Salisbury assures us, the blow was used among the Normans; and that William the Conqueror, thus conferred the honour of knighthood on his son Henry. At first, it was given with the naked fist, but was afterwards changed into a stroke with the flat of the sword, on the shoulder of the knight.

Accolade, or Accole'e, is also used in heraldry, to express the position of two things joined together, as two shields divided at the flanks; or lions, dogs, and other animals, which have collars or crowns about their necks. English heralds ordinarily say, collared, or gorged with an open crown, instead of accolée. Others use the term accolée, when two keys, battoons, maces, swords, &c. are saltier-wise, behind the shields.

Accolade, in music, a line drawn perpendicularly next the margin, by which all the different parts of a composition are joined together in score.

ACCOLTI, (Bernardo,) secretary to the republic of Florence, surnamed L'Unico, or the Nonsuch, from the great extent of his genius and learning, and the excellency of his poetic vein; which not only gained him a seat among the academicians of the court of Urbino, but made Pope Leo X. in 1520, create him prince of the state of Nepi. He wrote a comedy, Virginie, and other beautiful poems, which were printed at Venice, in 1519. His father was an eminent civilian of Arezza, who wrote De Bello à Christianis contra Barbaros gesto, &c. from which Tasso is said to have derived the plot of his Jerusalem Delivered.

ACCOMACK, a county of Virginia, North America, on the Chesapeake Bay, bounded N. by Maryland, and E. by the Atlantic. It contains a population of about 14,000.

ACCOM'MODATE, *v.* & *adj.*, Accom'modately, Accom'modateness, Accommoda'tion, Accom'modator. Ad: *commodum*, to the advantage; to assist, oblige, supply, reconcile, adapt, adjust, or lend. The indefinite use of this word is thus ridiculed by Shakspeare.

Accommodated, that is, when a man is, as they say, accommodated; or when a man is being, whereby he may be thought to be accommodated; which is an excellent thing. 2 *Hen. IV.* act iii. sc. 2.

But sithens it, [sc. speaking in praise of the dead] hath bene approued and allowed of a long tyme, that it ought to be this done, it becommeth me obeyuge to the lawe, to *accommodate* and apply my spekynge to the opynyo and wille of every one of you, the most that I maye.
Thucidides, by Tho. Nicolls, Lon. 1550.

Will you present and *accommodate* it to the gentleman.
Poetaster, iii. 4.

In these cases we examine the why, the what, and the how, of things; and propose means, *accommodate to* the end. *L'Estrange.*

God did not primarily intend to appoint this way of worship; and to impose it upon them as that, which was most proper and agreeable to him; but that he condescended to it, as most *accommodate* to their present state and inclination. *Tillot.*

Heaven! speed the canvass, gallantly unfurl'd,
To furnish and *accommodate* a world;
To give the pole the produce of the sun,
And knit th' unsocial climates into one.
Cowper's Charity.

ACCOMMODATION, the application of one thing, by analogy, to another: in theology, it relates chiefly to the application of prophecy: thus, a prophecy is said to be fulfilled properly, when a thing foretold comes to pass; and by way of accommodation, when an event happens to any other place or people, in a similar way. Some writers have maintained that circumcision, the tabernacle, brazen serpent, &c. were originally of Egyptian use, and only accommodated by Moses to the purposes of Judaism. It appears much more probable, however, that the neighbouring nations borrowed such customs from the Jews.

The principle of an *accommodated* interpretation of prophecy, was strenuously opposed by Dr. Owen, who maintained that there could be only a directly literal, or a typical signification. It seems indeed, liable to great abuse. See MARSH's *Michaelis*, v. i. p. 200, and Notes p. 470—479.

ACCOM'PANY, *v.* } See COMPANY. To
ACCOM'PANIMENT. } go or come with; to associate with, or attend upon in going or coming.

Go visit her, in her chaste bower of rest,
Accompany'd with angel-like delights.
Spenser's Sonnet iii.

So shall mine eyes in payne *accompany* my hart,
That were the guides, that did it lead of loue to feel the smart.
Wyatt's Complaint of the Absence of his Loue.

No man in effect doth *accompany* with others, but he learneth, ere he is aware, some gesture, voice, or fashion. *Bacon's Nat. Hist.*

Nobility is to be considered only as an imaginary distinction, unless *accompanied* with the practice of those generous virtues by which it ought to be obtained. *Tatler.*

By our traffic into foreign countries, though we many times bring home light and frivolous toys, yet they are often *accompanied* with gold and silver, both in coin and bullion.
Spelman's Dialogue concerning the Coin of the Kingdom.

The great business of the senses being to make us take notice of what hurts or advantages the body, it is wisely ordered by nature, that pain should *accompany* the reception of several ideas. *Locke.*

As folly is usually *accompanied* with perverseness, so it is here. *Swift's Short View of Ireland.*

——— The Persian dames
So were accustom'd, all the eastern fair,
In sumptuous cars, *accompany'd* his march;
A beauteous train by Ariana grac'd.
Glover's Leonidas, b. viii.

All pretences of conscience are vehemently to be suspected, which are *accompanied* with turbulent passion, and a furious zeal. *Tillotson's Sermons.*

In a mind truly virtuous, the scorn of vice is always *accompanied* with the pity of it.
Spectator, No. 79.

ACCOMPANIMENT, the adding of one thing to another by way of ornament. *Barclay.*

ACCOMPANIMENT, in heraldry, any thing added to a shield by way of ornament; as the belt, mantling, supporters, &c. It is applied to several bearings about a principal one; as a saltier, bend, fess, cheveron, &c.

ACCOMPANIMENT, in music, the instrumental parts which accompany a voice. The ancients had their accompaniments on the theatre; they had even different kinds of instruments to accompany the chorus, from those which accompanied the actors in the recitation. It is generally supposed, that their accompaniments went no farther than the playing in octave, or in antiphony to the voice. Modern organists apply it to those pipes which they occasionally touch to accompany the treble.

ACCOMPANIMENT, in painting, denotes such objects as are added, either by way of ornament, or probability; as dogs, guns, game, &c. in a hunting piece.

ACCOM'PLICE, Ad: *complex*, icis, from *plico*. to fold; *complice*, Fr. knit together; one who is connected with another in a discreditable undertaking; a complice is used by our elder writers.

Hir *complicis* al samyn in this nede,
Stert to thare lady in affray and drede;
And sone they claucht and lappit in thare armes,
This Quene that founderant was for hir smert harmes.
Douglas, b. xi. p. 394.

If a tongue would be talking, without a mouth; what could it have done, when it had all its organs of speech, and *accomplices* of sound about it?
Addison's Spectator, No. 247.

The prince who refuses to be judge, instructs his people to consider him as the *accomplice* of his ministers. *Gibbon's Roman Empire.*

ACCOMPLICE. The council of Sens, and several other synodical statutes, expressly prohibit the revealing accomplices. See ACCESSARY. The law of Scotland, in regard to accomplices, is exactly as there stated.

ACCOM'PLISH, *v.* }
ACCOM'PLISHED, } Ad: *compleo*, to fill up to; *accomplir*, to fill up the measure;
ACCOM'PLISHMENT. }
to fulfil, complete, finish; to adorn; to succeed in, or to obtain an object.

To whom our general ancestor repli'd,
"Daughter of God and man, *accomplish'd* Eve."
Milton's Par. Lost, b. iv.

I'll make a proof, how I advance in
My new *accomplishment* of Dancing.
Churchill's Ghost, b. iii.

By whatever art you may at first attract the attention, you can hold the esteem, and secure the hearts of others, only by amiable dispositions, and the *accomplishments* of the mind. *Blair.*

From the tents,
The armourers *accomplishing* the knights,
With busy hammers closing rivets up,
Give dreadful note of preparation.
Shakspeare's Henry V.

So shall my word be that goeth forth out of my mouth; it shall not return unto me void, but it shall *accomplish* that which I please. *Isaiah* lv. 11.

ACCOMPT', *n.* }
ACCOUNT', *v.* & *n.* }
ACCOUNTABLE, } Ad: *con*: *puto*. Compter, anciently *Accompter*; Fr. to reckon up with.—To cast up all the
ACCOUNTANT, *n.* & *adj.* }
ACCOUNTING. }
parts into a sum, or amount; to number or calculate; to register facts relating to money. To notice, observe, think, consider, generally with regard and approbation; to explain, or unfold, to assign the cause, reason, or motive.—The

noun account often expresses advantage, or profit; when otherwise it is qualified by an adjective.

Men pat ben ryche,
Aren a *countable* to Crist, and to the kyng of hevern.
Vision of Piers Plouhman, repr. 1813, p. 218.

Liste and I salle rede the parcelles what amountes,
If any man in dede wille keste in *accountes*.
R. Brunne, p. 135.

For this cause chiefly we thought it good to yelde up an *accoumpte* of our faith in writing.
Jewel's Defence.

At many times I brought in my *accounts*,
Laid them before you: you would throw them off;
And say, you found them in mine honesty.
Shakspeare's Timon.

Therefore is the kingdom of heaven likened unto a certain king, which would take *account* of his servants; and, when he had begun to reckon, one was brought unto him, which owed him ten thousand talents. *Matt.* xix. 23, 24.

The soul may have time to call itself to a just *accompt* of all things past; by means whereof repentance is perfected. *Hooker*, b. v. sec. 46.

To whom thou much dost owe, thou much must pay;
Think on the debt against th' *accompting day*.
Sir J. Denham.

The opinion of more worlds than one has in ancient times been *accounted* a heresy.
Bp. Wilkins's Mat. and Phil. Works.

The true ground of morality can only be the will and law of a God, who sees men in the dark, has in his hands rewards and punishments, and power enough to call to *account* the proudest offender. *Locke.*

There is such a peculiarity in Homer's manner of apostrophizing Eumæus: it is generally applied, by that poet, only to men of *account* and distinction.
Pope's Odyssey; notes.

We would establish our souls in such a solid and substantial virtue, as will *turn to account* in that great day, when it must stand the test of infinite wisdom and justice. *Add. Spect.* No. 399.

I am therefore much delighted with reading the *accounts* of savage nations, and in contemplating those virtues which are wild and uncultivated; to see courage exerting itself in fierceness, resolution in obstinacy, wisdom in cunning, patience in sullenness and despair. *Spectator.*

We are held
Accountable; and God, some future day,
Will reckon with us roundly for th' abuse
Of what he deems no mean or trivial trust.
Cowper's Task, b. 6.

Account, in chronology, is taken sometimes for the computation of time: thus, we say, the Julian Account, the Gregorian Account, &c. in which sense it is equivalent to *style*.

Account, current, general, open, personal, real, imaginary, &c. See Book-keeping.

Accountant-general, in law, an officer in the court of Chancery, appointed by act of parliament to receive all monies lodged in the court, instead of the masters, and convey the same to the bank of England for security.

Account, or Accompt Books, in commerce, is used to express the books which merchants, traders, bankers, &c. use for recording their transactions in business. See Book-keeping.

Accounts, Chamber of, in the late French policy, was a sovereign court of great antiquity, which took cognizance of, and registered the accounts of the king's revenue. It was nearly the same with the English *Court of Exchequer*.

ACCORD', *v.* & *n.*
Accord'able,
Accord'ance,
Accord'ancy,
Accord'ant,
Accord'ing, *adj.*
Accord'ingly.

Ad: *cor*. to the heart. *Accorder*, Fr. Some deduce it from *chorda*, a string, when it refers to harmony, and from *cor* when unity is intended. Possibly both words may have the same origin. To be of one heart, to agree or act cordially, to concur, to unite, to suit each other, to conform, to harmonize, to grant a request.

For in the dai suynge he apperide to hem chydynge, and he *accordide* hem in pees and seide men ghe ben britheren, whi noyen ghe ech othire?
Wiclif. Dedis, chap. vii.

But natheles while I have time and space,
Or that I forther in this tale pace;
Me thinketh it *accordant* to reason
To tellen you alle the condition,
Of eche of hem so as it semed me,
And whiche they weren and of what degre,
And eke in what araie that they were inne,
And at a knight than wol I firste beginne.
Prologue of the Canterbury Tales.

At last such grace I found, and means I wrought,
That I that lady to my spouse had won;
Accord of friends, consent of parents sought,
Affiance made, my happiness begun.
Spencer's Faerie Queene.

Things are often spoke, and seldom meant:
But (that my heart *accordeth with* my tongue,
Seeing the deed is meritorious,
And to preserve my sovereign from his foe)
Say but the word, and I will be his priest.
Shakspeare's Henry VI.

Sirrah, thou'rt said to have a stubborn soul,
That apprehends no further than this world;
And squar'st thy life *accordingly*.
Shakspeare's Measure for Measure.

As the actions of men are of sundry distinct kinds, so the laws thereof must *accordingly* be distinguished.
Hooker, b. i.

There was no means for him to satisfy all obligations to God and man: but to offer himself for a mediator of an *accord* and peace between them.
Bacon's Hen. VII.

Men would not rest upon bare contracts, without reducing the debt into a speciality; which created much certainty, and *accorded* many suits.
Sir M. Hale.

Several of the main parts of Moses's history, as concerning the flood, and the first fathers of the several nations of the world, do very well *accord* with the most ancient accounts of profane history.
Tillotson, Serm. i.

If both are satisfy'd with this *accord*,
Swear by the laws of knighthood on my sword.
Dryden's Fables.

Jarring int'rests of themselves create
Th' *according* music of a well-mixt state. *Pope.*

Her hands *accorded* the lute's musick *to* the voice; her paining heart danced to the musick. *Sidn.* b. ii.

The lights and shades, whose well *accorded* strife
Gives all the strength and colour of our life.
Pope's Epist.

Accord, in common law, an agreement between two or more persons, to give and accept satisfaction for an offence or trespass committed, which becomes a bar to any suit.

Accord, in music, the production, mixture, and harmonious relation of two or more sounds. It is synonymous with concord, or harmony.

ACCOST', or ACCOAST', ACCOST'ABLE, } Ad: *costa*. To the rib, side, or coast; to approach the side in order to gain the ear; to speak to; to commence a discourse with; in obsolete sense, to sail coast wise.

Ne is there hauke which mantleth her on pearch,
Whether high towering or *accoasting* low,
But I the measure of her flight doe search,
And all her pray, and all her diet know.
Spenser's Faerie Queene, b. vi. can. ii.

Lapland hath since been often surrounded, (so much as *accosts* the sea) by the English.
Fuller's Worthies, in Derbyshire.

The French are a free, debonnair, *accostable* people; both men and women. *Howell's Letters.*

At length, collecting all his serpent wiles,
With soothing words renew'd him thus *accosts*.
Parad. Reg.

I first *accosted* him: I su'd, I sought;
And, with a loving force, to Pheneus brought.
Dryden's Æneid.

They were both indubitable, strong, and high-minded men, yet of sweet and *accostable* nature, almost equally delighting in the press and affluence of dependents and suitors. *Wotton.*

ACCOSTED, in heraldry, of *ac*, and *costa*, a rib. Side by side, as in the phrase, 'Chevron between six rams accosted.' See HERALDRY, Plate I.

ACCOUCHEMENT, in medicine, or rather in modern Gallicised delicacy, the delivery or lying-in of a woman in child-bed. Hence the practitioner is called the accoucheur.

ACCOUP'LE, or COUPLE. See COUPLE.

The yong galands of Fraunce had coates garded with one colour, cut in ten or twelve parties verie richely to beholde: and so all the Englishe men *accoupled* themselues with the French men louingly togather, and so roade to London.
Grafton repr. 1809. vol. ii. p. 296.

He sent a solemn embassage, to treat a peace and league with the king; *accoupling* it with an article in the nature of a request. *Bacon's Henry VII.*

ACCOUR'AGE. See ENCOURAGE.

Aftir two yeres Philometer obtayned helpe of the Romãs to recouer his lost cities, and thus *accouraged* of the Romans, he expelled his auuncles syriake hoste and armye.
Exposicion of Daniel, by George Joye, p. 198.

That froward pair she ever would assuage,
When they would strive due reason to exceed;
But that same froward twain would *accourage*,
And of her plenty add unto her need.
Faerie Queene, b. ii. c. 2.

ACCOUTRE', *v.* ACCOU'TREMENT. } *Accoutrer*: Fr. To provide with suitable arms; to equip; to appoint, primarily in a military sense, then generally.

ORLA. What were his marks?
ROS. A lean cheek, which you have not; a blue eye, which you have not; an unquestionable spirit, which you have not; a beard neglected, which you have not; but I pardon you for that; for simply your having no beard is a younger brother's revenue; then your hose should be ungartered; your bonnet unbanded; your sleeve, your shoe untied; and every thing about you demonstrating a careless desolation; but you are no such man, you are rather point device in your *accoutrements*, as loving yourself, than seeming the lover of any other.
Shakspeare's As You Like it.

I profess requital to a hair's breadth, not only in the simple office of love, but in all the *accoutrements*, complement, and ceremony of it.
Shakspeare's Merry Wives of Windsor.

Is it for this, they study? to grow pale,
And miss the pleasures of a glorious meal?
For this, in rags *accoutred*, are they seen,
And made the May-game of the public spleen.
Dryden.

Christianity is lost among them, in the trappings and *accoutrements* of it; with which, instead of adorning religion, they have strangely disguised it; and quite stifled it, in the crowd of external rites and ceremonies. *Tillotson*, Sermon xxvii.

I have seen the pope officiate at St. Peter's; where, for two hours together, he was busied in putting on or off his different *accoutrements*, according to the different parts he was to act in them.
Addison, Spectator, No. 201.

How gay with all th' *accoutrements* of war,
The Britons come, with gold well fraught, they come!
Phil.

ACCRED'IT, *v.* Ad: *credo*. Fr. *Accrediter*, to trust to; to put or get into credit, as the result of confidence or esteem.

I am better pleased indeed, that he (the Analytical Reviewer,) censures some things, than I should have been with unmixed commendation; for his censure will (to use the new diplomatic term) *accredit* his praises. *Cowper's Letters.*

ACCRES'CENT, *v* ACCRE'TION, ACCRE'TIVE. } Ad: *cresco*, to grow to; growing to; an outward addition by adhesion.

Infants support abstinence worst, from the quantity of aliment consumed in *accretion*.
Arbuthnot on Aliments.

If the motion be very slow, we perceive it not: we have no sense of the *accretive* motion of plants and animals; and the sly shadow steals away upon the dial; and the quickest eye can discover no more, but that it is gone. *Glanville's Scepsis.*

ACCROACH' *v.* See ENCROACH.

In semblant (as men sayne,) is gile,
And that was proued thilke while;
The ship whiche wende his helpe *accroche*,
Drofe all to peces on the roche. *Gower.*

ACCROCHE, in heraldry, Fr. *accrocher*. denotes a thing being hooked into another.

ACCROCHING, in old law, the act of encroaching or usurping on another's right; and, particularly the attempt to exercise royal power, which as a very vague charge, led to a multitude of constructive treasons.

ACCRUE', or ACCREW', *v.* ACCRU'MENT. } Fr. *accroitre*, p. p. *accru*; to grow larger; to increase; to augment; to obtain benefit; to derive advantage.

Do you not feel your torments to *accrew*?
Spens. Ruines of Rome, 207.

The yearly benefit that, of these his works, *accrueth* to her majesty, amounteth to one thousand pounds. *Carew's Survey.*

The great profits which have *accrued* to the duke of Florence from his free port, have set several of the states of Italy on the same project.
Addison on Italy.

From which compact there arising an obligation upon every one, so to convey his meaning; there *accrues* also a right to every one, by the same signs, to judge of the sense or meaning of the person, so obliged to express himself. *South's Sermons.*

ACCUBATION, } Ad: *cumbo*, to lie
ACCUM'BENT. } down to; referring to the custom of reclining at table, as practised by the ancients.

It will appear, that *accubation*, or lying down at meals, was a gesture used by very many nations.
Brown's Vulgar Errours.

"Now there was leaning on Jesus' bosom one of his disciples whom Jesus loved;" which gesture will not so well agree unto position of sitting, but is naturall, and cannot be avoided in the laws of *accubation*.
Idem.

ACCUBATION, in antiquity, was the table posture of the Greeks and Romans; between sitting and lying down to meat. The Greeks introduced this posture: having in their turn borrowed it from the eastern nations; for we find Homer representing their primitive heroes seated round the wall, with a table before each, on which his food was placed. The Romans, during the frugal ages of the republic, were strangers to it; but as luxury obtained, this posture was adopted, at least by the men; for as to women, it was long reputed an indecency for them to use it; though afterwards, this too was overlooked. But children did not lie down, nor servants, nor soldiers, nor persons of meaner condition. The Roman manner of disposing themselves at table, was this: a low round table was placed in the cœnaculum, or dining-room, and about this, usually three, sometimes only two beds, or couches; according to the number of which, it was called *biclinium*, or *triclinium*. These were covered with a sort of bed-cloaths, richer or plainer, according to the quality of the person, and furnished with quilts and pillows, that the guests might lie the more commodiously. There were ordinarily three persons on each bed; to crowd more, was esteemed sordid. In eating they lay down on their left sides, with their heads resting on their elbows. The first lay at the head of the bed, with his feet extended behind the back of the second; the second lay with the back of his head towards the navel of the first, only separated by a pillow, his feet behind the back of the third; and so of the third, or fourth. The middle place was esteemed the most honourable. Before they came to table, they changed their cloaths, putting on what they called *cœnatoria vestis*, the dining-garment, and pulled off their shoes, to prevent soiling the bed.

Horace thus describes the order of sitting:—

Summus ego & prope me Viscus Sabinus, & infra,
Si memini, Varius: cum Servilio Balatrone
Vibidius, quos Mecænas adduxerat umbras.
Nomentanus erat super ipsum, Porcius infra.
Lib. ii. *Sat.* 8.

Guests, from the period of the heroic ages, were arranged at table according to their rank; so that persons of distinction had the uppermost seats, and subsequently a *nomenclator* was employed at public entertainments, to call every guest by name to his proper place. The heroes seem to have been ranged in long ranks, and the chief personages at the top of each row on both sides of the table.

In Persia, the middle place was accounted the most honourable, and always given to the king; in Greece, the nearest to the table; at Rome, the last or uppermost part of the middle bed, or couch, was the place of greatest distinction.

Among the Jews, the Pharisees and others, loved the uppermost rooms at feasts. (Matthew xxiii. 6.) Plutarch records a singular instance of this feeling, which illustrates our Saviour's reproof. At a splendid entertainment given by Timon, in which every one was desired to recline in whatever place he pleased, a certain person came in a very elegant dress and attended by a numerous retinue; but no sooner had he approached the door, and taken a view of the guests, who had already arranged themselves in the room, than he suddenly withdrew; and being followed by several of the company, who eagerly inquired the cause of this proceeding, he remarked, "there was no fit place left for him." Lying on one's bosom, a phrase of St. John's Gospel, respecting the posture of that beloved disciple, is also illustrated by the above customs.

ACCUM'BER. See ENCUMBER.

He sette not his benefice to hire,
And lette his shepe *acombred* in the mire.
Chaucer's Prol. to the Personnes Tale.

Alas, the clear christall, the bright transplendant glasse,
Doth not bewray the colours hid which vnderneath it hase;
As doth th' *accumbred* sprite the thoughtfull throues discouer,
Of feares delite of feruent loue that in hartes we couer.
Wyatt.

ACCUM'ULATE, } Ad: *cumulus*, a heap;
ACCUMULA'TION, } to heap, or place together, but not to unite; to
ACCUM'ULATIVE, } pile up; to collect; to
ACCUM'ULATOR. } increase.

By thys meanes and pollecy, thys Alexander gat *accumulated*, and heaped vp a great summe of money.
Hall.

The greatness of sins is, in most instances, by extension and *accumulation*.
Taylor's Polemical Discourses.

Injuries may fall upon the passive man; yet, without revenge, there would be no broils and quarrels, the great *accumulators* and multipliers of injuries.
Decay of Piety.

Great Strafford! worthy of that name, though all
Of thee should be forgotten, but thy fall,
Crush'd by imaginary treason's weight,
Which too much courage did *accumulate*.
Denham, on the Earl of Strafford's Trial and Death.

The miser who *accumulates* his annual income, and lends it out at interest, has really spent it in the gratification of his avarice.
Hume's Essays.

AC'CURACY, } Ad: *cura*. Care, attention, freedom from error, exactness, nicety, correctness.
AC'CURATE,
AC'CURATELY,
AC'CURATENESS.

Those conceive the celestial bodies have more *accurate* influences upon these things below, than indeed they have but in gross.
Bacon.

The sine of incidence is either *accurately*, or very nearly, in a given ratio to the sine of refraction.
Newton.

That all these distances, motions, and quantities of matter, should be so *accurately* and harmoniously adjusted in this great variety of our system, is above the fortuitous hints of blind material causes; and

must certainly flow from that eternal fountain of wisdom. *Bentley.*

No man living has made more *accurate* trials than Rheaumure, that brightest ornament of France. *Colson.*

ACCURSE'. See CURSE.

Hii myȝte *acors* þe folc quene, þat Seynt Edward slou. *R. Gloucester*, p. 296.

————Drede ys at þe laste,
Lest Crist in þus constorie of ȝow *a corse* menye. *Vision of Piers Ploughman*, repr. 1813, p. 7.

But whan he sawe yt he myght not reconsyle them by fayre meanys, he than vsed copulsares, and denoused them *accursed*, but if they restored the goodes of the Churche by a serteyn day. *Fabyan*, p. 275.

F. I am *accurst* to rob in that theefe's company; that rascall hath remoued my horse, and tied him I know not where.

Shakspeare, 1 *Hen. IV*, p. 54, act ii. sc. 2.

The chief part of the misery of wicked men, and those *accursed* spirits, the devils, is this; that they are of a disposition contrary to God. *Tillot.*

ACCURSED, in the Jewish idiom, was synonymous with hanged, or crucified, or dying on a tree. Deut. xxi. 22, 23; which has been thought to explain Rom. ix. 3, where the apostle Paul wishes himself accursed after the manner of Christ, i. e. crucified, if happily he might by such a death save his countrymen. Compare 2 Tim. i. 3.

ACCURSIUS, a law-professor in the 12th century, born in Florence. His authority was for some time so great, that he was called the Idol of the Lawyers. He left a valuable digest of the decisions of the Old Jurists, published at Lyons, in 1589, in 6 vols. folio.

ACCURSIUS, (Mariangelus,) a famous critic of the 16th century, born at Aquila, in the kingdom of Naples. His Diatribes, printed at Rome, in folio, in 1524, on Ovid and Solinus, are a proof of his abilities. In his edition of Ammianus Marcellinus, there are five books more than in any of the preceding ones: and he affirms he had corrected 5000 errors in that historian. His predominant passion was collecting old manuscripts; yet he made Latin and Italian verses; was complete master of the French, German, and Spanish tongues; and understood optics and music.

ACCUSE', *v.*
ACCU'SER,
ACCUSA'BLE,
ACCUSA'TION,
ACCU'SATIVE,
ACCUSATORY.

Ad: *causa*, *accuso*. To charge a fault upon a person, either in a court of law or otherwise.

O cruell day, *accuser* of the ioy
That night and loue haue stole and fast ywrien,
Accursed be thy comming into Troy.

Chaucer, Third booke of Troilus, fol. 174, col. 2.

Therfore Pilat wente out without forth to hem, and seide, what *accusyng* bringen ghe aghens this man? Thei answerden and seiden to him, If this were not a mysdoere we hadden not bitaken him to thee. *Wiclif. Jon.* chap. xviii.

To which I answeride, that it is not custom to Romayns to dampne ony man bifore that he that is accused haue his *accuseris* present, and take place of defending to putte awei the crimes that ben putt aghens him. *Wiclif, Dedis*, chap. 25.

And now they beyng bent of bothe sydes, with burnynge hartes they prepare theyr *accusements* they runne to ye iudges.

Erasmus, Para. of N. T. by P. Udall, Mat. chap. v. p. 22, col. 2.

MOWB. Let not my cold words here *accuse* my zeal,
'Tis not the tryal of a woman's war,
The bitter clamour of two eager tongues,
Can arbitrate this cause betwixt us twain;
The blood is hot that must be cool'd for this.

Shakspeare's King Richard II.

And dogged Yorke, that reaches at the moone,
Whose ouer-weening arme I haue pluckt back,
By false *accuse* doth leuell at my life.

Shakspeare, 2 *H. VI.* p. 131, act iii. sc. 1.

You read
These *accusations*; and these grievous crimes,
Committed by your person and your followers.

Shakspeare.

Thus they in mutual *accusations* spent
The fruitless hours, but neither self-condemning;
And of their vain contest, appear'd no end.

Milton.

Innocency is no shelter from ill tongues; malice never regards how true any *accusation* is, but how spiteful. *Hall's Contemplations.*

All *accusation*, in the very nature of the thing, still supposing, and being founded upon some law: for, where there is no law, there can be no transgression; and, where there can be no transgression, I am sure there ought to be no *accusation*. *South.*

Never send up a leg of a fowl at supper, while there is a cat or dog in the house, that can be *accused* for running away with it: but, if there happen to be neither, you must lay it upon the rats, or a strange greyhound. *Swift.*

ACCUSATIO, in medicine. See INDICATIO.

ACCUSATION, Lat. from *ad*, to, and *causare*, to plead. In law, the charging any person with a criminal action, that exposes him to public punishment. Writers on politics treat of the benefits and the inconveniences of accusations. Various arguments are alleged, both for and against, the public accusation of great men. Nothing, according to Machiavel, tends more to the preservation of the state. This, accordingly, was strictly observed by the Romans, in the instance of Camillus, accused of corruption by Manlius Capitolinus, &c. Accusations, however, are not more beneficial than calumnies are pernicious; which is also confirmed by the practice of the Romans. Manlius, not being able to make good his charge against Camillus, was cast into prison.—By the Roman law, there was no public accuser for public crimes; every private person might accuse another of them, and prosecute to punishment, or absolution. Cato, the most innocent person of his age, had been accused forty-two times, and as often absolved. But the accusation of private crimes was never received, but from the mouths of those who were immediately interested in them. None (e. g.) but the husband could accuse his wife of adultery.

The ancient Roman lawyers distinguish between postulatio, delatio, and accusatio. For, first, leave was desired to bring a charge against one, which was called postulare; then he against whom the charge was laid, was brought before the judge; which was called deferre, or dominis

delatio: lastly, the charge was drawn up and presented, which was properly the accusation. The accusation commenced, according to Pædianus, when the reus, or party charged, being interrogated, denied he was guilty of the crime, and subscribed his name to the delatio made by his opponent.

By the laws of the Inquisition, a person is necessitated to accuse himself of whatever crime may be imputed to him. On the slightest report that a person is a heretic, or even that he is suspected of heresy, an inquisitor will receive the denunciation of a stranger, who generally abjures the *office* of accuser, because if he should fail in his proof, he is exposed to the law of retaliation. The unhappy culprit is now visited with all the terrors of the institution, to induce him to self-crimination, which has urged the confession of whatever has been imputed, and even the voluntary invention of crimes that had no existence.

In England, by Magna Charta, no man shall be imprisoned, or condemned on any accusation, without trial by his peers, or the law; none shall be vexed with any accusation, but according to the law of the land; and, no man may be molested by petition to the king, &c. unless it be by indictment, or presentment of lawful men, or by process at common law. The office of attorney-general, and ex-officio informations, constitute the only exception to these noble provisions. Promoters of accusations are to find surety to pursue them; and, if they do not make them good, shall pay damages to the party accused, and also a fine to the king. No person is obliged to answer upon oath to a question whereby he may accuse himself of any crime. But the institution of grand juries is perhaps, our best practical barrier against false accusations.

ACCUSATIVE, in Latin and Greek grammar, the fourth case of nouns, pronouns, and participles, so named, probably, from its being used, when an action passes *a causa ad aliquem vel aliquid*, from some active cause, or agent, to some person, or thing; others derive it at once from accusamus, because we predicate something of some one. See *Varro de Ling.* Lat. vii.

ACCUS'TOM,
ACCUS'TOMABLE,
ACCUS'TOMABLY,
ACCUS'TOMANCE,
ACCUS'TOMARILY,
ACCUS'TOMARY.

Accoutúmer, Fr. See CUSTOM. To repeat frequently the same act.

The queene than askis of gold, for the nanis,
Ane wechly cowp, set all with precius stanis
Bad fill it full of the richt Hypocras,
Into the quhilk grete Belas *accustumit* was
To drink vmquhile, and fra him euery king
Discend of his geneology and ofsprying.
Douglas, b. i.

And then as he (Henry V.) was ever *accustomed* to do, he went on foote to the chief churche in the toune, and rendred to God his most heartie thankes for his prosperous successe and fortunate chauce.
Hall.

After which murder fynyshed, ye sayde syr Rafe, with his adherentys fled unto ye place of ye Erle of Artoys, where the Duke of Burgoyne vsyd *accustomably* to resorte. *Fabyan.*

I shall always fear that he who *accustoms* himself to fraud in little things, wants only opportunity in greater. *Adventurer*, No. 119.

How shall we breathe in other air
Less pure, *accustom'd* to immortal fruits. *Milton.*

It has been some advantage, to *accustom* one's self to books of the same edition.
Watts's Imp. of the Mind.

Air and exercise are necessary to all men, but particularly so to the man whose mind labours, and to him who has been all his life *accustomed* to much of both, they are necessary in the extreme.
Cowper's Letters.

ACE', *n.* εις, Gr. *as* Fr. one, an integer, unity. The side of a die, or a card marked with one point.

A small quantity; a particle; an atom.

DEM. No die, but an *ace* for him, for he is but one.

LIS. Lesse than an ace, man; for he is dead, he is nothing.
Shakspeare, Mid. Night's Dream, p. 161, act v. sc. 1.

GET. Then will I,
(For wise men must be had to prop the republick)
Not bate ye a single *ace* of a sound senator.
Beaumont and Fletcher's Prophetess act i. sc. 3.

When lots are shuffled together in a lap, urn, or pitcher; or if a man blindfold casts a die; what reason in the world can he have to presume, that he shall draw a white stone rather than a black, or throw an *ace* rather than a sise. *South.*

He will not bate an *ace* of absolute certainty; but, however doubtful or improbable the thing is, coming from him it must go for an indisputable truth.
Government of the Tongue.

I'll not wag an *ace* farther: the whole world shall not bribe me to it. *Dryden's Spanish Friar.*

ACELDEMA, Heb. a field of blood, formerly called the Potter's, and some think, the Fuller's field, situated S. of Jerusalem, and N. of the rivulet Siloam: the field purchased by the Jewish rulers, with the 30 pieces of silver, which Judas returned to them, in despair, after betraying our Saviour; and which they allotted as a burial place for strangers. The place, which is still shewn to travellers, is small, and covered with an arched roof. The bodies deposited in it are, it is said, consumed in three or four days, or even less. Drutmar, a monk of Corbie, says, that in his time there was a hospital here for the entertainment of French pilgrims.

ACENTETUM, or ACANTETA, in natural history, a name given by the ancients to the purest and finest rock crystal, which was much used and admired in the formation of cups and vases.

ACEPHALI, in civil history, certain levellers, in the reign of king Henry I. who were not believed to possess even a tenement to entitle them to have the right of acknowledging a superior lord. In our ancient law books, it is also used for persons who held nothing in fee.

ACEPHALI, or ACEPHALITÆ, in ecclesiastical history, the denomination of various sects: who refused to follow a leader, or head: as, 1. Those who, in the fifth century, refused to follow either St. Cyril, or John of Antioch 2. Certain Christians who abandoned Peter Mongus, upon his submission to the council of Chalcedon; being generally of the opinion of Eutyches, that there was only one nature in Christ. 3. The adherents of Severus of Antioch; and of all in general who

[illegible] the council of Chalcedon. 4. [illegible] from the jurisdiction of their [illegible] were also thus named.

[illegible] in ancient history, certain nations, [illegible] represented by ancient naturalists and [illegible], as formed without heads; their [illegible] mouths, &c. being placed in their breast, [illegible], &c. Such were the Blemmyes, a nation of Africa mentioned by Pliny and Solinus. [illegible] and Solinus mention others in India near the Ganges. Mela also speaks of a people, *quibus* [illegible] *in* pectore *sunt*. And Suidas, [illegible] Byzantinus, Vopiscus, relate the like. Different opinions have been formed as to the origin of these fables. Bartholin, who turns the whole into a metaphor, says, that the name, Acephali, was anciently given to such as had less brain, or conducted themselves less by the rules of prudence, than others. Olearius supposes, that the ancient voyagers, viewing certain barbarous people from the coasts, had been imposed upon by their uncouth dress. Wepfer gives a catalogue of such acephalous births, from Schenckius, Licetus, Panæus, Wolfius, Mauriceau, &c. See also *Philos. Transact.* lxv. p. 311.

Acephalous worms, or what are supposed such, are frequent. The lumbricus latus, or joint-worm, and the tænia or tape worm, were long taken to be acephalous: the first who supposed them to have a head was Tulpius, and after him Fehr: the former even makes them biceps, or two-headed. See Tænia. Crabs and such animals as have their chief senses about the breast or heart, have also been called *acephali*. *Gal. de Usu.* part viii. 4.

Acephalus, in poetry, a verse which is lame or defective by wanting a beginning. Some also give the name ακεφαλος to all verses which begin with a short, instead of a long syllable.

ACER, the Maple or Sycamore Tree: a genus of the monœcia order, belonging to the polygamia class of plants; and ranking under the 23d natural order, trifilatæ.

ACERATOS, ακερατος, Gr. from α, negative, and κερυω, or κεραννυμι, to mix: unmixed, uncorrupted. It is applied sometimes to the humours of the body by Hippocrates. Paulus Ægineta mentions a plaster under this name, but probably means *aceron*. See Acerides.

ACERB' } *Acerbitas*, sourness. De-
Acerbity, *adj.* } rived from the taste of unripe fruit; sharpness, roughness.

It is true that purgatory (at least as is believed) cannot last a hundred thousand years; but yet God may by the *acerbitie* of the flames in twenty years equal the canonical penances of twenty thousand years. *Taylor's Dissuasive from Popery.*

ACERENZA, a small town of the province of Basilicata, in the kingdom of Naples, formerly the see of an archbishop It is eighty miles E. of the capital.

ACERIC Acid, in chemistry, an acid found in the juice of the maple, and decomposed by heat See Acid.

ACERIDES, ακηριδες, from α negative, and κηρος, wax. Plasters made without wax.

ACERINA, in ichthyology, a name given by Pliny and others of the old naturalists, to the fish we now call the ceruna, and aurata fluviatilis, and in England the ruff. It is a genuine species of perch, and is distinguished by Artedi from all the other fish of that genus, by having the back fin single, and the head cavernous. See Perca.

ACERNO, a town of Italy, in the citerio principality of Naples, with a bishop's see; situated fourteen miles N. E. of Salerno.

ACEROSUS, an epithet of Hippocrates for a coarse kind of bread, made of chaff.

ACERRA, or Acerræ, a town in the kingdom of Naples, in the Terra di Levoro, seated on the river Agno, eight miles N. E. of Naples.

Acerra, in antiquity, an altar erected among the Romans, near the bed of a person deceased, on which his friends daily offered incense till his burial. The original intention probably was to overcome any offensive smell that might arise about the corpse. Also a little pot, wherein were put the incense and perfumes to be burnt on the altars of the gods, and before the dead. It appears to have been the same with what was otherwise called thuribulum and pyxis. Thus Horat. lib. 3. Od. viii. v. 2:

Quid velint flores et acerra thuris Plena, miraris.

The Chinese have still a custom like this: they erect an altar to the deceased in a room hung with mourning; and place an image of the dead person on the altar, to which every one that approaches it bows four times, and offers oblations and perfumes. By the laws of the XII. tables, the erection of Acerræ, was prohibited among the Romans. We find mention of acerræ in the ancient church. The Jews had also their acerræ, in our version rendered censers; and the Romanists still retain them under the name of incense pots.

ACESCENT, in chemistry, applied to liquids and other substances, which readily run into the acid fermentation, or in which it has already commenced.

ACESTA, in ancient geography, a town of Sicily, named after Acestes, and built by Æneas; called also Segesta. *Virg. Æn.* 746.

ACESTES, in ancient history, a king of Sicily, who assisted Priam in the Trojan war, and afterwards entertained Æneas. *Idem.*

ACESTIDES, in chemistry, chimneys of furnaces for making brass, narrow at top to receive and collect the fumes of the metal, that *cadmia* may be produced in greater quantities.

ACESTORIS, or Acestrides, from ακος, healing, female physicians; midwives so called among the Greeks.

ACETABULUM, in anatomy, 1. A deep cavity, in certain bones, appointed for the reception of the large head of other bones, in order to their articulation, such as that of the ischium, which receives the head of the thigh-bone. See Enarthrosis. The acetabulum is lined, and capped round with a cartilage, whose circular margin is called supercilium. In its bottom lies a large mucilaginous gland. 2. The same with *Cotyledon*. 3. A glandular substance, found in the placenta of some animals.

ACETABULUM, in antiquity, 1. A little vase, or cup, used at table to serve up things proper for sauce, or seasoning; similar to our vinegar cruets. Hence Agricola takes it to have been named from acetum, vinegar. 2. A Roman measure, used both for liquid and dry things, chiefly in medicine. It contained a cyathus and a half, or fifteen drachms, equal to about one-eighth of a pint.

ACETABULUM, in botany, navel-wort, a species of the peziza, or cup-peziza, a genus belonging to the cryptogamia fungi of Linnæus. It is named acetabulum, from the resemblance its leaves bear to a cup. See PEZIZA.

ACETARIA, from *acetum*, vinegar, sallad.

ACETIC ACID, in chemistry, the acid which in a more diluted state is called vinegar. For its chemical properties, see ACID and CHEMISTRY, and for its mode of manufacture into that article, see VINEGAR.

ACETIFICATION is used by some chemists to denote the operation whereby vinegar is made. It is a species of fermentation, arising from exposing vinous liquors in open vessels, in a warm place, which turns them acid. Acetification chiefly differs from the fermentation whereby wine is made in this, that the latter is effected by a gentler heat, sufficient only to raise, and rarify the sulphurous parts; whereas, in acetification, there is what is sufficient to raise and rarefy the saline parts.

ACETI SPIRITUS, in chemistry, spirit of vinegar. It is made by drenching copper filings with distilled vinegar and repeatedly evaporating it.

ACETOSA, sorrel; by Linnæus joined to the genus of dock, under the title of *Rumex*. See RUMEX.

ACETOSELLA, in botany, wood sorrel, a species of OXALIS, which see.

ACETOUS ÆTHER, an æther made by means of vinegar.

ACETOUS FERMENTATION, that by which vinegar is produced. See ACETIFICATION.

ACETUM, Latin, from *acere*, to be sharp, in medicine, chemistry, &c. vinegar; the vegetable acid. See VINEGAR. There are several medicines of which it is the basis; as,

1. ACETUM ALKALIZATUM, alkalized vinegar; distilled vinegar, with the addition of some alkaline or volatile salt.

2. ACETUM DISTILLATUM, distilled vinegar, chiefly used in preparations for dissolution and precipitation.

3. ACETUM ESURIENS, appetitive vinegar, the richest acid, according to Boerhaave, that can by any art be prepared from vinegar. It is made by dissolving verdigrise in distilled vinegar, evaporating the solution, and after recovering the chrystalized verdigrise, distilling the acid spirit by a retort.

4. ACETUM PHILOSOPHORUM, philosophers vinegar, a sour kind of liquor; made by dissolving a little butter of antimony in a great deal of water.

5. ACETUM ROSARUM, vinegar of roses; this is made of rose buds infused in vinegar 40 or 50 days; the roses are then pressed out, and the vinegar preserved. It is chiefly used by way of embrocation on the head and temples, in the head-ach.

6. ACETUM SAMBUCINUM, vinegar of elder.

7. ACETUM SCILLITICUM, vinegar of squills, &c. For these and other medicated vinegars, see VINEGAR. They are much used in Germany as antidotes against pestilential diseases.

ACH, or ACHEN, (J. V.) a painter of the sixteenth century, born at Cologne. He imitated Spranger, and travelling to Venice and Rome, painted in the latter city a celebrated Nativity for the church of the Jesuits. Returning home, he was much patronized by the German princes, and died in 1621.

ACHA, in geography, the name of three smaller rivers of Bavaria, one flowing into the Danube, near Donawerth, and another into the same river, near Ingolstadt; the third falling into the Inn, near the mouth of the Saltza.

ACHABYTUS, in ancient geography, a high mountain in Rhodes, on the top of which stood a temple of Jupiter.

ACHAC, in ornithology, a bird of the partridge kind, common in the Philippine islands.

ACHÆA, in ancient geography, a town of the island of Rhodes, in the district of Jalysus, and the first and most ancient of all; said to be built by the Heliades, or grandsons of Apollo.

ACHÆA, a hamlet of Asiatic Sarmatia, on the Euxine. The inhabitants were called Achæi, and were a colony of the Orchomenians.

ACHÆANS, the inhabitants of ACHAIA Propria, a Peloponnesian state. This republic was not considerable in early times, for the number of its troops, its wealth, or the extent of its territories; but it was famed for its probity, its justice, and its love of liberty. Its high reputation for these virtues was very ancient. The Crotonians and Sybarites, to re-establish order in their towns, adopted the laws and customs of the Achæans. After the famous battle of Leuctra, a difference arose between the Lacedemonians and Thebans, who held the virtue of this people in such veneration, that they terminated the dispute by their decision. The government of the Achæans was democratical. They preserved their liberty till the time of Philip and Alexander: but in the reigns of those princes, and afterwards, they were either subject to the Macedonians, who had made themselves masters of Greece, or oppressed by cruel tyrants. The Achæan commonwealth consisted of twelve inconsiderable towns in Peloponnesus. Its first annals are not marked by any great action, for they are not graced with one eminent character. After the death of Alexander, this little republic was a prey to all the evils which flow from political discord. A zeal for the good of the community was now extinguished. Each town was only attentive to its private interest. There was no longer any stability in the state; for it changed its masters with every revolution in Macedonia. Towards the 124th Olympiad, about the time when Ptolemy Soter died, and whem Pyrrhus invaded Italy, the republic of the Achæans recovered its old institutions and unanimity. The inhabitants of Patæ and of Dymæ were the first asserters of ancient liberty. The tyrants were banished; and the league comprised at length the whole of Greece, with the single exception of the Lacedemonians. The

fundamental constitution of this confederacy was as follows:—A public council was held, in which affairs of importance were determined, and a register appointed to record its transactions. It was convened once a year, and at first had two presidents, who were nominated alternately by the different towns and states: but they soon elected only one, who presided in the council, and commanded the army. By the Greeks he was called *strategos*, and by the Romans *prætor*. He continued in his office two successive years. Next in authority to the prætor, were the ten *demiurgi*, who were appointed to act as his privy council, and were empowered on extraordinary occasions to summon a general assembly. The *Achæan league* was formidable to all the surrounding countries for upwards of 120 years; but internal dissensions became at last more fatal to it than the arms of Rome, to which, in the year B. C. 147, this people finally submitted.

The arms which the Achæans chiefly used were slings, with which, by long practice, they took so nice an aim, that they were sure, not only to hit their enemies on the head, but on any part of the face they chose. Their slings were of a different kind from those of the Balearians, whom they far surpassed in dexterity.

Livy and Homer use the term ACHÆI for the whole people of Greece.

ACHÆMENES, the first king of Persia, said to have been the grandson of Perseus. The whole royal family were called after him ACHÆMENIDES.

ACHÆMENES, another king of Persia, the father of Cambyses, and grandfather of Cyrus the Great. He is mentioned by Horace, lib. ii. ode iii.

ACHÆMENES, the son of Darius I. and brother of Xerxes, who commanded the Egyptian fleet in the celebrated expedition which proved so fatal to all Greece.

ACHÆORUM-PORTUS, in ancient geography, the name of a harbour near Sigæum; into which the Xanthus falls, after being joined by the Simois; also a port of the Taurica Chersonesus, on the Euxine sea, now called Porto Buon.

ACHÆUS, in ancient history; first, a king of Lydia, deposed and hung for extortion. *Ovid.* Second, the founder of the Achæan state, in the Peloponnesus, son of Xuthus, king of Thessaly. Third, a tragic poet of Eretria, who lived some time after Sophocles. Fourth, another poet of Syracuse. Fifth, a cousin-german to Seleucus Ceraunus and Antiochus the Great, kings of Syria, who enjoyed the dominions he had usurped from Antiochus for many years; but at last was betrayed by a Cretan, in the 140th year of Rome; and his limbs being cut off, his body was sewed in the skin of an ass, and gibbetted.

ACHAGUA, in geography, an Indian tribe, of the kingdom of New Granada, formed into settlements by the Jesuits, in 1661. They are said to be of kind disposition; very expert in the use of the dart and spear, and very brave.

ACHAIA, in ancient geography, that part of Greece which Ptolemy calls Hellas, and the younger Pliny, Græcia. It is now called Livadia. See LIVADIA.

ACHAIA PROPRIA, in ancient geography, a small district, N. of Peloponnesus, running westward along the bay of Corinth, and bounded on the W. by the Ionian Sea, on the S. by Elis and Arcadia, and on the E. by Sicyonia: its metropolis was called *Patræ*. It is now the *Romania Alta*, of the Morea.

ACHALALACTLI, in ornithology, an American bird, described by Nieremberg, of the size of a pigeon; is common about the lakes and rivers of Mexico, and feeds on small fish. It is remarkable for a beautiful silvery ring round its neck.

ACHAMELLA, or ACMELLA, in botany, a plant that grows in the island of Ceylon, of which there are three species. It is recommended in nephritic disorders; and is the *verbesina acmella* of Linnæus.

ACHANDES, in ichthyology, a name given by some to the remora, or sucking fish.

ACHANE, αχανη, Gr. an ancient Persian corn measure, containing 45 Attic medimni.

ACHANIA, in botany, a genus of plants of the class monodelphia, order polyandria.

ACHAOVA, in the materia medica of the ancients, an Egyptian herb, nearly resembling chamomile, but lower, and with broader leaves, approaching to those of feverfew, and of a faint, but not disagreeable smell. Avicenna, however, seems to have called the herb we call *marum*, by this name.

ACHARACA, in ancient geography, a town of Lydia, between Tralles and Nysa; in which were the temple of Pluto, and the cave Charonium, where patients slept in order to obtain a cure. *Strabo.*

ACHARISTON, from α, without, and χαρις, value, a name of Galen's for some medicines, which cured so quickly, that they were undervalued; as the Greek name implies.

ACHAT, in law, a contract, or bargain, especially in the way of purchase.

ACHATES, the companion of Æneas, and his most faithful friend, celebrated in Virgil.

ACHATES, in natural history, the AGATE, which see.

ACHATES, in ancient geography, a river of Sicily, now the *Drillo;* which is said to have given name to the Achates, or Agate, first found there.

ACHATORS, purveyors, ordained to be so called, by Act Par. 36 Edw. III.

ACHAZIB, or ACHZIB, in ancient geography, first, a town of Galilee, in the tribe of Asher, nine miles from Ptolemais; second, a town on the southern parts of the tribe of Judah.

ACHE'. Ace, Saxon, to eke, to lengthen out; applied to continued pain.

I know in heate and cold, the louer how he shakes,
In singing how he doth complaine, in sleping how he wakes,
To languish without *ache*, sicklesse for to consume;
A thousand things for to deuise, resoluing all in fume.
Surrey.

I'll rack thee with old cramps;
Fill all thy bones with *aches*, make thee roar,
That beasts shall tremble at thy din. *Shakesp.*

A coming show'r your shooting corns presage,
Old *aches* throb, your hollow tooth will rage. *Swift.*

Upon this account, our senses are dulled and spent by any extraordinary attention; and our very eyes will *ache*, if long fixed upon any difficultly discerned object. *Glanville.*

Visions of glory! spare my *aching* sight,
Ye unborn ages crowd not on my soul! *Gray.*

ACHEEN, Achē', or Achen, a kingdom of Sumatra, on the N. W. of that island, extending fifty miles along the coast, and said by some to contain 26,000 superficial miles. So powerful was this kingdom in the beginning of the sixteenth century, as to expel the Portuguese invaders entirely from the island.

Acheen is divided into 193 parishes, forming three general governments, each under the jurisdiction of a paugleemo and subordinate officers. Some parts of the kingdom are subject to frequent and sudden inundations; and the inhabitants can have no intercourse except through the medium of boats: but as there are few swamps and bogs, the air is healthy, and fevers, dysenteries, &c. are said to be uncommon. The soil that prevails is light and fertile, producing rice, cotton, and fine fruits. It is a layer of black mould, on a substratum of reddish clay, on which many culinary vegetables come to great perfection; and is so extremely rich and exuberant, that culinary roots, onions, limes, citrons, and nearly all the fruits and plants of the frigid and torrid zones grow here. Very fine gold dust is found in the mountains, and still more is supplied from the southern parts of Nalaboo and Soosoo. A volcano, in the vicinage of Acheen the capital, yields an abundance of sulphur, both for home consumption and exportation. Acheen was formerly the great mart of eastern commodities, and still carries on a flourishing trade, both with European and eastern nations. They export fruits, gold, jewels, diamonds, sulphur, camphor, pepper, benzoin, sapan-wood, betel-nut, patch-leaf, or *colsos Indicus*; and import cotton, cloth, silk, opium, gunpowder, arms, glass, and cutlery. The king is the chief merchant, and claims a duty of twelve per cent. upon all goods imported into his dominions. He also entirely monopolizes the sale of opium, and farms the retailing of it among the people.

All matters relative to the commerce and the customs of the port, come under the jurisdiction of the *shabandar*; who performs the ceremony of lifting *chap*, or giving a license for trade, by lifting a golden-hafted creese over the head of the merchant, without which he dares not land his goods. Presents are then sent to the king and his officers. If the stranger be an ambassador, the royal elephants are sent down to carry him and his letters to the monarch's presence. After some general discourse, he is conducted to a separate building, and entertained by the officers of state, with all the delicacies of the country. In the evening he departs in the manner he came, surrounded by a prodigious number of lights. Their trading is chiefly carried on by gold-dust; and every tradesman carries about with him scales and bags. The people are taller and more swarthy than the other inhabitants of the island; and from their comparative skill in mechanics, it would appear that they are more intelligent They have a curious method of casting small brass guns. The chief dress is of blue and white cloth, made, among the higher classes, from cotton of their own growth; their silk is now on the decline. They are said to be a base and treacherous people. The chief animals are pasture cattle, horses, and elephants. The horses are much prized at Madras.

The religion of Acheen is Mahometanism; and the government despotic, admitting females to reign. The king usually maintains a guard of 100 seapoys about his palace. He appoints a Paugleenoo to each district, and under him a twaum, and four paugeeches, to each mosque. The grand council of the nation, consists of the king, or *sultan*, four oolooballangs, eight of a lower degree, and sixteen cajoorangs. At the king's feet sits a woman, to whom he makes known his pleasure. She communicates it to an officer, who proclaims it to the assembly. The throne was formerly of ivory and tortoise, protected by a curtain of gauze, which did not obstruct the audience, but prevented perfect view. The criminal laws are uncommonly severe. Theft is punished by suspending the criminal from a tree, with a gun or weight tied to his foot; in some cases by cutting off a finger, a hand, or a foot, &c. according to the heinousness of the crime;—house-breaking by drowning. If a man robs a priest he is burnt alive. Adultery is punished by placing the adulterer in a spacious area, environed by the friends of the injured husband, where he is provided with a weapon; and if he can force his way through them, he escapes condign punishment; but in general he is cut to pieces in a few moments, and the body is refused funeral rites.

The king confers a title of honour, the ensign of which is a small golden sword suspended round the neck, as a badge of distinction: this is seldom conferred on any of the natives. The resident for the East India Company was withdrawn in 1785; but the traffic still continues.

ACHEL, a celebrated place and cave in Hindostan, four miles from Patiala, district of Sisheril. Here a cold flame is said to issue from the earth, and is regarded as a manifestation of the Deity. Pilgrims crowd hither, and a great fair is held at the place annually.

ACHELOUS, a hero, in the ancient mythology, who wrestled with Hercules, for Deianira, daughter to king Œneus: but as Achelous had the power of assuming all shapes, the contest was long dubious: at last, as he took that of a bull, Hercules tore off one of his horns; so that he was forced to submit, and to redeem it by giving the conqueror the horn of Amalthea, or plenty; which Hercules and the Nymphs having filled with a variety of fruits, consecrated to Jupiter. Some explain this fable, by saying, that Achelous is a winding river of Greece, whose stream was so rapid, that it roared like a bull, and overflowed its banks; but Hercules, by bringing it into two channels, broke off one of the horns, and so restored plenty to the country. See next article.

ACHELOUS, a river of Acarnania, which rises in mount Pindus, and dividing Ætolia from Acarnania, falls from N. to S. into the Sinus Corinthiacus. It was formerly called Thoas, from its impetuosity, and, by Homer, King of rivers. It is now called Aspro Potamo.

ACHEM, or ACHEN. See ACHEEN.

ACHEMENIS, an herb mentioned by Pliny; supposed by the ancients to have the property of exciting terror.

ACHEPE BAY, a small inlet near North Cape, on the eastern coast of the island of Cape Breton, British North America.

ACHERI, (Luke d',) a learned Benedictine, of the congregation of St. Maur, born at St. Quintin, in Picardy, in 1609, and famous for printing several works, till then only in MS. viz.: the epistle attributed to St. Barnabas; the works of Lanfranc, archbishop of Canterbury; a collection of scarce and curious pieces, entitled Spicilegium; i. e. Gleanings, in 13 volumes quarto, &c. After a very retired life, he died at Paris, in 1685, in the abbey of St. Germain, where he had been librarian.

ACHERNA, in astronomy, a star of the first magnitude, in the sign of Eridanus.

ACHERON, Αχερων, Gr. in ancient mythology, the son of Ceres, whom she hid in hell, for fear of the Titans, and turned into a river, over which departed souls were ferried in their way to Elysium.

ACHERON, a river of Thesprotia, in Epirus; which, after forming the lake Acherusia, falls into the sea to the west of the Sinus Ambracius. It is now called *Delichi*.

ACHERON, or ACHEROS, a river of the Brutii in Italy, running from E. to W. where Alexander, king of Epirus, was slain by the Lucani, being deceived by the oracle of Dodona, bidding him beware of Acheron, which he supposed to mean the Acheron in his own kingdom.

ACHERSET, an ancient measure of corn, conjectured to be the same with our quarter, or eight bushels.

ACHERUSIA, in ancient geography, first, a lake in Egypt, near Memphis, over which, according to Diodorus, the bodies of the dead were conveyed for judgment, in the boat Baris, the property of Charon. And thus arose the Grecian fable of Charon and the Styx. Second, a lake between Cumæ and the promontory Misenum, now *Il Lago Della Collucia*. Some confound it with the *Lacus Lucrinus*, and others with the *Lucus Averni*. Third, a lake of Epirus, through which the Acheron runs. Fourth, a peninsula of Bithynia on the Euxine, near Heraclea.

ACHERUSIA, in ancient mythology, a cave, through which Hercules was fabled to have descended to hell, to drag forth Cerberus.

ACHETA, in entomology, a name by which the ancients called the larger species of *cicada*, or the third family of the Linnæan gryllus.

ACHIA, or ACHIAR, a kind of cane which grows in the East Indies, and is pickled there while green, with strong vinegar and spices. It is a Malayan word for all kinds of pickled fruits and roots.

ACHIÆNUS, or ACHÆINUS, in natural history, a word used by the ancients to express a stag or deer, in his second year. In the first it was called nebrus, in the third dicrotus, and always after that cerastes.

ACHICOLUM, or ARCHITHOLUS, in antiquity, the fornix, tholus, or sudatorium of the ancient baths; which was a hot room where they used to sweat.

ACHIEVE', *v.* } *Achêver*, Fr. to carry
ACHIEV'ABLE, } forward to the head, chief
ACHIEV'ANCE, } point, or end; to accom-
ACHIEV'ER, } plish an enterprize; to
ACHIEVE'MENT. } finish; complete a design satisfactorily; to acquire.

The protectour sore thristed for the *acheuynge* of his pretensed enterpryse, and thought euery daye a yere tyll it were perfourmed. *Hall*, p. 350.

And for to speke in other waie,
Full ofte tyme I have herde him saie,
That he, which hath no loue *acheaued*,
Hym thinketh that he is not relieued.
Gower, Con. A. b. vi.

And after that her thought gan for to clere,
And saied, he which yt nothing vndertaketh,
Nothing *acheueth*, be him loth or dere.
Chaucer, Troilus, b. ii. fol. 162, col. 1.

William tok his leue, his way to Scotland ches,
Wele mot William *cheue*, and alle þat lufes þes.
R. Brunne, p. 146.

From every coast, that heaven walks about,
Have thither come the noble martial crew,
That famous hard *achievements* still pursue.
Faerie Queene.

LEON. A victorie is twice itself, when the *atchiever* brings home full numbers.
Shaks. Much Adoe about Nothing, p. 101, act i. sc. 1.

——— And now great deeds
Had been *achiev'd*, whereof all hell had rung,
Had not the snaky sorceress that sat
Fast by Hell's gate, and kept the fatal key,
Ris'n with hideous outcry, rush'd between.
Milton's Paradise Lost, b. ii.

It is an unworthy thing to plead hardness of *atchieving*, where the benefit will more than requite the endeavour. *Hall's Contemplations.*

Then shall the war, and stern debate, and strife
Immortal, be the bus'ness of my life;
And in thy fame, the dusty spoils among,
High on the burnish'd roof, my banner shall be hung,
Rank'd with my champion's bucklers; and below,
With arms revers'd, th' *achievements* of the foe
Dryden.

No exploits so illustrious, as those which have been *achieved* by the faith and patience, by the courage and prudence of the ancient saints: they do far surpass the most famous *achievements* of Pagan heroes. *Barrow's Sermons.*

The baths were not much frequented, being rarely used but after the accomplishment of some very great work which required abundance of labour and toil; as the ending of a war, *achieving* any great and painful enterprise. *Potter's Antiq.*

ACHIGAN RIVER, a tributary stream to the river Assumption in Lower Canada, North America, which it joins about twelve miles from its mouth in the St. Lawrence. It is a considerable outlet for the timber of the upper forests of the country.

ACHILL, an island on the west coast of the county of Mayo, Ireland, from which it is separated by a narrow channel. It is about thirty miles in circumference. N Lat. 53°, 38'. W Long. 9°, 52'.

ACHILL-HEAD, a cape on the west of the above island.

ACHILLAS, in ancient history, an Egyptian general, who murdered Pompey the great. *Plut. in Pomp.*

ACHILLEA, in ancient geography, an island, containing the tomb of Achilles, near the mouth of the Ister. Second, a peninsula near the mouth of the Boristhènes. Third, a fountain of Miletus, whose water rose salt and afterwards freshened.

ACHILLÆA, YARROW, MILFOIL, NOSEBLEED, or SNEEZEWORT; a genus of the order of the polygamia superflua, belonging to the syngenesia class of plants. The natural order to which it belongs is the forty-ninth compositæ discoides.

ACHILLEIS, in literature, a celebrated poem of Statius, in honour of Achilles. See STATIUS.

ACHILLES, in ancient history, the son of king Peleus by the goddess Thetis, and the celebrated hero of Homer's Illiad, is said to have been born at Phthia in Thessaly. The fabulous part of his history is, that his mother, in order to render him immortal, by consuming the mortal parts of his body, which he derived from his father, laid him, when a child, every night under live coals, anointing him at the same time with ambrosia, which preserved him from burning, except one of his lips which he had licked; that, to render him invulnerable, she dipped him in the river Styx, excepting the heel by which she held him, a story not even credited by Homer, who mentions his being wounded in the right arm; that she afterwards entrusted him to the care of Chiron the Centaur, who fed him with the marrow of wild beasts, to strengthen him for the toils of war; and that to prevent him from going to the siege of Troy, she disguised him in the dress of a young woman, and attempted to conceal him among the daughters of king Lycomedes, one of whom he made the mother of Neoptolemus. The authentic part of his story seems to be, that Ulysses persuaded him to accompany the other Grecian chiefs in their crusade against Troy; that he there distinguished himself by his valour, till Agamemnon by taking from him Briseis a female captive, provoked him to withdraw himself in disgust: but, that his friend Patroclus being killed by Hector, in order to avenge his death he returned to the camp, slew the prince, and barbarously dragged his dead body round the walls of Troy at his chariot's wheels; that afterwards, falling in love with Philoxena, one of Hector's sisters, he was mortally wounded with an arrow in the heel, by her brother Paris, while treating about the marriage; and, in fine, that he was buried on the promontory of Sigæum, where the Greeks sacrificed the unfortunate princess, on his tomb; according to the barbarous custom of that age, and agreeably to his dying request, that he might enjoy her company in the Elysian Fields. His death is supposed to have happened about A. C. 1183. Alexander the Great is said to have visited his tomb, and placed a crown upon it, saying that "Achilles was happy, in having such a friend as Patroclus in his life, and such a poet as Homer, to celebrate him, after his death."

ACHILLES, in logic, a name given to the principal argument alleged by each sect of philosophers in behalf of their system. In this sense, we say, this is his *Achilles;* that is, his master proof.

ACHILLES (Tatius,) See TATIUS.

ACHILLINI, (Alexander,) born at Bologna in 1463, was one of the most celebrated anatomists and philosophers of the fifteenth and sixteenth centuries. He first discovered some of the smaller bones in the ear; and filled in 1506 his professorship at Padua, with such distinction, that a vast influx of students came to that university from all parts of Europe. In 1508, his philosophical works were published in one volume, folio; besides which, he wrote Annotationes Anatomicæ, 1520, quarto; De Humani Corporis Anatomis, 1521, quarto; and various other anatomical works.

ACHILLINI, (J. Philotheus,) brother of the above, who was born at Bologna, in 1466, and died there 1558, was also a distinguished scholar and poet.

ACHILLINI, (Claudius,) grandson of the last Achillini, read lectures at Bologna, Ferrara, and Parma, at the beginning of the seventeenth century, where he was much esteemed as a philosopher, a divine, an orator, mathematician, and poet. He accompanied cardinal Ludovisio, afterwards Gregory XV. when he went as legate into Piedmont: but being neglected by him, when he became pope, he left Rome in disgust, and retired to Parma, where the duke appointed him professor of law, with a good salary. He published a volume of Latin letters, and another of Italian poems, which gained him great reputation, and died in 1640, aged sixty-six.

ACHILLIS TENDO, in anatomy, is a strong tendinous cord, formed by the union of the tendons of the four extensor muscles of the foot, and inserted into the os calcis. It has its name from the fatal wound Achilles is said to have received in that part, from Paris the son of Priam.

ACHILLIS, a small lake in the county of Ross, Scotland, whose waters are supposed to have a subterranean outlet.

ACHIOTE, in botany, a name given by some authors to the uraca, or arnotto, called orleata, and orellana, by others. It is the BIXA ORLEANA of Linnæus, which see.

ACHIOTTE, or ACHIOTE, a foreign drug, used in dyeing, and in the preparation of chocolate. It is the same with the substance more usually known by the name of arnotto.

ACHIROPŒTOS, from *α*, without, *χειρ*, hand, and *ποιεω*, to make, a name given by ancient writers to certain pictures of Christ and the Virgin, said to have been made without hands. The most celebrated of these, is a Christ in the church of St. John Lateran at Rome, begun by St. Luke, but finished by angels.

ACHIVI, the Greeks, so called by the Roman poets.

ACHLEUTHEN, a lordship, town, and castle of Austria, on the Crems, ten miles E. S. E. of Ems.

ACHLYS, *αχλυς*; Gr. a cloud, in medicine, first a darkness or dimness of sight, arising from

a small cicatricula on the pupil, occasioned by a superficial ulcer on the cornea. Second, a disorder of the womb; answering to what Latin writers call *suffusio uteri*.

ACHMET, the son of Seerim, lived in the ninth century, and wrote a book concerning the interpretation of dreams according to the doctrine of the Indians, Persians, and Egyptians, which was translated out of Greek into Latin by Leo Tuscus, in 1160, and republished at Paris, 1603.

Achmet Geduc. See Geduc.

ACHMIM, a large town of Upper Egypt, 200 miles south of Cairo, situated on the eastern bank of the Nile. "One admires there (says Abulfeda, as quoted by Mr. Savary,) a temple, which is equal to the most celebrated monuments of antiquity. It is constructed with stones of a surprising size, on which are sculptured innumerable figures." Though this town is fallen from its ancient splendour, it is still one of the most beautiful of Upper Egypt; and the country around is remarkably fertile, producing the finest corn of this part of Africa, as well as sugar and cotton The streets are wide and clean, and commerce and agriculture flourish. It has a manufactory of cotton, stuffs, and pottery, which are conveyed over all Egypt. Achmim is the *Chemmis* of Herodotus, and the *Panopolis* of Strabo, or the city of Pan, who was worshipped there. Herodotus says, that Perseus was a native of this city, and that his descendants had established festivals there in his honour. It has lost its ancient edifices, and much of its extent; the ruins of the temple, described by Abulfeda, being without its limits, to the north. Nothing remains of it but some stones, of such magnitude, that the Turks have not been able to move them. On one of them are traced four concentric circles, in a square. The innermost of these contains a sun. The two next, divided into twelve parts, contain, the one, twelve birds, the other, animals almost effaced, which appear to be the signs of the zodiac. The fourth has no divisions, and presents twelve human figures, which Mr. Savary imagines to represent the twelve gods, the twelve months of the year, and the twelve signs of the zodiac. The four seasons occupy the angles of the square, on the side of which may be distinguished a globe with wings. The columns of this temple have been partly broken, to make lime and mill-stones. Some of them have been transported into one of the mosques of Achmim, where they are placed without taste; others are heaped up in the square of the town. Mr. Savary tells us of a serpent which is worshipped here, and the wonder of the country. See Haridi. Here also is a church of some antiquity.

ACHMUNEIN, a town of Upper Egypt, 120 miles S. of Cairo, supposed to be the ancient Hermopolis, and containing the portico of a temple covered with hieroglyphics, which Denon considers the most superb remaining monument of Egyptian architecture.

ACHNE, Αχνη, Gr. chaff, froth, lint, smoke, or any thing light. It is used by Hippocrates to denote a white mucilage, observable in the eyes of patients who have fevers; and also a white mucus in the fauces, thrown up from the lungs.

ACHOR, a valley of Jericho, lying along the Jordan, not far from Gilgal.

Achor, in medicine, the third species of tinea, or scald-head. It is a sort of small running ulcer on the face and head, chiefly of children while they suck; by which the skin is broken into a number of little holes, out of which issues a viscid humour, like *ichor*, whence its name.—Achor differs from the favus and tinea only in the degree of virulence.

ACHRADINA, in ancient geography, one of the four divisions of Syracuse, and the strongest, largest, and most beautiful part of it; separated by a very strong wall from the outer town, Tycha and Neapolis. It was adorned with a very large forum, with beautiful porticos, a most elegant prytaneum, a spacious senate house, and a superb temple of Jupiter Olympius.

ACHRAS, or Sapota Plum: a genus of the monogynia order, belonging to the hexandria class of plants; and ranking in the forty-third natural order, dumosæ.

ACHROI, αχροι, Gr. from *a* negative, and χροσ, colour, persons who have lost their natural colour; such as have the jaundice.

ACHROMATIC, Gr. of *a*, primitive, and χρωμα, colour, an epithet expressing want of colour.

Achromatic telescopes, are telescopes contrived to remedy the aberrations in colours; See Aberration.—A particular account of the invention and construction of these instruments will be found under Optics.

ACHRONICAL. See Acronical.

ACHSHAPH, a city, originally a kingdom, near the foot of mount Tabor, taken by Joshua, and given to the tribe of Asher. In St. Jerome's time, it was reduced to a small village, and called Chasalus.

ACHTELING, a measure for liquids used in Germany, thirty-two achtelings make a heemer; four sciltems or sciltins, make an achteling.

ACHTIRKA, a well-built town of Russia, capital of a district, in the government of Charko, on a river of the same name. Population 12,000. 40 miles W. S. W. of Charkov.

ACHY, a species of cassia, that grows in Arabia.

ACHYRANTHUS, in botany, a genus of the pentandria order, belonging to the monogynia class of plants, and associating with the miscellaneæ, in the thirty-fourth natural order.

ACHZIB. See Achazib.

ACIA, a term in the Roman surgery, concerning the meaning of which physicians and commentators are much divided. Celsus, speaking of the healing of wounds either by suture, or the fibula, says, each is best effected by means of a soft *acia*, not too much twisted, that it may sit the easier on the body. Boxornius will have the acia to be the *acus* of the fibula, or that part which is pinched: in which view *acia mollis* only imported, that it was not set so as to pinch too much.

ACICANTHERA, in botany, the trivial name of a species of Rheixia, which see.

ACICOCA, an herb of Peru, and is sometimes used instead of the herb paraguay, of which it is said to have all the properties.

ACICULA, the small pikes or prickles of the hedge-hog, echinus marinus, &c.

ACIDALIA, an epithet given to Venus by Virgil, from ACIDALUS, which see.

ACIDALIUS, Valens, a critic of the sixteenth century, born at Witstock, in Brandenburgh. Having visited several academies in Germany, Italy, &c. he took up his residence at Breslaw, where he became a Roman catholic, and was chosen rector of a school at Niesse. Thuanus says that his sitting up at night, to compose his conjectures on Plautus brought upon him a distemper, which carried him off in three days, on the 25th of May, 1595, being just twenty-eight years of age. He wrote a commentary on Quintus Curtius; Notes on Tacitus; besides speeches, letters, and poems, which last are inserted in the *Deliciæ* of the German poets. A little piece, printed in 1595, under the title of *Mulieres non esse Homines*, was falsely ascribed to him. Mr. Baillethas given him a place among his *Enfans Celebres;* and says, that he wrote his comment upon Plautus when he was but seventeen or eighteen years old, and that he composed several Latin poems at the same age.

ACIDALUS, a fountain in Orchomenus, a city of Bœotia, in which the Graces are said to have bathed.

ACIDOTON, in botany, the trivial name of a species of ADELIA.

A C I D.

ACID, *n.* & *adj.*
ACID'ITY,
ACID'ULATE,
ACES'CENCY,
ACES'CENT.
} *Acide,* Fr. That which cuts or corrodes; having the quality of sourness.

The smoke of sulphur will not black a paper, and is commonly used by women to whiten tiffinies, which it performeth by an *acide,* vitriolis, and penetrating spirit ascending from it. *Brown's Vulgar Errours.*.

The same persons (perhaps) had enjoyed their health as well, with a mixture of animal diet, qualified with a sufficient quantity of *acescents;* as bread, vinegar, and fermented liquors. *Arbuthnot on Aliments.*

In spring-like youth it yields an *acid* taste;
But summer doth, like age, the sourness waste;
Then cloth'd with leaves from heat and cold secure,
Like virgins, sweet and beauteous when mature.
Denham's Old Age, part iii.

ACID, from *acesco,* to sharpen, a name given to a very extensive and important class of substances, from their prominent quality of sharpness or sourness. Sourness of taste, however, is merely one of the sensible properties of these substances, and they possess some others equally if not more characteristic. Of acids there is a large number and great variety, so that were we to devote the present article to the history of them individually, we should be under the necessity of amplifying it to an extent inconsistent with our plan of arrangement. It is merely then our design in the present instance to treat on the general principle of acidity, referring an account of the particular acids to the article CHEMISTRY, and to the alphabetical order into which they may fall. Thus for acetous or acetic acid, let the reader turn to the word acetous or acetic, and so on through the whole series of adjective designations.

The properties of acids are,

1. Sourness of taste, amounting in some of the species to a corrosive quality.

2. A general, though not invariable power of combining with water in any proportion, with a condensation of volume, and evolution of heat. (For the most part indeed, acids are found in a state of fluidity; but not so without exception, some being met with in a solid form.)

3. They are mostly susceptible of volatilization, or are decomposed by heat.

4. They change the purple or blue colour of vegetables to a bright red.

5. They combine in definite proportions with alkalis, (see alkali) earths, and salts; and by this combination is constituted that important class of bodies called salts.

"This last (says Dr. Ure) may be reckoned their characteristic and indispensable property. The powers of the different acids were originally estimated by their relative causticity and sourness; afterwards by the scale of their attractive force towards any particular base; and next by the quantity of the base that they could respectively neutralize. But Berthollet proposed the converse of this last criterion as the measure of their powers, 'The power by which they can exercise their acidity,' he estimates 'by the quantity of each of the acids which is required to produce the same effect, viz. to saturate a given quantity of the same alkali.' It is therefore the capacity of saturation of each acid which, in ascertaining its acidity according to him, gives the comparative force of the affinity to which it is owing. Hence he infers, that the affinity of the different acids for an alkaline base, is in the inverse ratio of the producible quantity of each of them, which is necessary to neutralize an equal quantity of the same alkaline base; an acid is therefore, in this view, the more powerful, when an equal weight can saturate a greater quantity of an alkali. Hence, all those substances which can saturate an alkali, and cause their properties to disappear, ought to be classed among the acids; in like manner among the alkalis, should be placed all those which, by their union can saturate acidity, and the capacity of saturation being the measure of this property, it should be employed to form a scale of the comparative power of alkalis as well as that of acids."

"However plausible," continues Dr. Ure, "à priori, the opinion of this illustrious philosopher may be, that the smaller the quantity of an acid or alkali required to saturate a given quantity of its antagonist principle, the higher should it rank in the scale of power and affinity; it will not however accord with chemical phenomena: 100 parts of nitric acid are saturated by about 36½ of magnesia, and 52½ of lime."

"Hence by Berthollet's rule, the power of these earths ought to be as the inverse of their quantities: viz. $\frac{1}{36\frac{1}{2}}$ and $\frac{1}{52\frac{1}{2}}$, yet the very opposite effect takes place, for lime separates magnesia from nitric acid, and in the present example the difference of effect cannot be imputed to the difference of force with which the substances tend to assume the solid state.

"We have, therefore, at present, no single acidifying principle, nor absolute criterion of the scale of powers among the different acids; nor is the want of this of great importance. Experiment furnishes us with the order of decomposition of one acido-alkaline compound, by another acid, whether alone or aided by temperature; and this is all that practical chemistry seems to require."

The question respecting the principle of acidity will be found to involve a great deal of what is very important in its bearing upon the doctrines of chemistry generally, and it is a question, which perhaps may be regarded as open to still further investigation than that which it has received from the extraordinary ingenuity and industry of modern chemists. A disposition to generalize beyond the warrants of fact, has pervaded the speculations of individuals in reference to the rationale of acidity from very early times. Paracelsus conceived that there was only one acid principle in nature. Becher maintained the same doctrine, and modified it by the supposition, that this acid principle is a compound of earth and water, both of which, were regarded as two distinct elements. Stahl adopted the same theory, and imagined the sulphuric acid to constitute the general principle of acidification—a supposition, which upon the authority of Stahl, was for a long time held in the schools; but was at length openly combated by Bergmann and Scheele. Still, however, the hypothesis of acidity, being the result of some pervading principle, continued to obtain; and Wallirius, Megar, Sage, and others in their turns advanced several speculations on the essential nature and mode of this principle, when at length the French chemists, with Lavoisier at their head, propounded a doctrine entirely new, and of most extensive application: viz, "That acids result from the union of a peculiar combustible base, called the radical, with a common principle, technically called oxygen, or acidifier;" the radical or base giving the specific or peculiar property to the respective substances, and oxygen being the essence of acidity in the whole.

"I have already shewn," says Lavoisier, "that phosphorus is changed by combustion into an extremely light white flaky matter. Its properties are likewise entirely altered by this transformation: from being insoluble in water, it becomes not only soluble, but so greedy of moisture, as to attract the humidity of the air with astonishing rapidity. By this means it is converted into a liquid considerably more dense, and of more specific gravity than water. In the state of phosphorus, before combustion, it had scarcely any sensible taste; by its union with oxygen, it acquires an extremely sharp and sour taste; in a word, from one of the class of combustible bodies, it is changed into an incombustible substance, and becomes one of those bodies called acids.

"Sulphur also, in burning, absorbs oxygen gas; the resulting acid is considerably heavier than the sulphur burnt; its weight is equal to the sum of the weight of the sulphur which has been burnt, and of the oxygen absorbed; and lastly, this acid is weighty, incombustible, and miscible with water in all proportions."

"The examples, above cited," continues Lavoisier, "may suffice for giving a clear and accurate conception of the manners in which acids are formed. By these it may be clearly seen that oxygen is an element common to them all, and which constitutes or produces their acidity; and that they differ from each other according to the several natures of the oxygenated or acidified substances." "Although," he further adds, "we have not been able either to compose or to decompound the acid of sea-salt, we cannot have the smallest doubt that it, like all other acids, is composed by the union of oxygen with an acidifiable base. We have therefore called this unknown substance, the muriatic base, or muriatic radical."

The above communication of Lavoisier was generally received, and accepted as the foundation of a new system of chemical doctrine—both inflammability and acidity were thought to be fully explained by the oxygenous theory; and it was expected that every new development of fact would harmonize with the new theory of causation.

The nomenclature of acids was now altered to suit the new theory; the terminations *ous*, *ic*, and the prefix *oxy* being employed to denote the different measures in which the acidifiable base was combined with oxygen.

In the first state, or that in which acid bodies were supposed to exist, with the least possible quantity of oxygen, their names terminated in *ous*, as sulphurous, nitrous, phosphorous, or acetous.

The second state, or that in which they contained a saturating quantity of oxygen was expressed by the termination *ic*, as sulphuric, or nitric: and when imagined to contain an excess of oxygen the term *oxy* was prefixed, as oxymuriatic.

But it was soon suggested that Lavoisier in thus conceiving oxygen to be the universal principle of acidity, had run into a hasty generalization which was unwarrantable by nature. "It is carrying the limits of analogy too far (observed Berthollet) to infer that all acidity, even that of the muriatic, fluoric, and boracic acids arises from oxygen, because it gives acidity to a great number of substances. Sulphuretted hydrogen, which really possesses the property of an acid, proves directly that acidity is not in all cases owing to oxygen. There is no better foundation for concluding that hydrogen is the principle of alkalinity, not only in the alkali, properly so called, but also in magnesia, lime, strontian and barytes, because ammonia appears to owe its alkalinity to hydrogen. We must not, therefore, always infer from the acidity of a sub-

stance that it contains oxygen, although this may be an inducement to suspect its existence in it."

Sir H. Davy, was however, the first to shew in a systematic manner, that the French chemists had been in error when they assumed oxygen to be the absolute essence of acidity; and, he at length propounded those highly interesting principles concerning acidification, which have shaken the Lavoisierian system to its foundation. He demonstrated that oxy-muriatic acid is, as far as our knowledge extends, a *simple* substance, which may be classed in the same order of natural bodies as oxygen gas, being determined like oxygen, to the positive surface in voltaic combinations; and, like oxygen, combining with inflammable substances, producing light and heat. The combinations of oxymuriatic acid with inflammable bodies were shewn to be analogous to oxides and acids in their properties and powers of combination, but to differ from them in being, for the most part decomposable by water; and finally, that oxymuriatic acid has a stronger attraction for most inflammable bodies than oxygen. His preceding decomposition of the alkalis, (see ALKALI) and the earths, having evinced the absurdity of that nomenclature which gives to the general and essential constituent of acid nature, the term oxygen or acidifier; his new discovery of the simplicity of oxymuriatic acid shewed the theoretical system of chemical language to be equally vicious in another respect. Hence, this philosopher most judiciously discarded the appellation oxymuriatic acid, and introduced in its place the name chlorine, which merely indicates an obvious and permanent character of the substance, its greenish yellow colour. See CHLORINE and CHEMISTRY.

Succeeding chemists have brought powerful analogies in support of the new theory of Davy, by shewing that hydrogen alone has the power of changing certain undecompounded bases into real acids; and that this is effected without the presence or assistance of oxygen. Dr. Murray has indeed argued with a good deal of ingenuity against the unqualified reception of Davy's principles, and has suggested that acidity may in most, if not in all cases, consist of a species, so to say, of oxy-hydrogenation.

"When," says Dr. Murray, "a series of compounds exist, which have certain common characteristic properties, and when these compounds all contain a common element, we conclude with justice, that these properties are derived more peculiarly from the action of this element. On this ground, Lavoisier inferred, by an ample induction, that oxygen is a principle of acidity. Berthollet brought into view the conclusion, that it is not universally so, from the examples of prussic acid and sulphurated hydrogen. In the latter, acidity appeared to be produced by the action of hydrogen. The discovery of Gay Lussac of the compound radical cyanogen, and its conversion into prussic acid by the addition of hydrogen, confirmed this conclusion; and the discovery of the relations of iodine still further established it. And now the system must be still further modified. While each of these conclusions is just, to a certain extent, each of them requires to be limited in some of the cases to which they are applied; and while acidity is sometimes exclusively connected with oxygen sometimes with hydrogen, the principle must also be admitted, that it is more frequently the result of their combined operations."

"There appears," continues Dr. Murray, "even sufficient reason to infer, that from the united action of these elements, a higher degree of acidity is acquired, than from the action of either alone. Sulphur affords a striking example of this. With hydrogen it forms a weak acid: with oxygen it also forms an acid, which though of superior energy, still does not display much power: with hydrogen and oxygen, it seems to receive the acidifying influence of both, and its acidity is proportionably exalted."

These speculative objections of Dr. Murray to the simplicity of chloridic theory, go, it will be seen, partly upon the supposition, that the agency of media is not sufficiently appreciated in that theory; and that the elements, at least of water, are always at work in modifying the combinations of substances upon which the experiments are made. "He thinks it doubtful," says Dr. Ure, "whether nitrogen and oxygen can alone form an insulated acid. Hydrogen he conceives essential to its energetic action. What, may we ask then, exists in *dry* nitre, which contains no hydrogen? Is it nitric acid? or merely two of its elements in want of a little water to furnish the requisite hydrogen? The same question may be asked relative to the sulphurate of potash. Since he conceives hydrogen necessary to communicate full force to the sulphuric and nitric acids, the moment they lose their water they should lose their saturating power, and become incapable of retaining caustic potash in a neutral state. Out of this dilemma he may indeed try to escape, by saying, that moisture or hydrogen is equally essential to alkaline strength, and that therefore the same desiccation or hydrogenation which impairs the acid power, impairs also that of its alkaline antagonist. The result must evidently be, that in a saline hydrate or solution, we have the reciprocal attractions of a strong acid and alkali; while in a dry salt, the attractive forces are those of relatively feeble bodies. On this hypothesis the difference ought to be great between dry and moistened sulphate of potash. Carbonic acid is admitted to be destitute of hydrogen, yet its saturating power is very conspicuous in neutralizing dry lime. Now, oxalic acid, by the last analysis of Berzelius, as well as my own, contains no hydrogen. It differs from the carbonic only in the proportion of its two constituents, and oxalic acid is appealed to by Dr. Murray, as a proof of the superior acidity bestowed by hydrogen."

"On what grounds," continues Dr. Ure, "he decides carbonic acid to be a feebler acid than oxalic, it is difficult to see. By Berthollet's test of acidity, the former is more energetic than the latter, in the proportion of 100 to about 58, for these numbers are inversely as the quantity of each requisite to saturate a given base. If he be inclined to reject this rule, and appeal to the decomposition of the carbonate by oxalic acid, as a criterion of relative power, let us adduce

his own commentary on the statical affinities of Berthollet, where he ascribes such changes not to a superior attraction in the decomposing substance, but to the elastic tendency of that which is evolved. Ammonia separates magnesia from its muriatic solution at common temperatures: at the boiling heat of water, magnesia separates ammonia. Carbonate of ammonia, at temperatures under 230°, precipitates carbonate of lime from the muriate: at higher temperatures, the inverse decomposition takes place with the same ingredients. If the oxalic be a more energetic acid than the carbonic, or rank higher in the scale of acidity, then, on adding to a given weight of liquid muriate of lime, a mixture of oxalate and carbonate of ammonia, each in equivalent quantity to the calcareous salt, oxalate of lime ought alone to be separated. It will be found, on the contrary, by the test of acetic acid, that as much carbonate of lime will precipitate as is sufficient to unsettle these speculations.

"Finally, *dry* nitric acid and dry sulphate of potash, are placed, by this supposition, in as mysterious a predicament as dry muriate of soda in the chloridic theory. Deprived of hydrogen, their acids and alkali are enfeebled or totally changed. With a little water, both instantly recruit their powers. In a word, the solid sulphuric acid of Nordhausen, and the dry potash of potassium, are alone sufficient to subvert this whole hypothesis of hydrogenation."

The able chemist whom we have last quoted proposes the following distribution of acids "to give general views to beginners in the study." We treat them, as before stated, in their alphabetical order:—

I. Division 1st, Acids from inorganic nature, or which are procurable without having recourse to animal or vegetable products.

II. Division 2d, Acids elaborated by means of organization.

The first group is subdivided into three families: 1st, Oxygen acids; 2d, Hydrogen acids; 3d, Acids destitute of both these supposed acidifiers.

I. *Division* 1. *Inorganic Acids.*

Family 1st.—Oxygen acids.

Section 1st, Non-metallic.

1. Boracic.
2. Carbonic.
3. Chloric.
4. Perchloric?
5. Chloro-Carbonic.
6. Nitrous.
7. Hyponitric.
8. Nitric.
9. Iodic.
10. Iodo-Sulphuric.
11. Hypophosphorous.
12. Phosphorous.
13. Phosphatic.
14. Phosphoric.
15. Hyposulphurous.
16. Sulphurous.
17. Hyposulphuric.
18. Sulphuric.
19. Cyanic?

Section 2d, Oxygen acids.—Metallic.

1. Arsenic.
2. Arsenious.
3. Antimonious.
4. Antimonic.
5. Chromic.
6. Columbic.
7. Molybdic.
8. Molybdous.
9. Tungstic.

Family 2d.—Hydrogen acids.

1. Fluoric.
2. Hydriodic.
3. Hydrochloric, or Muriatic.
4. Ferroprussic.
5. Hydroselenic.
6. Hydroprussic, or Hydrocyanic.
7. Hydrosulphurous.
8. Hydrotellurous.
9. Sulphuroprussic.

Family 3d.—Acids without oxygen or hydrogen.

1. Chloriodic.
2. Chloroprussic, or Chlorocyanic.
3. Fluoboric
4. Fluosilicic.

II. *Division* 2d. *Acids of organic origin.*

1. Aceric
2. Acetic.
3. Amniotic.
4. Benzoic.
5. Boletic.
6. Butyric.
7. Camphoric.
8. Caseic.
9. Cevadic,
10. Cholesteric.
11. Citric.
12. Delphinic.
13. Ellagic.
14. Formic.
15. Fungic.
16. Gallic.
17. Igasuric.
18. Kinic.
19. Laccic.
20. Lactic.
21. Lampic.
22. Lithic or Uric.
23. Malic.
24. Meconic.
25. Menispermic.
26. Margaric.
27. Melassic?
28. Mellitic.
29. Moroxylic.
30. Mucic.
31. Nanceic.
32. Nitro-leucic.
33. Nitro-saccharic.
34. Oleic.
35. Oxalic.
36. Purpuric.
37. Pyrolithic.
38. Pyromalic.
39. Pyrotartaric.
40. Rosacic.
41. Saclactic.
42. Sebacic.
43. Suberic.
44. Succinic.
45. Sulphovinic?
46. Tartaric.

The acids of the last division are all decomposable at a red heat, and afford generally carbon, hydrogen, oxygen, and in some few cases also nitrogen. The mellitic is found like amber in wood, coal, and, like it, is undoubtedly of organic origin.

ACIDIMETRY, in chemistry, the measurement of the power or strength of acids; generally effected by saturating a given weight of them with an alkaline base, when the quantity of alkaline is required in the measure of their power.

ACIDULÆ, in natural history, a species of mineral waters, distinguished by a latent acidity in their nature. When they are unaccompanied with heat, they are called *acidulæ*; but if heat be added to their brisk spirit, they are denominated *thermæ*. *Acidulæ* are native waters, impregnated with particles of some acid mineral, as vitriol, alum, nitre, or salt, and contain a considerable quantity of fixed air. For Dr. Priestley's method of making artificial waters of this kind, see the article PYRMONT. The physicians also frequently include chalybeate and aluminous or ferruginous waters, under the class of *acidulæ*. An analysis of mineral waters may be made, either by evaporation, which will discover both the quantity of solid matter contained in the water, and by subsequent trials, the peculiar nature of it; or by distillation, whence it may be known, whether the water contain any volatile matter, saline or bituminous; or again, by the mixture of certain liquors. The most common for this purpose are the infusion of galls, syrup of violets, oil of tartar, volatile alkaline salts, tincture of sulphur and aqu-

afortis. A small quantity of the infusion of galls will discover whether the water be impregnated with iron. If it contain a coarse oker, the colour struck by the galls is very dark; the finer iron produces an inky purple; but the finest, such as the pyrmont water contains, gives an azure blue. A dram of syrup of violets, mixed with a small wine glass of the mineral water, will produce a green colour, if there be any alkaline salt, or alum in it; though, it is said, that if the spirit be new, alum will turn it red. This green colour is also observed, when a solution of iron is met with; with an acid, the syrup produces a red. Volatile alkaline salt precipitates the contents of hard water, and discovers mercury, or any of its preparations, by turning the liquor whitish, and coagulating part of it. It discovers copper, by producing a blue colour. Volatile tincture of sulphur discovers lead in water, by turning it into a dusky brown colour. Aquafortis turns the water into a green colour, if it contains a solution of copper.

ACIDULATED, an epithet applied to medicines that have an acid in their composition.

ACIDULOUS, in chemistry, expresses either generally a slight degree of acid, or in particular an excess of acid in a compound salt; thus acidulous sulphate of potash is the sulphate of potash with an excess of acid.

ACIDULUM, in chemistry, a genus of native vegetable salts, consisting of potash saturated with an excess of acid, and comprising two species, tartareous acidulum, or the acidulous tartrite of potash, and the oxalic acidulum, or acidulous oxalat of potash.

ACIERNO. See Acerno.

ACILIA Lex, in Roman antiquity, a celebrated law, enacted by Acilius the tribune, for the plantation of five colonies in Italy. 2. Another law, called also Calpurnia, enacted A. U. C. 684, against bribing elections. 3. A law against extortion.

ACILIUS, (M. Balbus) a consul with Portius Cato, A. U. 640; during whose consulship, according to Pliny, milk and blood fell from heaven.

Acilius, (Glabrio) a tribune who put down an insurrection amongst the slaves of Etruria. He was consul with P. Corn. Scipio Nasica, and conquered Antiochus A. U. C. 563, for which he obtained the honour of a triumph. He was a candidate for the censorship in opposition to Cato. Also, a son of the preceding, who erected a temple to Piety, and the first golden statue that was ever seen in Italy, to the memory of his father. The temple was erected on the scite where a Roman female had fed her aged father with her milk. There was also a consul of this name in Domitian's time whose son was put to death by the tyrant for exhibiting more strength than himself in a contest with wild beasts.

Acilius, the surname of a Roman family, which produced several great men. See Glabrio.

ACINACIFORMIS, in botany, from *ἀκινάκης*, a scimitar, scimitar-shaped, an epithet for a leaf: Folium acinaciforme, a leaf which has one edge convex and sharp, the other straight and thick, as in the Mysembryanthemum. *Linn. Phil. Bot.*

ACINACES in antiquity, a kind of cutlass or scimetar, in use among the Persians.

ACINARIA, in botany, a name given by some to the marsh wortle-berries, or vaccinia palustria.

ACINESIA, *ακινησια*, from *a*, negative, and *κινεω*, to move. In medicine, the immobility of the whole body or any part of it, as in a palsy, apoplexy, &c. Also, applied by Galen to the suspension of the pulse.

ACINI, in botany, small grains, or berries, growing in bunches, after the manner of grapes; also the stones or seeds of grapes. The berries of the elder, privet, ivy, &c are of this kind, and so called.

Acini Glandulosi, in anatomy, some glands, so called from their formation.

ACINIFORMIS Tunica, the same with the tunica uvea of the eye. It is also called *acinosa tunica*.

ACINODENDRON, in botany, the name given by Burman, to a species of plants, called melastoma, belonging, in the Linnæan system, to the genus thymus, and to the class and order didynamia gymnospermia.

ACINOS, in botany, stone, or wild basil. See Thymus.

ACINUS, in botany, properly signifies the grape. See Acini. It is also the name of the staphyloma.

ACIPENSER. See Accipenser.

ACIS, in fabulous history, the son of Faunus and Simetheis, was a beautiful shepherd of Sicily, who being beloved by Galatea, Polyphemus the giant was so enraged, that he dashed out his brains with a piece of rock; after which Galatea turned him into a river, which was called by his name: now the Aci or Iiaci.

ACITLI, in ornithology, the common Mexican name of the great crested diver, common to Europe and America, and more usually called by authors, the lepus aqueus, or water hare.

ACKEN, a small town in the duchy of Magdeburg, situate on the Elbe, five miles below Dessaw. It has a citadel.

ACKLAND'S Island, sometimes called South Crooked Island, one of the Bahamas, lying in N. lat. 23°, 20′. and E. long. 73°, 30′. It is about 50 miles in length; and seven in breadth, at its northern extremity, but very narrow southward. Atwood's harbour, to the north, has good anchorage for small vessels. The flamingo roosts here in great numbers.

ACKLIN'S Keys is a name sometimes given to a groupe of islands, of which the above and Longkey or Fortune's Island are the principal.

Acknow', Acknowl'edge, Acknowl'edgement, Acknowl'edging. } Composed of the prefix *a*—subsequently *ac*, *cnawan*, to know, and *lecgan*, to lay, Ang. Sax. To lay open to, to make known to, to discover to; to confess, to make a concession.

So ech that denyeth the sone hath not the fadir, but he that *knowlechith* the sone hath the fadir.

Wiclif, 1 *Jon.* chap. ii.

That their hearts might be comforted, being knit together in love, and unto all riches of the full assur-

ance of understanding, to the *acknowledgement* of God, and of the Father, and of Christ.

Colossians, chap. ii. v. 2.

But is it credible, that the very *acknowledgment* of our unworthiness to obtain, and in that respect, our professed fearfulness to ask any thing, otherwise than only for his sake to whom God can deny nothing; that this should be termed baseness, abjection of mind, or servility—is it credible? *Hooker's Ec. Pol.*

My people do already know my mind;
And will *acknowledge* you and Jessica,
In place of lord Bassanio and myself. *Shaks.*

Thou sun of this great world both eye and soul,
Acknowledge him thy greater; sound his praise
In thy eternal course, both when thou climbest
And when high noon hast gain'd, and when thou fallest. *Milton.*

None, that *acknowledge* God or providence,
Their soul's eternity did ever doubt. *Davies.*

There can be no more forcible motive to patience, than the *acknowledgement* of the divine hand that strikes us. *Hall's Contemplations.*

As teaching bringeth us to know that God is our supreme good; so prayer testifieth that we *acknowledge* him our sovereign good. *Bishop Taylor's Sermons.*

ALMANZ. Accept this diamond, till I can present
Something more worthy my *acknowledgment*.

Dryden's Conquest of Granada, part ii.

We are the subjects of the Almighty; and whether we *acknowledge* it or not, we live, and cannot but live under his government. *Bishop Porteus.*

ACKNOWLEDGMENT MONEY, a sum paid by tenants, in several parts of England, on the death of their landlords, as an acknowledgment of their new lords.

ACKWORTH, a village, near Pontefract in Yorkshire; distinguished by a benevolent institution for the education of the children of Quakers. This school belonged originally to the Foundling Hospital, London; but in the year 1777, being offered for sale, with eighty-five acres of adjoining land, the respectable society of Friends bought the property, and endowed it at an expence of £7000 for the education of their own youth of both sexes. The edifice is spacious, and built entirely of stone; and part of the eastern wing has been converted into a chapel.

ACLIDES, in Roman antiquity, a kind of missile weapon, having a thong fixed to it, by which, after casting it out of the hand, it might be drawn back again. Servius describes the aclides as full of spiculæ.

ACLOWA, in botany, a barbarous name of a species of colutea. It is used by the natives of Guinea to cure the itch: They rub it on the body as we do unguents.

ACMASTICA, in medicine, a continued fever. See SYNOCHUS.

AC'ME, *ακμη*, Gr. the highest point of any thing; the crisis.

ACMELLA. See ACHAMELLA

ACMONIA. See AGMONIA.

ACNE, in medicine, a name given to a small pimple, or hard tubercle, on the face.

ACNIDA, VIRGINIAN HEMP, in botany, a genus of the dioecia order, belonging to the pentandria class of plants; and, in the natural order, associating with the scabridæ.

ACNUA, in Roman antiquity, a measure of land, about equal to the English rood.

ACO, a fish found in the lake Como, Italy, and in the Mediterranean, called also aquo and sarachus.

ACOBAMBA, a settlement of Peru, in the province of Argaraes, forming the capital, but now decayed. Also, the name of two smaller Peruvian settlements.

ACOEMETÆ, or ACOEMETI, from *a* privative, and *κοιμαω*, to sleep, in church history, certain monks, who flourished in the East, in the fifth century; and who had divine service performed, without interruption, in their churches. The religious of the Holy Sacrament, in the church of Rome still keep up a perpetual adoration: some one or other of them praying before the sacrament, day and night. The ancient acoemetæ are supposed, by Wetstein and others, to have written the Codex Alexandrinus, as it contains a catalogue of the psalms to be sung every hour of the day and night.

ACOLCHICHI, in ornithology, the Mexican name for the oriolus phœnicus of Linnæus.

ACOLD', or COLD. See COLD.

And as it shulde so betide,
A poure lazar upon a tide
Came to the gate and axed meate:
But there might he nothing geate,
Thus laie this poure in great distresse,
A colde and hongred at the gate.

Gower, Con. A. book vi. v. 9.

——Prick my hand
And it will bleed; a fever shakes me,
And the self-same wind that makes the young lambs shrink,
Makes me *acold*.

Beaumont and Fletcher's Faithful Shepherdess, act i. sc. 1.

ACOLIN, in zoology, the name of a bird of the partridge kind, common in the Spanish West Indies.

ACOLYTHI, in ecclesiastical history was first applied to young people, who continually attended the bishops, and were generally candidates for the ministry. In the Romish church their functions became different. They were such as had only received the first of the four lesser orders, and whose business was to light the tapers, carry the candlesticks, and the incense-pot, and prepare the wine and water.

ACOLYTHUS, a title in the Grecian empire, given to the captain or commander of the Varangi, a body of guards appointed for the security of the emperor's palace.

ACOMAC. See ACCOMAC.

ACOMINATUS, (Nicetas,) was secretary to Alexius Comnenus and to Isaacus Angelus successively; he wrote a history from the death of Alexius Comnenus in 1118, where Zonaras ended his, to the year 1203, which has undergone many impressions, and is much applauded by the best critics in history.

ACON, an instrument used in the ancient exercises, like the *discus*. Also an ancient order of knights, who joined the Hospitallers.

ACONCAGUA, a province of Chili, South America, bounded on the north and west by Quillosa, on the east by the Andes, and south by Santiago. The mountains furnish immense quantities of copper ore; and the neighbourhood

abounds with greens and fruits. There is a royal road through this province, across the Cordilleras to Mendoza and Santiago, by which the mails of Europe are regularly received once a month. The treasures which pass by this road in winter, are frequently interrupted by means of snow falling down from the mountains, and provisions for continual stoppages are a necessary part of the equipage. The territory itself is level, and contains a population of 8000 souls.

ACONCAGUA, a trading town of Chili, the ancient capital of a province, now reduced.

ACONCAGUA, a considerable river of Chili, which, rising in the Cordilleras, and passing through Quilot, Cirvon, &c. enters the Pacific at about 33° S. lat.

ACONCROBA, in botany, a plant that grows wild in Guinea, and is much esteemed for its virtue in the small-pox. It is given infused in wine.

ACONE, in antiquity, 1. A stone used as a whetstone, and more usually known among the Romans by the name coticula. 2. A mortar for the purpose of levigation.

ACONITA, in chemistry, a vegetable poison recently extracted from the *aconitum Napellus*, or wolf's-bane, (properly alkaline,) by Mr. Brande. The analysis has not yet been made public.

ACONITI, *ακονιτος*, without dust, in antiquity, an appellation given to some of the Athletæ, but differently interpreted: i. e. 1. Of those who only anointed their bodies with oil, but did not smear themselves over with dust, which was the usual practice. 2. Of those who conquered easily without dust, q. d. *ακονιτι αμαχει*, with little trouble.

ACONITON, in medicine, signifies not plastered, and is applied to vessels not lined within.

ACONITUM, ACONITE, WOLFSBANE, or MONKSHOOD; a genus of the trigynia order, belonging to the polyandria class of plants. In the natural order, it associates with the multisiliquæ.

ACONQUIJA, a lofty mountain of Tucuman, in the vice-royalty of Buenos Ayres, covered with perpetual snow, and said to be very productive of the precious metals.

ACONTIAS, from *Ακοντιον*, Gr. a name with Pliny and others, for a sort of comet, or meteor. Also a serpent of Calabria and Sicily, whose bite is very poisonous. It is an obsolete name of the anguis jaculus, or dart-snake. See ANGUIS.

ACONTIUM, *ακοντιον*, in Grecian antiquity, a kind of dart or javelin resembling the Roman pilum.

ACONTIUS, (James,) a philosopher, civilian, and divine, born at Trent: in 1557, he embraced the reformed religion; and coming into England in the reign of queen Elizabeth, was much honoured by her, which he acknowledges in his celebrated Collection of the Stratagems of Satan, dedicated to that queen. He also wrote De Methodo sive recta Investigandarum, 1558, which is considered his best work: and Ars Muniendorum Oppidorum, 1585.

ACOOTAN, one of the Aleutian or Fox-islands, containing some very lofty mountains.

ACOPA or ACOPICA, in botany, a name given by Dioscorides, and some authors, to the menyanthes trifoliata, or buck-bean.

ACOPA, Gr. from *α* privative, and *κοπος*, weariness, in medicine, remedies against lassitude or weariness, such as tensions, pains in the bones, &c. Acopis, is a fossile salt, described by Pliny, and used by the ancients, mixed with oil for this purpose.

ACOPON, ACOPUM, or ACOPOS. See ACOPA.

ACOR, in medicine, sourness or acrimony, as in the stomach, &c.

ACORDINA, in chemistry, Indian tutty.

ACORI, in natural history, BLUE CORAL. The true acori is very scarce; some, however, is obtained on the coasts of Africa, near the river Camarones. That of the kingdom of Benin is also much esteemed. It is also a name for the greater Galangal root.

A'CORN, A'CORNED. Ang. Sax. *Ac*: *oak*: corn. The corn, grain, or fruit of the oak.

> Cornels and bramble-berries gave the rest;
> And falling *acorns* furnish'd out a feast.
> *Dryden's Ovid.*

The ACORN, in early ages, was a common article of food, and so late as 1709, was extensively used in France during a scarcity. It was divested of its husk and then boiled. In Spain, it is said in former times to have been served at table as a delicacy. It has often been substituted for coffee when roasted.

ACORN, in medicine, the seed of the oak, used as an astringent.

ACORN, in maritime affairs, a little piece of wood, fashioned like a cone, and fixed on the uppermost point of the spindle, above the vane, on the mast head, to keep the vane on.

ACORUS, CALAMUS AROMATICUS, SWEET FLAG, or SWEET RUSH: a genus of the monogynia order, belonging to the hexandria class of plants; and ranking in the second natural order, piperitæ.

ACORUS, in natural history. See ACORI.

ACOSTAN, a mountainous island in the north seas between Asia and America, observed by Captain Cook.

ACOTYLEDENES, of *α*, priv. and *κοτυληδον*, lobeless, in botany, a class of plants without lobes, or seminal leaves. It is the first class in the natural order of Jussieu.

ACOUS, or ACCOUS, a town of France, in the province of Bearn, department of the Lower Pyrenees, and arrondissement of Oleron. Population 1600. It is about nine leagues south-west of Pau.

ACOUSMATICI, from *ακουω*, to hear, such of the disciples of Pythagoras, as had not completed their five years' probation. They are sometimes called by Latin writers, acoustici.

ACOUSTICS.

ACCOUSTIC Disciples. See Acousmatici.

Acoustic Duct, in anatomy, the *meatus auditorius*, or external passage of the ear. See Anatomy.

Acoustic Instrument, or auricular tube, See Acoustics.

Acoustic Medicines, remedies against imperfections and disorders of the ear.

Acoustic Nerve, the auditory nerve. See Anatomy.

Acoustic Vessels, in the ancient theatres, were a kind of vessels, made of brass, shaped in the bell-fashion, which being of all tones within the pitch of the voice or even of instruments, rendered the sounds more audible, so that the actors could be heard through all parts of the theatres, when they were even 400 feet in diameter.

ACOUSTICA, or Acoustics, from *ακουω, audio;* called also, Phonics, from *φωνη, vox,* vel *sonus,* a voice, or sound, is the doctrine or science of sounds. Some authors divide it into two branches, and entitle that which treats of the properties of sounds that come directly to the ear, Diacoustics, and that which illustrates the nature of reflected sounds, Catacoustics; but these distinctions do not appear to be of any real importance. In treating of this subject, we propose to give a concise view,

I. Of the Different Theories of Sound.

II. Of the Diffusion of Sound.

III. Of its Velocity, and

IV. Of its Reverberation: closing our article with a few familiar experiments that will illustrate the laws of this science.

Sect. I. Of the Theory of Sound.—

Strange it is, that upon a topic which has exercised the powers of a Bacon, a Newton, and a Boyle, and to which some of our most accurate modern experimenters have also directed their attention, so little that is satisfactory in theory can be produced. There is, in fact, hardly any *doctrine* of acoustics, that can be offered with confidence to the reader. Embracing phænomena, which must have attracted the attention of mankind from the earliest period of history, and which in its connection with music, and every modulation of the human voice, offers much that is in the highest degree essential to the pleasure of social intercourse, a philosophical theory of sound seems as yet to have eluded research. We shall, in this article, therefore only attempt a record of the best opinions upon the subject that have been given by our predecessors: fairly avowing to our readers, that we look to a better digest of past experiments, and many future additional ones, for a more satisfactory theory than any that has yet been offered: every one that we have yet seen being in many important points, inconsistent with well-recorded facts and observations. And the progress of our work will give us an opportunity (under Ear, Echo, Harmony, Hearing, Music, Sound, &c.) of recording any thing that may, for a short time, be added to the philosophical materials of the subject.

Sound then has been said to be strictly a sensation or perception of the mind, communicated by the ear; or the effect of some external collision of bodies which has produced a tremulous motion or vibration, communicated to the ear. In popular language, the surrounding air or atmosphere, is generally understood to be the medium of sound, but a slight observation of facts will shew that air is by no means the only conductor of sound; fluids generally, and bodies of all degrees of hardness and of elasticity are also mediums of its diffusion.

Philosophers, in attempting to find the immediate cause of sonorous motion, tell us that all bodies consist of an infinite number of invisible parts or corpuscles perfectly hard and incompressible; that these are surrounded by particles differing according to the different union and figures of their component parts; and that these last being compressed by an external power or impulse, have a constant tendency to restore themselves to their settled and former state. It is this motion of the latter particles which M. Perrault and others consider as the proximate cause of sound. So that if we rightly understand this theory, it is simply the struggle of the elastic *portion* of bodies which produces the phenomenon in question. But what proof has ever been offered of the existence of these hard and incompressible portions?

Other writers have contended that all bodies are essentially elastic, and are composed of parts connected throughout by a system of mutual attraction and repulsion. When this arrangement is disturbed, a force, of infinite variety in its degrees of power, is exerted to restore the equilibrium, and that hardness and softness, solidity and fluidity, are but relative and comparative, and not absolute qualities of bodies. When, therefore, we strike a substance thus composed, the particles immediately proximating yield to the impression, but press against the next particles in the series, and thus convey a vibratory motion like the oscillations of a spring or pendulum along the whole chain; the rapidity of the transmission depending upon the relative elasticity of the body. In some bodies, in a bell, glasses, &c. when struck, this sympathetic movement of parts is very evident, and the manner in which, with the finger, we can deaden or stop the sound, by assisting to set the particles at rest, seems to confirm this view of the subject.

Professor Leslie has examined with some care, the laws of this interior mechanism of bodies to which he attributes sound. He says, we may determine the celerity of transmission, by the elasticity of the medium compared with its gravity; or by obtaining the height of a column of the same density as the conducting substance, whose weight would measure its elasticity. This he terms the modulus of its elasticity, and observes that it may be demonstrated upon the

principles of Dynamics, that the rapidity of the transmission of sound through any medium, is equal to what a descending body would acquire in falling through half the height of the modulus of elasticity; and that this celerity for any second of time may be obtained in English feet, by multiplying the square root of half the modulus by eight. One easy method which he suggests for ascertaining the modulus of elasticity in solid rods or planks is, to observe their swag or curvature when laid in an horizontal position on props. He found by experiments of this kind, that the modulus of Memel fir was equal to 671,625 feet; and that its particles would therefore convey a vibratory impulse with a velocity of 4636 feet in a second, nearly four times the rapidity with which sound travels through the air.

Several foreign philosophers have directed their attention to the velocity with which the tremor of sound passes through various bodies. M. Biot ascertained that sound was conveyed through a train of iron pipes of 2550 feet in length, in 2.79 sec.; through the air, it would have passed the same distance in 2.5 sec. M. Hassenfratz has attempted to make similar calculations, in the subterranean quarries of Paris, upon the transmission of sound through brick and stone; but no precise results have as yet been given to the world.

Professor Chladni has endeavoured to obtain data upon this curious point, from a very different source: viz. the musical note which a bar of a given substance would emit when struck; and he thus contends that sound may be reckoned to pass through glass and iron at the prodigious rate of 17,500 feet, or upwards of three miles in each second.

Through fresh water, sound is propagated at a velocity of about 4475 feet in a second, or at a rate four times swifter than through the atmosphere. The waters of the ocean convey sound, about a seventeenth more rapidly. Ice is said to possess the power of transmission about equally with water; an easy proof of which is supplied by the tremor that may be felt underfoot on a frozen river or lake struck, at a distance, long before the sound of the blow reaches the ear. That fishes are endued with auricular organs, has been demonstrated by the late great anatomist, Mr. John Hunter. They have a strong perception of sound, even at the bottom of deep rivers; though it was not until modern times that the seat of their auricular organs was discovered.

While the theory of sound thus involves some singular questions as to its origin and first transmission, its connexion with the auditory nerves of man is also curious. The ear is the immediate and most direct instrument of this perception; but the whole of the skull bone, the palate, the teeth, and even the nostrils, assist in its functions; thus the deaf have been made sensible of sounds by holding a piece of metal between their teeth.

We should not omit to state that the extraordinary rapidity with which sound passes through solid bodies, induced philosophers to suppose, even to a very late period, that its transmission was instantaneous; and that Sir Isaac Newton himself seems to have coincided with this. It appears now, however, perfectly clear, that its motion is in all cases progressive, and subject to regular, however mysterious, laws.

Sect. II. Of the Diffusion of Sound.—The theories and experiments to which we have adverted, trace the transmission of sound in various important ways. Regarding the air, however, now, as the great ordinary medium of sound, we devote this section to the consideration of its functions in this respect.

Sonorous bodies seem to communicate to the air their own tremulous impression, which is then further propagated according to the laws of pneumatics. A few particles being driven from the surface of the sonorous body, propel their contiguous particles into a less space. The medium thus rarefied in one place, becomes condensed in the other; while the air thus compressed in the second place, is restored by elasticity to its former one; and the air contiguous to that becomes compressed. The air less compressed, again expanding itself, a new compression is made, and the motion arising from each agitation, produces an undulation of air, analogous to a wave upon the surface of the water, carrying with great velocity all the articulate distinctions and divisions of sound.

In the formation of these waves of air, the particles go and return through very short and equal spaces, after the manner of a pendulum, while it vibrates two oscillations; the velocity of the whole undulation, in the mean time, determining the force and other qualities of every simple sound.

That air is the principal vehicle of sound is universally allowed; and, that, without the medium of it, or some other fluid, we should ordinarily have no sounds at all, is proved by the experiment of a receiver, exhausted of its air, in an air-pump, when a bell, rung in the vacuum, makes no sound whatever: the fact is also now confirmed, that the force of the pulsations depend considerably upon the degree of density, or rarefaction of the air. Dr. Priestley, to ascertain whether the intensity of sound is affected by any other property of the air besides its density, provided an apparatus, with which he performed several experiments, and at last came to the conclusion that the intensity of sound depends solely upon the density of the surrounding air, and not in any measure upon any chemical principle in its constitution. In inflammable air of ten times the rarefaction of common air, the bell could be scarcely heard. In fixed air, the sound could be heard about half as far again as in common air, owing to the superior density of that air. In dephlogisticated air, the sound was sensibly louder than common air. *See Experiments and Observations*, vol. v. p. 296, &c. Mr. Hauksbee, also, made many experiments of a similar nature, in air of different degrees of condensation, in the course of which, a bell was heard at the distance of thirty yards in common air, at sixty with the force of two atmospheres, and as far as ninety with the force of three. (Phil. Trans. 1709, xxiv. 1709, xxvi. 367, 371.)

Philosophers, however, are much divided in opinion, respecting the *manner* in which sound is conveyed to the ear; i. e. whether it is diffused in the air, in a circular or undulatory manner, like the waves occasioned in a smooth water, by throwing in a stone; or, whether it runs in straight lines, like the rays of light diffused from a centre, in the manner that the electrical fluid runs along a rod of iron. Sir Isaac Newton adopted the former theory, and illustrated the propagation of sound by an undulatory, or rather *vermicular* motion in the particles of the air, drawn from the familiar instance of the crawling of a worm, which first carries its contractions from the hinder part, to throw its fore part to the proper distance, and then carries them back to bring the hinder part forward. Something similar to this takes place in the air, when agitated by the percussion of a sounding body: and thus he supposes there is an alternate condensation and relaxation of the air during one vibration: and as the air in its progress forward strikes an opposing body with greater force, than in its retrogradation, Sir Isaac entitles each of these accelerated progressions a PULSE *of* SOUND: and as all motion upon fluids, in any direction, operates more or less, in a circular or spherical manner all around, so these sounds will be driven in all directions, forward, backward, upward, downward, and on every side, like circles in disturbed water. An idea of the rules of sound, according to this hypothesis, may be formed from observing the tone of a church bell, while its sounds are dying away, and which are owing to the alternate progression and recession of the air; for as each of these pulsations is formed by a single vibration of the string, they must be equal to each, as these vibrations are known to be.

With regard to the *velocity* of sound, (which will be more particularly treated of in Sect. III.) Newton has determined it by a very intricate calculation, to be in proportion to the density of the parts of the air, and the distance of these parts from each other; proving that each part moves like a pendulum; from whence he infers, that if the density of the atmosphere were the same every where as on the surface of the earth, a pendulum, reaching from its highest surface down to that of the interval, is thus lost to sense: just as a flame in proportion to the velocity. And he shows, that the velocity of each pulse would as much exceed, that of such a pendulum, swinging with one complete vibration, as the circumference of a circle exceeds the diameter. From all this he calculates that the motion of sound should be 979 feet in a second; but, upon taking an additional consideration of vapours in the air, he finds the exact velocity of sound to be 1142 feet in a second, or about thirteen miles in a minute, a proportion established by experience.

This theory of Sir Isaac Newton's met with many opposers. Even Bernoulli, his disciple, and one of his principal followers, owned he did not understand this part of his *Principia*. He attempted therefore to give a more perspicuous demonstration of his own, that he might confirm and illustrate the Newtonian theory. The subject seemed to reject elucidation: his theory is obviously wrong, as D'Alembert has proved in his Theory of Fluids. Various objections have been made to the Newtonian system of sounds. It is urged, that this theory can only agree with the motion of sound in the elastic fluid, whereas sounds are known to move forward through water that is not elastic. To explain their progress therefore through water, a second theory must be formed: so that two theories must be made to explain a similar effect; which is equally contrary to the simplicity of true philosophy, and of nature. It is further argued, that the slow vermicular motion, but ill represents the velocity with which sounds travel. In short, it is urged, that such undulations as have been described, when coming from several sonorous bodies at once, would cross, obstruct, and confound each other; so that, if they were conveyed to the ear by such means, we should hear nothing but a medley of discordant and broken articulations. But this is equally with the rest, contradictory to experience, since we hear the fullest concert, not only without confusion, but with the highest pleasure. These objections, have given rise to another theory: which we shall likewise lay before the reader; though it appears also liable to objections, which shall be afterwards noticed.

Every sound may be considered as driven off from the sonorous body in straight lines, and impressed upon the air in one direction only: but whatever impression is made upon a fluid in one direction, is diffused upon its surface into all directions; so that the sound first driven directly forward, soon fills up a wide sphere, and is heard on every side. Thus, as it is impressed, it instantaneously travels forward with a very swift motion, resembling the velocity with which we know electricity flies from one end of a line to another. Now, as to the pulses, or close shakes as the musicians express it, which a sounding body is known to make, each pulse is itself a distinct and perfect sound, and the interval between every two pulses is profoundly silent. Continuity of sound from the same body, is only a deception of the hearing; for as each distinct sound succeeds at very small intervals, the auditory nerves have no time to transmit its distinct images to the mind, and the interval is thus lost to sense: just as a flaming torch, flared round in a circle, appears to be a ring of fire. In this manner, a beaten drum, at some small distance, presents us with the idea of a continuing sound; and, when a child runs with his stick along a piece of railing, a continuing sound is heard, though the stroke against each rail is perfectly distinct and insulated. According to this theory, therefore, the pulses are nothing more than distinct sounds repeated by the same body, the first stroke or vibration being always loudest, and travelling farther than those that follow; while each succeeding vibration gives a new sound but with diminished force, till at last the pulses die away totally, as the force decays that gives them existence. All bodies whatsoever that are struck, return more or less a sound: but some, wanting elasticity, give back no repetition of the sound; the noise is at once begotten and lies

while other bodies, being more elastic and capable of vibration, give back a sound, and repeat it several times successively. These last are said to have a tone; the others are not allowed to have any. The tone of the elastic string, or bell, is notwithstanding nothing more than a similar sound of what the former bodies produced, but with the difference of being many times repeated while their notes are but single. So that, if we would give the former bodies a tone, it will be necessary to make them repeat their sound, by repeating our blows swiftly upon them. This will effectually give them a tone; and even an unmusical instrument has often had a fine effect by its tone in our concerts.

Let us then suppose, that by swift and equally continued strokes, we give any non-elastic body its tone: it is very obvious, that no alterations will be made in this tone by the quickness of the strokes, though repeated ever so fast. These will only render the tone more equal and continuous, but will make no alteration in it. On the contrary, if we make an alteration in the force of each blow, a different tone will then undoubtedly be excited. The difference will be small, it must be confessed; for the tones of these inflexible bodies are capable of but small variation, however, there will certainly be a difference. A table will return a different sound when struck with a club, from what it will do if struck with a whip. Thus non-elastic bodies return a difference of tone, not in proportion to the swiftness with which their sound is repeated, but in proportion to the greatness of the blow which produced it; for in two equal non-elastic bodies, that body produced the deepest tone which was struck by the greatest blow. Mr. Euler is of opinion, that no sound making fewer vibrations than thirty, or more than 7520 in a second, is distinguishable by the human ear; according to which principle, the extremes of our sense of hearing with respect to acute and grave sounds, is an interval of eight octaves. *Tentam. Novum Theor. Mus.* cap. i. sect. 13.

We now then come to the critical question, What is it that produces the difference of tone in two elastic sounding bells or strings? Or, what makes the one deep and the other shrill? This question has always been hitherto answered by saying, that the depth or height of the note proceeded from the slowness or swiftness of the vibrations. The slowest vibrations, it has been said, are qualified for producing the deepest tones, while the swiftest produce the highest tones. In this case, an effect has been given for a cause. It is in fact the force with which the sounding string strikes the air, that makes the true distinction in the tones of sounds; and which, with greater or less impressions, resembling the greater or less force of the blows upon a non-elastic body, produces correspondent affections of sound. The greatest forces produce the deepest sounds: the high notes are the effect of small efforts. Much also depends upon the constitution, figure, and quantity of the sonorous body, the manner of percussion, &c.; to say nothing of the intervening obstacles, distance, and disposition of the auricular organ. Thus a bell, wide at the mouth gives a grave sound; but if it be very massy, that will render it still graver; but if massy, wide, and long or high, that will make the tone deepest of all. Thus, then, will elastic bodies give the deepest sound, in proportion to the force with which they strike the air: but if we attempt to increase their force by giving them a stronger blow, this will be in vain; they will still return the same tone; for such is their formation, that they are sonorous only because they are elastic, and the force of this elasticity is not increased by our strength, as the greatness of a pendulum's vibration will not be increased by falling from a greater height.

From the above considerations, the most notable distinctions of sound have been resolved into loud and low, grave and acute, long and short. With respect to the vibration necessary to produce the various concatenations of sound, particularly in the ascending series, it has been found from the nature of elastic strings, that the longest strings have the widest vibrations, and consequently go backward and forward slowest; while, on the contrary, the shortest strings vibrate the quickest, or come and go in the shortest intervals. Hence it has been asserted, that the tone of the string depends upon the length or shortness of the vibrations. This, however, is not the case. The same string, when struck upon, must always, like the same pendulum, return precisely similar vibrations; but it is well known, that the same string does not always return precisely the same tone: so that in this case, the vibrations follow one rule, and the tone another. The vibrations must be invariably the same in the same string, which does not return the same tone invariably, as is well known to musicians in general. In the violin, for instance, we easily alter the tone of the string an octave, or eight notes higher, by a softer method of drawing the bow; and, some are known thus to bring out the most charming airs imaginable; or, those peculiar tones called *flute notes*. The only reason, it has been alleged, that can be assigned for the same string thus returning different tones, must certainly be the different force of its strokes upon the air. In one case, it has double the tone of the other; because upon the soft touches of the bow, only half its elasticity is put into vibration.

Thus, say the authors of this theory, we shall be able clearly to account for many things relating to sounds that have hitherto been inexplicable. For instance, if it be asked, when two strings are stretched together of equal lengths, tensions, and thickness, how does it happen, that one of them being struck, and made to vibrate throughout, the other shall vibrate throughout also? The answer is obvious: the force that the string struck receives, is communicated to the air, and the air communicates the same to the similar string; which therefore receives all the force of the former; and the force being equal, the vibrations must be so too. Again, if one string be but half the length of the other, and be struck, how will the vibrations be? The answer is, the longest string will receive all the force of the string half as long as itself, and therefore it will vibrate in proportion, that is, through half its length. In the same manner,

if the longest string were three times as long as the other, it would only vibrate in a third of its length; or if four times, in a fourth of its length. In short, whatever force the smaller string impresses upon the air, the air will impress a similar force upon the longer string, and partially excite its vibrations. Hence also we may account for those gradations of sound in the Æolian lyre; an instrument (says Sir John Hawkins) lately obtruded upon the public as a new invention, though described above a century ago by Kircher. (Acoustics, Pl. I. fig. 1.) This instrument is easily made, being nothing more than a long narrow box of thin deal, about thirty inches long, five inches broad, and one inch and three fourths deep, with a circle in the middle of the upper side or belly about one inch and a half in diameter, pierced with small holes. On this side are seven, ten, or (according to Kircher) fifteen or more strings of very fine gut, stretched over bridges at each end, like the bridge of a fiddle, and screwed up or relaxed with screw-pins. The strings are all tuned to one note, and the instrument is placed in a current of air, where the wind can brush over its strings with freedom. A window, with the sash just raised, to give the air admission, will answer this purpose exactly. When the air blows upon these strings with different degrees of force, there will be excited different degrees of sound; sometimes the blast brings out all the tones in full concert: sometimes it sinks them to the softest murmurs; it feels for every tone, and by its gradations of strength solicits those gradations of sound, which art has taken different methods to produce. See Æolian Harp.

The same observations may be applied to the loudness and lowness, or, as musicians speak, the strength and softness of sound. In vibrating elastic strings, the loudness of the tone is in proportion to the deepness of the note; that is, in two strings, all things in other circumstances alike, the deepest tone will be loudest. In musical instruments, upon a different principle, as in the violin, it is otherwise; the tones are made in such instruments, by a number of small vibrations crowded into one stroke. The resined bow, for instance, being drawn along a string, its roughnesses catch the string at very small intervals, and excite its vibrations. In that instrument, therefore, to excite loud tones, the bow must be drawn quick, and this will produce the greatest number of vibrations. But it must he observed, that the more quickly the bow passes over the string, the less apt will the roughness of its surface be to touch the string at every instant; to remedy this, therefore, the bow must be pressed the harder as it is drawn quicker, and thus its full sound will be brought out from the instrument. If the swiftness of the vibrations, in an instrument thus excited, exceed the force of the deeper sound in another, then the swift vibrations will be heard at a greater distance, and as much farther off as the swiftness in them exceeds the force in the other. By this theory, it is alleged, may all the phenomena of musical sounds be easily explained. It was an ancient opinion that music was first discovered by the beating of different hammers upon the smith's anvil. Without pursuing the fable, let us suppose an anvil, or several similar anvils to be struck upon by several hammers of different weights or forces. The hammer, which is of double weight, upon striking the anvil, will produce a sound, double that of another, of half its weight: this double sound musicians have agreed to call an octave. The ear can judge of the difference or resemblance of these sounds, with great ease, the numbers being as one and two, and therefore very readily compared. Suppose a hammer, three times less than the first, strikes the anvil, the sound produced by this will be three times less than the first: so that the ear, in judging the similitude of these sounds, will find somewhat more difficulty; because it is not so easy to tell how often one is contained in three, as it is to tell how often it is contained in two. Again, suppose the hammer four times less, or five time less, the dificulty of judging will be still greater. If the hammer be six or seven times less, the difficulty still increases, insomuch, that the ear cannot readily determine the precise gradation. Now, of all comparisions those which the mind makes most easily, and with least labour, are the most pleasing. And as the ear is but an instrument of the mind, it is therefore most pleased with the combination of two sounds, the difference of which it can most readily distinguish. It is more pleased with the concord of two sounds, which are to each other as one and two, than of two sounds which are as one and three, or one and four, or one and five, or one and six or seven. Upon this pleasure which the mind takes in comparison, all harmony depends. The variety of sounds is infinite; but because the ear cannot compare two sounds so as readily to distinguish their discriminations when they exceed the proportion of one and seven, musicians have been content to confine all harmony within that compass, and have allowed but seven notes in musical composition.

Let us now then suppose a stringed instrument fitted up in the order mentioned above. For instance: let the first string be twice as long as the second; let the third string be three times shorter than the first; let the fourth be four times, the fifth string five times, and the sixth six times as short as the first. Such an instrument would probably give us a representation of the lyre, as it came from the hands of the inventor. This instrument will give us all the seven notes following each other, in the order in which any two of them will accord together most pleasingly; but yet it will be a very inconvenient and disagreeable instrument; for in a compass of seven strings only, the first must be seven times as long as the last; and also seven times as loud; so that when the tones are to be played in a different order, loud and soft sounds would be intermixed with most disgusting alternations. In order to improve the first instrument, therefore, succeeding musicians very judiciously threw in all the other strings between the two first, or, in other words, between the two octaves, giving to each, the same proportion it would have had in the first natural instrument. This made the instrument more portable, and

the sounds more even and pleasing. They therefore disposed the sounds between the octave in their natural order, and gave each its own proportional dimensions. Of these sounds, where the proportion between any two of them is most obvious, the concord between them will be most pleasing. Thus octaves, which are as two to one, have a most harmonious effect: the fourth and fifth also, sound sweetly together, and they will be found, upon calculation, to bear the same proportion to each other that octaves do. The true cause why concord is pleasing, must arise from our power, in such a case, of measuring more easily the differences of the tones. In proportion as the note can be measured with its fundamental tone by large and obvious distinctions, then the concord is most pleasing; on the contrary, when the ear measures the discriminations of two tones by very small parts, or cannot measure them at all, it loses the beauty of their resemblance: the whole is discord and pain.

There is another property in the vibration of musical strings which is held to confirm the foregoing theory. If we strike the string of a harpsichord, or any other elastic sounding chord it returns a continuing sound. This till of late, was considered as one simple uniform tone; but all musicians now confess, that it constantly returns four tones. The notes are, besides the fundamental tone, an octave above, a twelfth above, and a seventeenth. One of the bass notes of the harpsichord has been dissected in this manner by Rameau, and the actual existence of these tones proved beyond a possibility of being controverted. The experiment is easily tried: for if we smartly strike one of the lower keys of a harpsichord, and then take the finger briskly away, a tolerable ear will be able to distinguish, that, after the fundamental tone has ceased, three other shriller tones will be distinctly heard; first, the octave above, then the twelfth, and lastly the seventeenth; the octave above is in general almost mixed with the fundamental tone, so as not to be easily perceived, except to an ear long habituated to the minute discriminations of sounds. Thus, the smallest tone is heard last, and the deepest and largest one first: the two others in order. In the whole theory of sounds, nothing has given greater room for speculation, conjecture, and disappointment, than this amazing property in elastic strings. The whole string is universally acknowledged to be in vibration in all its parts; yet this single vibration returns no less than four different sounds. They who account for the tones of strings by the number of their vibrations, are here at the greatest loss. Daniel Bernoulli supposes, that a vibrating string divides itself into a number of curves, each of which has a peculiar vibration; and though they all swing together in the common vibration, yet each vibrates within itself. This opinion, which was supported, as most geometrical speculations are, with the parade of demonstration, was only born to die soon after. Others have ascribed this to an elastic difference in the parts of the air, each of which, at different intervals, thus received different impressions from the string, in proportion to their elasticity. This is absurd. If we allow the difference of tone to proceed from the force, and not the frequency, of the vibrations, this difficulty will admit of an easy solution. These sounds, though they seem to exist together in the string, actually follow each other in succession: while the vibration has greatest force, the fundamental tone is brought forward; the force of the vibration decaying, the octave is produced, but almost only instantaneously; to this succeeds, with diminished force, the twelfth; and lastly, the seventeenth is heard to vibrate with great distinctness, while the three other tones are always silent. These sounds, thus excited, are all of them the harmonic tones, whose differences from the fundamental tone are, as was said, strong and distinct. On the other hand, the discordant tones cannot be heard. Their differences being but small, they are overpowered, and in a manner drowned in the tones of superior difference. Yet not always; for Daniel Bernoulli has been able, from the same stroke, to make the same string bring out its harmonic and its discordant tones also. So that from hence we may infer, that every note whatsoever is only a succession of tones; and that those are most distinctly heard, whose differences are most easily perceivable.

Against this theory, however, though of plausible appearance, some strong and insuperable objections seem to offer themselves: the fundamental principle of it is incorrect. No body whatever, whether elastic or non-elastic, yields a greater sound by being struck by a larger instrument, unless either the sounding body, or that part of it which emits the sound is enlarged. In this case the largest bodies always return the gravest sounds. In speaking of elastic and non-elastic bodies in a musical sense, we are not to push the distinction so far as when we speak of them philosophically. A body is musically elastic, all of whose parts are thrown into vibrations so as to emit a sound when only a part of their surface is struck. Of this kind are bells, musical strings, and all bodies whatever that are considerably hollow. Musical non-elastic bodies are such bodies as emit a sound only from that particular place which is struck: thus, a table, a plate of iron nailed on wood, a bell sunk in the earth, are all of them non-elastics in a musical sense, though not philosophically so. When a solid body, such as a log of wood, is struck with a switch, only that part of it emits a sound which comes in contact with the switch; the note is acute and loud, but would be no less so though the adjacent parts of the log were removed. If, instead of the switch, a heavier or larger instrument is made use of, a larger portion of its surface then returns a sound, and the note is consequently more grave; but it would not be so, if the large instrument struck it with a sharp edge, or a surface only equal to that of the small one. In sounds of this kind, where there is only a single stroke, without any repetition, the immediate cause of the gravity or acuteness seems to be the quantity of air displaced by the sounding body; a large quantity displaced, produces a grave sound, and a smaller quantity a more acute one, the force wherewith the air is displaced signify-

ing very little. This is confirmed by some experiments made by Dr. Priestley, concerning the musical tone of electrical discharges. His remarks are: "As the course of my experiments has required a great variety of electrical explosions, I could not help observing a great variety in the musical tone made by the reports. This excited my curiosity to attempt to reduce this variation to some measure. Accordingly, by the help of a couple of spinets, and two persons who had good ears for music, I endeavoured to ascertain the tone of some electrical discharges; and observed, that every discharge made several strings, particularly those that were chords to one another, to vibrate: but, one note was always predominant, and sounded after the rest. As every explosion was repeated several times, and three of us separately took the same note, there remained no doubt but that the tone we fixed upon was at last the true one. The result was as follows: A jar containing half a square foot of coated glass sounded F sharp, concert pitch. Another jar of a different form, but equal surface, sounded the same. A jar of three square feet sounded C below F sharp. A battery consisting of sixty-four jars, each containing half a square foot, sounded F below the C. The same battery, in conjunction with another of thirty-one jars, sounded C sharp. So that a greater quantity of coated glass always gave a deeper note. Differences in the degree of a charge in the same jar made little or no difference in the tone of the explosion: if any, a higher charge gave rather a deeper note."

These experiments prove how much the gravity or acuteness of sounds depend on the quantity of air put in agitation by the sounding body. We know that the noise of the electric explosion arises from the return of the air into the vacuum produced by the electric flash. The larger the vacuum, the deeper the note: for the same reason, the discharge of a musket produces a more acute note than that of a cannon; and thunder is deeper than either. Other circumstances also concur to produce different degrees of gravity or acuteness in sounds. The sound of a table struck with a piece of wood, will not be the same with that produced from a plate of iron struck by the same piece of wood, even if the blows should be exactly equal, and the iron perfectly kept from vibrating. Here the sounds are generally said to differ in their degrees of acuteness, according to the specific gravities or densities of the substances which emit them. Thus gold, which is the most dense of all metals, returns a much graver sound than silver; and metalline wires, which are more dense than strings return a proportionably graver sound. But neither does this appear to be a general rule in which we can put confidence. Bell metal is denser than copper, but it by no means appears to yield a graver sound; on the contrary, it seems very probable, that copper will give a graver sound than bell-metal, if both are struck upon in their non-elastic state; and we can by no means think that a bell of pure tin, the least dense of all the metals, will give a more acute sound than one of bell-metal which is greatly more dense.—In some bodies hardness seems to have a considerable effect. Glass, which is considerably harder than any metal, gives a more acute sound; bell-metal is harder than gold, lead, or tin, and therefore sounds much more acutely; though how far this holds with regard to different substances, there are not a sufficient number of experiments for us to judge. In bodies musically elastic, the whole substance vibrates with the slightest stroke, and therefore they always give the same note, whether they are struck with a large or with a small instrument; so that striking a part of the surface of any body musically elastic is equivalent, in it, to striking the whole surface of a non-elastic one. If the whole surface of a table was struck with another table, the note produced would be neither more nor less acute whatever force was employed; because the whole surface would then yield a sound, and no force could increase the surface: the sound would indeed be louder in proportion to the force employed, but the gravity would remain the same. In like manner, when a bell, or musical string, is struck, the whole substance vibrates, and a greater stroke cannot increase the substance.—Hence we see the fallacy of what is said concerning the Pythagorean anvils. An anvil is a body musically elastic, and no difference in the tone can be perceived whether it is struck with a large or with a small hammer; because either of them are sufficient to make the whole substance vibrate, provided nothing but the anvil is struck upon: smiths, however, do not strike their anvils, but red hot iron laid upon their anvils; and thus the vibrations of the anvil are stopped, so that it becomes a non-elastic body, and the differences of tone in the strokes of different hammers proceed only from the surface of the large hammers covering the whole surface of the iron, or at least a greater part of it than the small ones. If the small hammer is sufficient to cover the whole surface of the iron as well as the large one, the note produced will be the same, whether the large or the small hammer is used. The argument for the preceding theory, grounded on the production of what are called *flute notes* on the violin, is also built on a false foundation; for the bow being lightly drawn on an open string, produces no flute notes, but only the harmonies of the note to which the string is tuned. The flute notes are produced by a particular motion of the bow, quick and near the bridge, and by fingering very gently. By this management, the same sounds are produced, though at certain intervals only, as if the vibrations were transferred to the space between the end of the finger-board and the finger, instead of that between the finger and the bridge. Why this small part of the string should vibrate in such a case, and not that which is under the immediate action of the bow, we are ignorant; nor dare we affirm that the vibrations really are transferred in this manner, only the same sounds are produced as if they were.

Though these objections seem sufficiently to overturn the foregoing theory, with regard to acute sounds being the effects of weak strokes and grave ones of stronger impulses, we cannot admit that longer or shorter vibrations are the occasion of gravity or acuteness in sound. A

musical sound, however lengthened, either by string or bell, is only a repetition of a single one, whose duration by itself is but for a moment, and is therefore *inappretiable* like the smack of a whip, or the explosion of an electrical battery. The continuation of the sound is nothing more than a repetition of this instantaneous inappretiable noise after the manner of an echo, and it is this echo that makes the sound agreeable. For this reason, music is much more agreeable, when played in a large hall where the sound is reverberated, than in a small room where there is no such reverberation; and for the same reason, the sound of a string is more agreeable when put on a hollow violin than when fastened to a plain board, &c.—In the sound of a bell we cannot avoid observing this echo very distinctly. The sound appears to be made up of distinct pulses, or repetitions of the same note produced by the stroke of the hammer. It can by no means be allowed, that the note would be more acute though these pulses were to succeed one another more rapidly; the sound would indeed become more simple, but would still preserve the same tone. In musical strings the reverberations are vastly more quick than in bells, and therefore their sound is more uniform or simple, and consequently more agreeable than that of bells. In musical glasses, the vibrations must be inconceivably quicker than in any bell, or stringed instrument: and hence they are of all others the most simple and the most agreeable, though neither the most acute nor the loudest. As far as we can judge, quickness of vibration contributes to the uniformity, or simplicity, but not to the acuteness, nor to the loudness, of a musical note. See HARMONICA.

It may here be objected, that each of the different pulses of which we observe the sound of a bell to be composed, is of a very perceptible length, and far from being instantaneous; so that it is not fair to infer that the sound of a bell is only a repetition of a single instantaneous stroke, seeing it is evidently the repetition of a lengthened note. To this it may be replied, that the inappretiable sound, which is produced by striking a bell in a non-elastic state, is the very same which, being first propagated round the bell, forms one of these short pulses, that is afterwards re-echoed as long as the vibrations of the metal continue, and it is impossible that the quickness of repetition of any sound can either increase or diminish its gravity.

The writers on sound have been betrayed into many difficulties and obscurities, by rejecting the 47th proposition, B. ii. of Newton, as inconclusive reasoning. Of this proposition, however, the ingenious Mr. Young of Trinity College, Dublin, published some time since a clear, explanatory defence. He concedes that the demonstration is obscurely stated, and takes the liberty of varying, in some degree, from the method of Newton. "1. The parts of all sounding bodies (he observes,) vibrate according to the law of a cycloidal pendulum: for they may be considered as composed of an indefinite number of elastic fibres; but these fibres vibrate according to that law. 2. Sounding bodies propagate their motions on all sides *in directum*, by successive condensations and rarefactions and successive goings forward and returning backward of the particles. 3. The pulses are those parts of the air which vibrate backwards and forwards; and which, by going forward, strike *pulsant* against obstacles. The latitude of a pulse is the rectilineal space through which the motion of the air is propagated during one vibration of the sounding body. 4. All pulses move equally fast. This is proved by experiment: and it is found they describe 1070 Paris feet, or 1142 London feet in a second, whether the sound be loud or low, grave or acute. 5. To determine the latitude of a pulse: Divide the space which the pulse describes in a given time by the number of vibrations performed in the same time by the sounding body, the quotient is the latitude.

"M. Sauveur, by some experiments on organ pipes, found that a body, which gives the gravest harmonic sound, vibrates twelve times and an half in a second, and that the shrillest sounding body vibrates 51,100 times in a second. At a medium, let us take the body which gives what Sauveur calls his *fixed sound*: it performs 100 vibrations in a second, and in the same time the pulses describe 1070 Parisian feet; therefore the space described by the pulses whilst the body vibrates once, that is, the latitude, or interval of the pulse will be 107 feet.

6. To find the proportion which the greatest space, through which the particles of the air vibrate, bears to the radius of a circle, whose perimeter is equal to the latitude of the pulse. During the first half of the progress of the elastic fibre, or sounding body, it is continually getting nearer to the next particle; and during the latter half of its progress, that particle is getting farther from the fibre, and these portions of time are equal: therefore we may conclude, that at the end of the progress of the fibre, the first particle of air will be nearly as far distant from the fibre as when it began to move; and in the same manner we may infer, that all the particles vibrate through spaces nearly equal to that run over by the fibre. Now, M. Sauveur has found by experiment, that the middle point of a chord which produces his fixed sound, and whose diameter is one sixth of a line, runs over in its smallest sensible vibrations one eighteenth of a line, and in its greatest vibrations seventy-two times that space; that is seventy-two × one eighteenth of a line, or four lines, that is, one third of an inch. The latitude of the pulses of this fixed sound is 10·7 feet; and since the circumference of a circle is to its radius as 7·10 is to 113, the greatest space described by the particles will be to the radius of a circle, whose periphery is equal to the latitude of the pulse, as one-third of an inch is to 1·7029 feet, or 20·4348 inches, that is, as one to 61·3044. If the length of the string be increased or diminished in any proportion, *cæteris paribus*, the greatest space described by its middle point will vary in the same proportion For the inflecting force is, to the tending force, as the distance of the string from the middle point of vibration to half the length of the string; and therefore the inflecting and tending forces being given, the string will vibrate through spaces pro-

portionate to its length; but the latitude of the pulse is inversely as the number of vibrations performed by the string in a given time; that is, directly as the time of one vibration, or directly as the length of the string; therefore the greatest space, through which the middle point of the string vibrates, will vary in the direct ratio of the latitude of the pulse, or of the radius of a circle whose circumference is equal to the latitude; that is, it will be to that radius as one to 61·3044.—7. If the particles of the aerial pulses, during any part of their vibration, be successively agitated, according to the law of a cycloidal pendulum; the comparative elastic forces arising from their mutual action, by which they will afterwards be agitated, will be such as will cause the particles to continue that motion, according to the same law, to the end of their vibration. 8. If a particle of the medium be agitated according to the law of a cycloidal pendulum, the comparative elastic force, acting on the adjacent particle, from the instant in which it begins to move, will be such as will cause it to continue its motion according to the same law; that is, the comparative elastic force of the second particle, at the instant in which it begins to move, will be to the force with which it is agitated in any other moment of time, before the subsequent particle has yet been set in motion, directly as its distance from the middle point of vibration. Now this comparative elastic force, with which the second particle is agitated in the very moment in which it begins to move, arises from the preceding particle's approaching it according to the law of a pendulum; and therefore, if the preceding particle approaches it in this manner, the force by which it will be agitated, in the very moment it begins to move, will be exactly such as should take place in order to move it according to the law of a pendulum. It therefore sets out according to that law, and consequently the subsequent elastic forces, generated in every successive moment, will also continue to be of the just magnitude which should take place, in order to produce such a motion. 9. The pulses of the air are propagated from sounding bodies, according to the law of a cycloidal pendulum. All the particles of air in the pulses successively set out from their proper places, according to the law of a pendulum, and therefore will finish their entire vibrations according to the same law. *Cor.* 1. The number of pulses propagated is the same with the number of vibrations of the tremulous body, nor is it multiplied in their progress. *Cor.* 2. In the extreme points of the little space through which the particle vibrates, the expansion of the air is in its natural state. 10. To find the velocity of the pulses, the density and elastic force of the medium being given. This is the 49th prop. B. 2. Newton, in which he shows, that whilst a pendulum, whose length is equal to the height of the homogeneous atmosphere, vibrates once forwards and backwards, the pulses will describe a space, equal to the periphery of a circle described with that altitude as its radius. *Cor.* 1. He thence shows, that the velocity of the pulses is equal to that which a heavy body would acquire, in falling down half the altitude in the homogeneous atmosphere: and therefore that all pulses move equally fast, whether the tone be loud or low, grave or acute. *Cor.* 2. And also, that the velocity of the pulses is in a ratio compounded of the direct subduplicate ratio of the elastic force of the medium, and the inverse subduplicate of its density. Hence sounds move somewhat faster in summer than in winter. 11. The strength of a tone is as the moment of the particles of air. The moment of these particles (the medium being given) is as their velocity: and the velocity of these particles is as the velocity of the string which sets them in motion: The velocities of two different strings are equal when the spaces which they describe in their vibrations are to each other as the times of these vibrations: therefore two different tones are of equal strength, when the spaces, through which the strings producing them vibrate, are directly as the times of their vibration. Hence we should suppose, that in this case, an equal number of equal impulses would generate equally powerful tones in these strings. But we are to observe, that the longer the string, the greater, *cæteris paribus*, is the space through which a given force inflects it; and therefore whatever diminution is produced in the spaces through which the strings move in their successive vibrations, arising either from the want of perfect elasticity in the strings, or from the resistance of the air, this diminution will bear a greater proportion to the less space through which the shortest string vibrates. And this is confirmed by experience; for we find that the duration of the tone and motion of the whole string exceeds that of any of its subordinate parts. Therefore, after a given interval of time, a greater quantity of motion will remain in the longer string; and consequently, after the successive equal impulses have been made, a greater degree of motion will still subsist in it. That is, a given number of equal impulses being made on various strings, differing in length only, a stronger sound will be produced."

These propositions Mr. Young has illustrated by mathematical demonstrations at considerable length; for which, as our room permits us not to insert them completely, and they would not bear to be abridged, we must refer our readers to his work.

Sect. III. Of the Velocity, &c. of Sound.—Experience has taught us, that sound travels at about the rate of 1142 feet in a second, or near thirteen miles in a minute; nor do any obstacles hinder its progress, a contrary wind only a small matter diminishing its velocity. The method of calculating its progress is easily made known. When a gun is discharged at a distance, we see the fire long before we hear the sound. If then we know the distance of the place, and know the time of the interval between our first seeing the fire and then hearing the report, this will show us exactly the time the sound has been travelling to us. For instance, if the gun is discharged a mile off, the moment the flash is seen, you take a watch and count the seconds till you hear the sound; the number of seconds is the time the sound has been travelling a mile.—Again, by the above axiom, we are enabled to find the distance between objects that would be otherwise immeasurable. For example,

suppose we see the flash of a gun, in the night, at sea, and tell seven seconds before we hear the report, it follows therefore, that the distance is seven times 1142 feet, that is, 24 yards more than a mile and a half. In like manner if we observe the number of sounds between the lightning and the report of the thunder, we know the distance of the cloud from whence it proceeds.

Wind, blowing in the direction of sound, has been supposed to increase its velocity; but owing to the superior rapidity of the latter, its acceleration by this means must be very inconsiderable; hence the chief effect observable from the wind is, that, by increasing and diminishing the space of the waves, it carries the sound to a greater distance. The velocity of sound in liquids has never been distinctly ascertained, although it might be easily calculated by measuring the compressibility of the medium: in gases it bears proportion to their relative densities; and is observed in pure hydrogen to be three times that of common air. In the ordinary medium, it is much influenced by the elevation or depression of temperature, occasioned by the condensation or rarefaction of air; also by the proportion of humidity contained in it. Cold fogs, by increasing the density of air without changing its elasticity, diminish the velocity of sound; whilst warm vapours, which tend to make it lighter, naturally increase it.

Sound being capable of transmission through material substances, the hardest and least compressible, with a velocity much greater than that with which it is conveyed through the air, the motion of a troop of cavalry is perceived at a greater distance, by listening with the head in contact with the ground, than by waiting while the sound travels through the atmosphere; and the furniture of a house is agitated by the approach of a waggon before those in the room hear the sound. Mr. Wunsch observed that a series of deal rods, closely united, communicated an instantaneous impulse of sound, while a sensible interval elapsed before he heard it in the air. He also found that the blow of a hammer on the upper part of a great building, is heard twice by a person standing near it on the ground; the first sound descending through the wall, and the second through the ordinary medium.

The decay of sound is the natural consequence of its diffusion through a larger quantity of matter, as it diverges every way from its centre; the velocity of the particles of the transmitting medium, diminishing in proportion to the increased distance from the centre; their motion, therefore, which measures the strength of the sound, must vary as the square of the distance; hence, at the distance of ten feet from the sounding body, the velocity of the particles in the medium is only one tenth as great as at the distance of one foot, and the impetus of sound one hundredth only. *Young's Nat. Phil.* vol. i. lect. 31.

Dr. Derham has proposed and answered the following important queries relative to the laws of sound, which condense most of our existing information on the subject.—

"How far does sound move in a second of time? Sound moves 1142 feet, or 380 yards, in a second, which is after the rate of an English mile in $9\frac{1}{4}$, or 9.25 half seconds; two miles in $18\frac{1}{2}$; three miles in $27\frac{3}{4}$; and about thirteen miles in one minute.

Does the report of a gun, discharged with its mouth towards us, come sooner than when the muzzle is in a contrary direction? There is no difference in the velocity of sound from this different direction.

Do the winds affect the motion of sounds? By repeated experiments it appears that there is some, though a very small difference, according as the sounds are with or against the wind, and as the wind is strong or soft.

Do a great and intense sound, and a soft and languid one, move with the same velocity? They do; for by experiments, a cannon, fired with a half-pound charge of powder, was heard at the distance of $17\frac{1}{2}$ miles in the same time after the flash was seen, as when fired with a charge of six pounds.

Does the sound of a gun move equally swift at all elevations? It does.

Do different quantities or strength of gunpowder, occasion any difference as to the velocity of sound? None.

Does sound move, in a right line, the nearest way, or does it sweep along the earth's surface? and is there any difference in the time, if the piece be discharged in an acclive or declive position? Sound moves the nearest way; and the velocity appears to be the same in acclivities as in declivities.

Have all kinds of sounds, as those of guns, bells, &c. the same velocity? and are sounds equally swift in the beginning of their motion and the end? There appears no inequality in either of these respects; and, therefore, the times in which sounds are heard, are proportional to their distance, that is, at a double distance, they are heard in twice the time, &c. It appears from the above experiments and observations, that all sounds whatever travel at the same rate. The sound of a gun, and the striking of a hammer, are equally swift in their motions; the softest whisper flies as swiftly, as far as it goes, as the loudest thunder. To these axioms may be added, that, smooth and clear sounds proceed from the bodies that are homogeneous, and of an uniform figure; and harsh or obtuse sounds, from such as are of a mixed matter and irregular figure: that the velocity of sound is to that of a brisk wind as fifty to one: that the strength of sounds is greatest in cold and dense air, and least in that which is warm and rarefied: that every point against which the pulses of sound strike, becomes a centre from which a new series of pulses are propagated in every direction: and that sound describes equal spaces in equal times.

Sect. IV. Of the Reverberation of Sounds.—Sound, like light, after it has been reflected from several places, may be collected into one point, as in a focus; and it will be there more audible than in any other part, even than at the place from whence it proceeded. On this principle it is, that a whispering gallery is constructed. The form of this gallery must be that of a concave hemisphere, as ABC; (See Plate I. fig. 2.) and if a low sound or whisper be uttered at A, the vibrations expanding themselves every

way, will impinge on the points DDD, &c. and from thence be reflected to EEE, and from thence to the points F and G, till at last they all meet in C, where the sound will be the most distinctly heard.

THE AUGMENTATION of sound by SPEAKING TRUMPETS, is illustrated in the following manner: (See Plate I. fig. 3.) Let ABC be the tube, BD the axis, and B the mouth-piece for conveying the voice to the tube. It is evident, when a person speaks at B in the trumpet, the whole force of his voice is spent upon the air contained in the tube, which will be agitated through the whole length of the tube; and, by various reflections from the side of it to the axis, the air along the middle will be greatly condensed, and its *momentum* proportionably increased, so that when it comes to agitate the air at the orifice of the tube AC, its force will be as much greater, than it would have been without the tube, as the surface of a sphere, whose radius is equal to the length of the tube, is greater than the surface of the segment of such a sphere, whose base is the orifice of the tube. For a person speaking at B, without the tube, will have the force of his voice spent in exciting concentric pulses of air all around the point B; and when the pulses are diffused as far as D every way, it is plain the force of the voice will there be diffused through the whole superficies of a sphere, whose radius is BD; but in the trumpet it will be so confined, that, at its exit it will be diffused through so much of that spherical surface of air, as corresponds to the orifice of the tube. But since the force is given, its intensity will be always inversely as the number of particles it has to move; and therefore in the tube it will be to that without, as the superficies of such a sphere to the area of the large end of the tube nearly. But it is obvious, Mr. Young observes, that the confinement of the voice can have little effect in increasing the strength of the sound, as this strength depends on the velocity with which the particles move. Were this reasoning conclusive, the voice should issue through the smallest possible orifice; cylindrical tubes would be preferable to any that increased in diameter; and the less the diameter, the greater would be the effect of the instrument; because the mass of air to be moved would, in that case, be less, and consequently the effect of the voice greater; all which is contradicted by experience.

The CAUSE of the INCREASE of SOUND in these tubes must therefore be derived from some other principles: and amongst these we shall probably find, that what the ingenious Kircher has suggested, in his *Phonurgia*, is the most deserving of our attention. He tells us, that "the augmentation of the sound depends on its reflection from the tremulous sides of the tube; which reflections, conspiring in propagating the pulses in the same direction, must increase its intensity." Newton also seems to have considered this as the principal cause, in the scholium of prop. 50. B. 2. *Princip.* when he says, "we hence see why sounds are so much increased in stentorophonic tubes; for every reciprocal motion is, in each return, increased by the generating cause."

When we speak in the open air, the effect on the tympanum of a distant auditor is produced merely by a single pulse. But when we use a tube, all the pulses propagated from the mouth, except those in the direction of the axis, strike against the sides of the tube, and every point of impulse becoming a new centre, from whence the pulses are propagated in all directions, a pulse will arrive at the ear, from each of these points; thus, by the use of a tube, a greater number of pulses are propagated to the ear, and consequently the sound increased. The confinement too of the voice may have some effect, though not such as is ascribed to it by some; for the condensed pulses produced by the naked voice, freely expand every way; but in tubes, the lateral expansion being diminished, the direct expansion will be increased, and consequently the velocity of the particles, and the intensity of the sound. The substance also of the tube has its effect; for it is found by experiment, that the more elastic the substance of the tube, and consequently the more susceptible it is of these tremulous motions, the stronger is the sound. If the tube be laid on any non-elastic substance, it deadens the sound, because it prevents the vibratory motion of the parts. The sound is increased in speaking trumpets, if the tube be suspended in the air; because the agitations are then carried on without interruption. These tubes should increase in diameter from the mouth-piece, because the parts, vibrating in directions perpendicular to the surface, will conjoin in impelling forward the particles of air, and consequently, by increasing their velocity, will increase the intensity of the sound; and the surface also increasing, the number of points of impulse and of new propagations, will increase proportionally. The several causes, therefore, of the increase of sound in these tubes, Mr. Young concludes to be, first, the diminution of the lateral, and consequently the increase of the direct, expansion and velocity of the included air. Second, The increase of the number of pulses, by increasing the points of new propagation. Third, the reflections of the pulses from the tremulous sides of the tube, which impel the particles of air forward, and thus increase their velocity. The same reasoning applies *vice versa*, to the hearing trumpet.

An *echo* is a reflection of sound striking against some object, as an image is reflected in a glass: but it has been disputed what are the proper qualities in a body for thus reflecting sounds. It is in general known, that caverns, grottoes, mountains, and ruined buildings, return this image of sound. There is a very extraordinary echo, at a ruined fortress near Louvain, in Flanders. If a person sung, he only heard his own voice, without any repetition: on the contrary, those who stood at some distance, heard the echo but not the voice; but then they heard it with surprising variations, sometimes louder, sometimes softer, now more near, then more distant. There is an account in the Memoirs of the French Academy, of a similar echo near Rouen. As every point against which the pulses of sound strike, becomes the centre of a new series of pulses, and sound describes equal distances in equal times; therefore, when any sound is propagated from a centre, and its pulses strike

against a variety of obstacles, if the sum of the right lines drawn from that point to each of the obstacles, and from each obstacle to a second point, be equal, then will the latter be a point in which an echo will be heard. Hence all the points of the obstacles which produce an echo, must lie in the surface of the oblong sphæroid, generated by the revolution of the ellipse round its major axis.

"As there may be several sphæroids of different magnitudes, so there may be several different echoes, of the same original sound. And as there may happen to be a greater number of reflecting points in the surface of an exterior sphæroid, than in that of an interior, a second or third echo may be much more powerful than the first, provided that the superior number of reflecting points, that is, the superior number of reflected pulses propagated to the ear, be more than sufficient to compensate for the decay of sound which arises from its being propagated through a greater space. This is finely illustrated in the celebrated echoes at the lake of Killarney, in Kerry, where the first return of the sound is much inferior in strength to those which immediately succeed it. From what has been laid down, it appears, that for the most powerful echo, the sounding body should be in one focus of the ellipse, which is the section of the echoing sphæroid, and the hearer in the other. However, an echo may be heard in other situations, though not so favourably: as such a number of reflected pulses may arrive at the same time at the ear, as may be sufficient to excite a distinct perception. Thus a person often hears the echo of his own voice; but for this purpose he should stand at least sixty-three or sixty-four feet from the reflecting obstacle, according to what has been said before. At the common rate of speaking, we pronounce not above three syllables and a half, that is, seven half syllables in a second; therefore, that the echo may return just as soon as three syllables are expressed, twice the distance of the speaker from the reflecting object, must be equal to 1000 feet; for, as sound describes 1142 feet in a second, six sevenths of that space, that is, 1000 feet nearly, will be described, while six half, or three whole syllables are pronounced: that is, the speaker must stand near 500 feet from the obstacle. And in general, the distance of the speaker from the echoing face, for any number of syllables, must be equal to the seventh part of the product of 1142 feet multiplied by that number. In churches we never hear a distinct echo of the voice, but a confused sound when the speaker utters his words too rapidly; because the greatest difference of distance, between the direct reflected courses of such a number of pulses, as would produce a distinct sound, is never in any church equal to 127 feet, the limit of echoes.

"But though the first reflected pulses may produce no echo, both on account of their being too few in number, and too rapid in their return to the ear; yet it is evident, that the reflecting surface may be so formed, as that the pulses which come to the ear after two reflections or more, may, after having described 127 feet or more, arrive at the ear in sufficient numbers, and also so nearly at the same instant, as to produce an echo, though the distance of the reflecting surface from the ear be less than the limit of echoes. This is confirmed by a singular echo in a grotto on the banks of the little brook, called the Dinan, about two miles from Castlecomber, in the county of Kilkenny. As you enter the cave, and continue speaking loud, no return of the voice is perceived; but, on your arriving at a certain point, which is not above fourteen or fifteen feet from the reflecting surface, a very distinct echo is heard. Now this echo cannot arise from the first course of pulses that are reflected to the ear, because the breadth of the cave is so small, that they would return too quickly to produce a distinct sensation from that of the original sound: it therefore is produced by those pulses, which, after having been reflected several times from one side of the grotto to the other, and having run over a greater space than 127 feet, arrive at the ear in considerable numbers, and not more distant from each other, in point of time, than the ninth part of a second."

The following are familiar *experiments* with sound.—I. Let a concave mirror of about two feet diameter, be placed in a perpendicular direction. The focus of this mirror may be fifteen or eighteen inches from its surface. At the distance of about five or six feet let there be a partition, in which there is an opening, equal to the size of the mirror; against this opening must be placed a picture, painted in water colours, on a thin cloth, that the sound may easily pass through it. Behind the partition, at the distance of two or three feet, place another mirror, of the same size as the former, and let it be diametrically opposite to it. Place the figure of a man seated on a pedestal, with his ear exactly in the focus of the first mirror: his lower jaw must be made to open by a wire, and shut by a spring; and there may be another wire to move the eyes; these wires must pass through the figure, go under the floor, and come up behind the partition. A person, properly instructed, should be placed behind the partition near the mirror. Then propose to any one to speak softly to the statue, by putting his mouth to the ear of it, assuring him that it will answer instantly. You then give the signal to the person behind the partition, who, by placing his ear to the focus of the mirror, will hear distinctly what the other said; and, moving the jaw and eyes of the statue by the wires, will return an answer directly; which, will in like manner, be distinctly heard by the first speaker. This experiment appears to be taken from the Century of Inventions of the marquis of Worcester: whose designs, at the time they were published, were treated with ridicule and neglect, as being impracticable, but are now known to be generally, if not universally, practicable. The words of the marquis are, "How to make a brazen or stone head in the midst of a great field, or garden, so artificial and natural, that though a man speak ever so softly, and even whisper into the ear thereof, it will presently open its mouth and resolve the question in French, Latin, Welsh, Irish, or English, in good terms, uttering it out of its mouth, and then shut it until the next question be asked."—The

two following, of a similar nature, appear to have been inventions of Kircher, by means of which, he used to "utter feigned and ludicrous consultations, with a view to show the fallacy and imposture of ancient oracles."

II. Let there be two heads of plaster of Paris placed on pedestals, on the opposite sides of a room. There must be a tin tube of an inch diameter, that must pass from the ear of one head, through the pedestal, under the floor, and go up to the mouth of the other. Observe, that the end of the tube, which is next the ear of the one head, be considerably larger than that end which comes to the mouth of the other. Let the whole be so disposed that there may not be the least suspicion of a communication. When a person speaks, quite low, into the ear of one bust, the sound is reverberated through the length of the tube, and will be distinctly heard by any one who shall place his ear to the mouth of the other. It is not necessary that the tube should come to the lips of the bust.—If there be two tubes, one going to the ear, and the other to the mouth, of each head, two persons may converse together, by applying their mouth and ear reciprocally to the mouth and ear of the busts; and at the same time, other persons that stand in the middle of the chamber, between the heads, will not hear any part of their conversation.

III. Place a bust on a pedastal in the corner of a room, and let there be two tubes, as in the foregoing amusement, one of which must go from the mouth, and the other from the ear of the bust, through the pedestal, and the floor, to an under apartment. There may be likewise wires that go from the under jaw and the eyes of the bust, by which they may easily be moved. A person being placed in the under room, and, at a signal given, applying his ear to one of the tubes, will hear any question that is asked, and immediately reply; moving at the same time, by means of the wires, the mouth and eyes of the bust, as if the reply came from it.

IV. In a large case, such as is used for dials and spring-clocks, the front of which, or at least the lower part of it, must be of glass, covered on the inside with gauze, let there be placed a barrel organ, which, when wound up, is prevented from playing, by a catch that takes a toothed wheel at the end of the barrel. To one end of this catch there must be joined a wire, at the end of which there is a flat circle of cork, of the same dimension with the inside of a glass tube, in which it is to rise and fall. This tube must communicate with a reservoir that goes across the front part of the bottom of the case, which is to be filled with spirits, such as is used in thermometers, but not coloured, that it may be the better concealed by the gauze. This case being placed in the sun, the spirits will be rarefied by the heat; and rising in the tube, will lift up the catch or trigger, and set the organ in play: which it will continue to do as long as it is kept in the sun; for the spirits cannot run out of the tube, that part of the catch, to which the circle is fixed, being prevented from rising beyond a certain point, by a check placed over it. When the machine is placed against the side of a room on which the sun shines strong, it may constantly remain in the same place, if inclosed in a second case, made of thick wood, and placed at a little distance from the other. When you want it to perform, it will be only necessary to throw open the door of the outer case, and expose it to the sun. But if the machine be moveable, it will perform in all seasons by being placed before the fire; and in winter it will more readily stop when removed into the cold.

V. Under the keys of a common harpsichord let there be fixed a barrel, something like that in a chamber organ, with moveable stops corresponding to the tunes you would have it play. From each of the keys let a wire descend perpendicularly: the ends of these wires must be turned up for about one fourth of an inch. Behind these wires let there be an iron bar, to prevent them from going too far back. Now, as the barrel turns round, its pins take the ends of the wires, which pull down the keys, and play the harpsichord. The barrel and wires are to be all enclosed in a case. In the chimney of the same room where the harpsichord stands, or one adjacent, let a smoke-jack be placed; with a wire or cord, that, passing behind the wainscot adjoining the chimney, goes under the floor and up one of the legs of the harpsichord, into the case, and round a small wheel fixed on the axis of that first mentioned. There should be pullies at different distances, behind the wainscot and under the floor, to facilitate the motion of the cord. This machinery may be applied to any other keyed instrument, as well as to chimes, and to many other purposes where a regular continued motion is required. An instrument of this sort may be considered as a perpetual motion, according to the vulgar acceptation of the term; for it will never cease going till the fire be extinguished, or some parts of the machinery be worn out.

ACQS, a small town at the foot of the Pyrenees, in the department of Arriege, France, famous for its hot springs.

ACQS, AQUE or DAX, an old city of France on the Adour. See DAX.

ACQUA, a town of Italy, in Tuscany, famous for warm baths, 15 miles E. of Leghorn.

ACQUAINT', v. } ACQUAINT'ABLE, } ACQUAINT'ANCE, } ACQUAINT'ANT. } *Accointer*: Old Fr. to go to; to makes one's self known to; to frequent the society of; to be intimate with; to inform.

And he was *a quointe* muche, to the quene of Fraunce,
And somdel to muche, as me wenne, so that in som thing
The quene louede, as me wende, more him than the king. *R. Gloucester.*

Sothelye dulle witte and a thoughtfulle soule so sore have mined and graffed in my spirites that soche craft of enditinge woll nat bin of mine *acquaintaunce.*
Chaucer's Testament of Love.

We, that *acquaint* ourselves with ev'ry zone,
And pass the tropicks, and behold each pole;
When we come home, are to ourselves unknown,
And unacquainted still with our own soul. *Davies.*

Brave soldier, pardon me,
That any accent, breaking from my tongue,
Should 'scape the true *acquaintance* of mine ear.
Shakspeare.

This keeps the understanding long in converse with an object, and long converse brings *acquaintance*.
South.

I hope, I am pretty near seeing you; and therefore I would cultivate an *acquaintance*: because, if you do not know me, when we meet; you need only keep one of my letters, and compare it with my face; for my face and letters are counterparts of my heart.
Swift to Pope.

A long noviciate of *acquaintance* should precede the vows of friendship. *Bolingbroke.*

CARDINAL G. For souls just quitting earth, peep into heaven;
Make swift *acquaintance* with their kindred forms,
And partners of immortal secrets grow.
Dryden's Duke of Guise.

Our admiration of a famous man lessens, upon our nearer *acquaintance with* him; and we seldom hear of a celebrated person, without a catalogue of some notorious weaknesses and infirmities.
Addison.

Acquaint yourselves with things ancient and modern, natural, civil, and religious, domestic and national, things of your own and foreign countries; and, above all, be well *acquainted* with God and yourselves; learn animal nature, and the workings of your own spirits. *Watts's Logick.*

He that becomes *acquainted*, and is invested with authority and influence, will in a short time be convinced, that in proportion as the power of doing well is enlarged, the temptations to do ill are multiplied and enforced. *Johnson.*

Acquaint thyself with God, if thou would'st taste
His works. *Cowper.*

ACQUAPENDENTE, an ancient town of Italy, in the patrimony of St. Peter, with a bishop's see, and lately containing sixteen churches and convents. It is seated on a hill near the Paglia, 50 miles, N. by W. from Rome, and 10 miles W. from Orvieto.

ACQUARIA, a town of Italy, in Frigana, a district of Modena, remarkable for its medicinal waters. It lies 18 miles S. from the city of Modena,

ACQUERIO, a decayed city, once of some note, in the province of Terra de Lavora, Naples.

ACQUEST, in law, goods acquired by purchase or donation, not by heritage.

ACQUI, a town and district of Italy, in the duchy of Montferrat, with a bishop's see, and commodious baths. It was taken by the Spaniards in 1745, re-taken by the Piedmontese in 1746, and afterwards dismantled by the French. It is seated on the river Bormio, or Bormida, on the high way from Finale to Alessandria, 17 miles S.S.W. of the latter. It is famous for a silk manufactory, which employs the greater portion of its inhabitants, reckoned (1802) at 6600. Lon. 8°, 35′ E. Lat. 44°, 40′ N.

ACQUIESCE′, *v.* / ACQUIES′CENCE, *n.* / ACQUIES′CENT. } Ad: *quiesco*: to rest in, to be still; to submit to what is proposed by conformity; to accept, receive or bear without dissatisfaction, or with pleasure and delight.

Others will, upon account of the receivedness of the proposed opinion, think it rather worthy to be examined, than *acquiesced in*. *Boyle.*

A nation, cast in the happy medium between the spiritless *acquiescence* of submissive poverty, and the sturdy credulity of pampered wealth; cool and ardent; adventurous and persevering; winging her eagle flight against the blaze of every science, with an eye that never winks, and a wing that never tires.
Curran's Eulogy of Scotland.

ACQUIETANDIS, PLEGIIS, a writ of justices lying for a surety against the creditor who refuses to acquit a debtor after the debt is paid.

ACQUIETANDIS IN SHIRIS ET HUNDREDIS, the being free from suits and services in shires and hundreds.

ACQUIETARE, in law, to discharge, or pay the debts of a person deceased; as the heir those of his father, &c.

ACQUI′RE, / ACQUI′RER, / ACQUI′RABLE, / ACQUI′REMENT, / ACQUI′RY, / AC′QUISITE, / ACQUISI′TION, / ACQUIS′ITIVE, / ACQUI′SITOR, / ACQUEST′. } Ad: *quæro*: *acquiro*: to ask, or seek for; to obtain as the result of power, or labour; to derive advantages not conferred by nature or inheritance.—Acquisition is applied to material and physical, and acquirement to mental and spiritual attainments.

The greatest goodnesse of all goodness, is when tirannies are put under by virtues *acquired*, or to find remedy against accustomed vices with good inclinations. *Golden Booke*, c. xv.

——————A lower place, not well,
May make too great an act. For learne this, Sillius,
Better to leaue vndone, than by our deed
Acquire too high a fame, when him we serue's away.
Shakspeare's Ant. and Cle. p. 351, act iii. sc. 1.

The human genius, with the best assistance, and the finest examples, breaks forth but slowly; and the greatest men have but gradually *acquired* a just taste, and chaste simple conceptions of beauty. *Usher.*

His servant he, with new *acquest*
Of true experience from this great event,
With peace and consolation hath dismist. *Milton.*

ACQUIT′ *v.* / ACQUIT′MENT, / ACQUIT′TAL, / ACQUIT′TANCE, *v. n.* } *Acquitter*: Fr. to deliver from; to give quiet to one accused, or held responsible; to release from a charge or obligation of any kind; to discharge the claims of duty; to act a part suitable to character or reputation.

Ne do I wish (for wishing were but vain)
To be *acquit* from my continual smart;
But joy, her thrall for ever to remain,
And yield for pledge my poor captived heart.
Spenser.

PRIM. We arrest your word,
Boyet you can produce *acquittances*
For such a sum from special officers
Of Charles his father.
Shakspeare's Love's Labour Lost.

But if black scandall and foule-fac'd reproach
Attend the sequell of your imposition;
Your meere enforcement shall *acquittance* me
From all the impure blots and staynes thereof.
Shakspeare.

But soon shall find
Forbearance, no *acquittance*, ere day end
Justice shall not return, as beauty, scorn'd.
Milton.

It is a great mercy that signifies a final and universal *acquittance*. *Bishop Taylor's Sermons.*

Steady to my principles, and not dispirited with my afflictions, I have, by the blessing of God on my endeavours, overcome all difficulties; and, in some measure, *acquitted* myself of the debt, which I owed the publick, when I undertook this work. *Dryden.*

He that judges without informing himself to the utmost that he is capable, cannot *acquit* himself of judging amiss. *Locke.*

ACQUITTAL is of two kinds: in *law*, and in *fact*. When two are indicted of felony, the one as principal the other as accessory; the principal being discharged, the accessory is, by consequence, also freed: in which case, as the accessory is acquitted by law, so is the principal in fact.

ACQUITTAL is also used, where there is a lord mesne and a tenant, and the tenant holds lands of the mesne, and the mesne holds over the lord paramount; here, the mesne ought to acquit the tenant of all services claimed by any other for the same lands.

ACQUITTANCE, in law, a release or discharge in writing for a sum of money, or a receipt for the same.

ACRA, or ACARA, a small independent state and town, on the Gold Coast of Africa, where the English, Dutch, and Danes, formerly had strong forts, and each fort its particular village. The whole district is about twenty-six miles in length, and varying in breadth from twelve to twenty miles. The English settlement is called Fort James, which is capable of mounting twenty cannon. It is generally ill-manned, and the Dutch Fort is gone wholly to decay. Acra was once dependent on the government of Aquamboe, but has of late years shaken off the yoke. The language is said to be unknown to any other district on the coast. Its situation is healthy, and its trade very extensive. The government is much more democratic than is generally known in this part of the world, and more gold is said to be yielded here, than in any other district of Guinea. The inhabitants are more civilized than most of the other nations of this coast, and keep up a freer intercourse with the interior. In busy parts of the year, the town is crowded with Ashantees, Fantees, Akims, Aquamboes, &c.

ACRA, in ancient geography, a promontory of Calabria, called Salenia, by Ptolemy: now Capo di San Maria di Leuca.

ACRA and ACRO, as a prefix to Greek names of places, imply their situation on an eminence; as *Acragas*, *Acrocerauuia*. Also one of the hills on which stood that part of Jerusalem which formed the old and lower city.

ACRÆ, an ancient Sicilian town, twenty-four miles south of Syracuse, near the present monastery of Santa Maura d'Arcia, between Nolo and Avula. Medals of this city, which appears to have been built on an eminence (Sil. Ital. lib. xiv.) are found in gold, silver and bronze.

ACRÆ, a fabulous daughter of the river Asterian, who gave her name to a mountain of Argolis, a country of Peloponnesus;—it was also used as a surname of Diana from a temple erected to her honour by Melampus on a mountain near Argos. *Paus.* ii. c. 17.

ACRAGAS, or AGRAGAS, in ancient geography, so called by the Greeks, and sometimes by the Romans, but more generally *Agrigentum*, by the latter; a town of Sicily, two miles from the sea, at the confluence of the Acragas and Hypsa; built by the people of Gela, A. A. C. 584. It was a sea-port of great strength, standing on the top of a very steep rock, washed on two sides by rivers, and having a citadel to the S.E. surrounded by a deep gulf, which made it inaccessible but on the side next the town. It was famous for the tyrant Phalaris and his brazen bull. The country around it was laid out in vine and olive yards, in the produce of which they carried on a great and profitable commerce with Carthage. See AGRIGENTUM.

ACRAPULA, or ACRAIPULA, Ακραπυλα, Gr. medicines to prevent the bad effects of eating and drinking to excess, or surfeits.

ACRAS, or rather ACHRAS, the wild pear. See SAPOTA.

ACRASIA, Gr. from *a* privative, and κεραννυμι to mix, in medicine, implies the predominancy of one quality above another, either with regard to artificial mixtures, or the humours of the human body, when not mixed in a just proportion. It was also used to express excess of any kind, which was called *Acrasia*, or the drinking of *unmixed* wines.

ACRASUS, in ancient geography, a town of Asia Minor, in Lydia. Some imperial Greek medals of this city still exist, which were struck under the prætors, in honour of Severus, and several other emperors.

ACRATH, in ancient geography, a place in Mauritania Tingitania, now *Velez de Gomare*: a citadel and commodious harbour on the Mediterranean in the kingdom of Fez.

ACRATISMA, in antiquity, a breakfast among the ancient Greeks, consisting of a morsel of bread soaked in pure unmixed wine.

ACRATOMELI. See MULSUM.

A'CRE, Saxon, Acepe; Latin, *ager*: a field, a measure of land; formerly applied to land of indefinite extent.

And ten *akers* of vynes shal geue but a quarte, and xxx bushels of sede shall geue but an epha.
Esay, c. v.—*Bible*, 1539.

Heathcote himself, and such large *acred* men,
Lords of fat Esham, or of Lincoln fen.
Pope's Imit. Horace.

ACRE, or ACRA a city of Palestine, the chief town and sea-port of a pachalic, of the same name, otherwise denominated, the pachalic of Saida, and extending from the Mediterranean on the west, to Jordan on the east; and from Nahr-el-kelb to the south of Cæsarea. It has been known by a variety of names. The Jews called it Acco or Accho. See *Judges*, ch. i. 31. The Arabians Akka. It was afterwards called Ptolemais, from the Ptolemies of Egypt; and St. John d'Acre, from the knights of Jerusalem. But its most ancient name was AKH, a name often seen on small bronze medals that have been found in the country.

Early travellers have said much about the splendour of this place; but Dr. Clarke assures us that it is like most other Turkish cities, mean and dirty, full of wretched shops and wretched people. The streets are so narrow, that but one

camel can pass at a time. The town, however, possesses some advantages of situation. On the north and east, is a fertile plain; on the west the breezes blow warm and fresh from the ocean. It stands on a bay, the coast of which is a perfect curve, and stretches three leagues, in a semicircular direction from the city to mount Carmel. But the marshes that lie contiguous, render it very unhealthy; it is ravaged by frequent distempers; and in the summer of 1760, no fewer than 7000 persons fell victims to the plague within the short space of five months. The harbour though bad, is the best the coast furnishes, and is said to be the key of Palestine; being the only avenue through which the inhabitants receive rice, the staple commodity. So that the pacha who holds Acre, has the power of drying up all the resources of Syria. It is sheltered from the north and north-west winds by the town: but has been greatly choked up in modern times. European vessels principally resort to Caifa, at the extremity of the bay opposite Acre.

Until recently, there were but a few wretched towers near the sea, on which cannon were mounted, which burst nearly as often as they were fired; but since the French attack on this place, they have been considerably improved. The city was anciently encompassed with a wall, within which Djezzar pacha constructed two others, filled the intermediate spaces with earth, and surrounded the whole with a moat or ditch; the outer wall being prolonged to the shore, and communicating with a fort built in the sea. The town itself has considerably diminished from its ancient extent, and stands at least a mile within the old wall. Few of its ancient buildings remain except the *iron castle*, so called from the side next the sea having been covered with a composition of that metal, and which is in a state of extreme decay. There is a mosque built by Djezzar pacha, a Greek church, an Armenian church, a Franciscan monastery, a Jewish synagogue, three khans or inns, and two bazaars or market places. The houses are principally of stone, flat-roofed, and with terraces. The palace of the knights of Saint John of Jerusalem is the present habitation of the pacha, in one of the halls of which is a fountain of various coloured marble, built by Daher, the son of Omar. Nearly adjoining the palace is another beautiful fountain, which was built of white marble, from the ruins of the ancient Cæsarea, and in the garden are some pillars of yellow variegated marble from the same place. The population of Acre in 1797 was computed at 20,000, who are a mixture of Turks and Arabs.

Josephus states this city to have belonged to the tribe of Ashur. It was held by Demetrius, son of Seleucus: it afterwards fell to Antiochus Epiphanes, was captured by the Hebrew Alexander, ceded to Ptolemy, and passed from him to Cleopatra. It was conquered by the Persians, and at last fell into the hands of Rome. Acre was the chief theatre of the crusades. Under the dominion of the Moors, it sustained many sieges; but on the 12th June, 1191, yielded to Philip of France and Richard I. of England, 100,000 Christians being said to perish in the siege, besides great numbers who were lost by shipwreck and disease. After this, nearly all the Christian powers in Europe and Asia enjoyed authority here; and in the thirteenth century, the town was filled with churches and convents, of which nothing is at present to be seen. In 1291 it was retaken by the Saracens, and as some say, was sacked and demolished; 60,000 Christians perishing on that occasion. This siege was rendered memorable by the following instance of female resolution. A number of beautiful young nuns, terrified at the prospect of being exposed to the lust of the Infidels, cut off their noses, and mangled their faces, to render themselves objects of aversion. The Saracens, inflamed with resentment, put them all to the sword. In the seventeenth century, Faccardin, prince of Druses, took possession of it; and choked up the harbour to defend himself from the Turkish vessels. The Turks, however, took it, and the pacha of Saide appointed an annual governor. Daher, the son of Omar, an Arab chief, now captured Acre by a sudden assault. He restored the importance of the place, built a palace, and mounted cannon. He was, however, attacked by a Turkish fleet; was taken and his head sent to Constantinople. To him succeeded Ahmed pacha, a Bosnian by birth, who in consequence of his barbarity was called Djezzar, or *butcher*, and who murdered several of his wives with his own hand. In his reign Buonaparte landed in Egypt; and the celebrated siege of Acre, in which Djezzar was so gallantly assisted by Sir Sydney Smith, commenced on the 18th of March, 1799. After a most dreadful carnage, in which prodigies of valour were exhibited on all sides, the French abandoned the place. On the death of Djezzar, Ismael pacha, his successor, was defeated by Suleiman, on whom the Porte conferred the pachalic; and this man, by his mild and pacific manners, has conciliated the country, and much improved the resources of the place. Acre is distant 27 miles S. of Tyre; 23 from, and to the N.N.W. of, Jerusalem. N. long. 32° 40′. E. lat. 39° 25′.

Acre, in commerce, the same with lack, and signifying the sum of 100,000 Mogul rupees; a pound sterling being equal to about eight rupees.

Acre, did not originally signify a determined quantity of land, but any open ground, especially a wide campaign; and in this antique sense it seems to be preserved in the names of places, as Castle-acre, West-acre, &c. In England, it contains four square roods; a rood being forty perches or poles, of sixteen feet and a half each by statute. Yet the length of the pole varies in different counties, from sixteen feet and a half to twenty-eight. The acre is also divided into ten square chains of twenty-two yards each, that is, 4840 square yards. An acre in Scotland contains four square roods: one square rood is forty square falls; one square fall, thirty-six square ells; one square ell, nine square feet and seventy-three inches: one square foot, 144 square inches. The Scots acre is also divided into ten square chains; the measuring chain should be twenty-four ells in length, divided into 100 links,

each link 8$\frac{25}{100}$ inches; and so one square chain will contain 10,000 square links. The English statute acre is about three roods and six falls standard measure of Scotland. The French acre, *arpent*, contains one English acre and a fourth, or 54,450 square English feet, whereof the English acre contains only 43,560. The Strasburg acre is about half an English acre. The Welsh acre contains commonly two English ones. The Irish acre is equal to one acre, two roods, and nineteen perches $\frac{37}{121}$, English.

ACRE FIGHT, an old sort of duel fought by English and Scottish combatants, upon the frontiers of the kingdoms, with sword and lance; it was also called *camp-fight*, and the combatants *champions*, from the open field being the stage of trial.

ACRE TAX, a tax laid on land at so much per acre; called also *acre-shot*.

ACREME, a term sometimes used in ancient law-books, for ten acres.

ACRESPIRE. See ACROSPIRE.

ACRIBEIA, Gr. *ακριβεια*, in medicine, a term literally denoting an exquisite or delicate accuracy; as in describing diseases, &c.

AC'RID, *adj.*
ACRIMO'NIOUS,
AC'RIMONY,
AC'RITUDE.
} *Ακρη*, a point, at once, sharp, bitter, pungent, and corrosive.

The malignity of soldiers and sailors against each other, has been often experienced at the cost of their country; and perhaps no order of men have an enmity of more *acrimony*, or longer continuance.
Rambler.

Most satyrists are indeed a public scourge,
Their mildest physic is a farrier's purge;
Their *acrid* temper turns as soon as stirred
The milk of their good purpose all to curd.
Cowper's Charity.

ACRID, in natural history, denotes any thing sharp or pungent to the taste. Ancient naturalists distinguish two kinds of *acrid* taste; the first proceed from hot and dry, as that of pepper; the second from hot and moist substances, as that of garlic. According to Grew, it properly belongs to the class of compound tastes. It is not simply sour or pungent, there being bodies not acrid, which yet are pungent, e. g. arum; nor is it simply hot; for there are many hot bodies which are not acrid, as the roots of zedoary, yarrow, and contrayerva. The characteristic, therefore, of acritude consists in pungency joined with heat. Acrids have been classed according as they yield their acrimony. First, by distillation; secondly, by infusion; and thirdly, by neither.

ACRIDOPHAGI, Gr. from *ακρις*, a locust, and *φαγω*, to eat, in ancient geography, an Ethiopian people, who are said to have fed on locusts, as their name imports. Diodorus Siculus and Strabo give marvellous details of their habits, and particularly their diseases. They seldom lived, they say, more than forty years, and were then attacked internally by winged lice, in such numbers, that it was impossible to exterminate them. It is well known, that to this day, the inhabitants of Ethiopia, Arabia, &c. frequently use locusts as food. Dr. Haselquist, who travelled in Syria and Egypt so late as the year 1752, speaks of the inhabitants of Arabia, Ethiopia, &c. using locusts as food. He was told, by a learned sheik at Cairo, who had lived six years in Mecca, that a famine frequently rages, at the latter place, when there is a scarcity of corn in Egypt, and obliges the inhabitants to live upon coarser food than ordinary. That the Arabians then grind locusts in hand-mills, or stone mortars, and bake them into cakes. Sometimes they boil them, stew them with butter, and make them into a kind of fricasee; which is not disagreeably tasted. A later traveller, Dr. Sparrman, informs us, "The locusts afford a high treat to the more unpolished and remote hordes of the Hottentots: when, as sometimes happens, after an interval of eight, ten, fifteen, or twenty years, they make their appearance in incredible numbers." The Abbé Poiret, also, in his 'Memoir on the Insects of Barbary and Numidia,' informs us, "That the Moors make locusts a part of their food; that they go to hunt them; fry them in oil and butter; and sell them publicly at Tunis, at Bonne, &c." "The Jews," as Dr. Shaw observes, "were allowed to eat them. When sprinkled with salt, and fried," he adds, "their taste resembles that of our fresh-water cray-fish." Russel also says, the Arabs salt and eat them as a delicacy. These accounts sufficiently explain the Scriptural statement respecting the food of John the Baptist in the wilderness, *Matt.* iii. 4. For while some maintain, that the original word signifies 'the tops of certain herbs,' or 'the fruits' of trees; and others have supposed it means quails; Shaw contends it is applied to the locust on account of its appetite for such food. The word is used by Aristotle, and other historians, in the same sense, and therefore the literal interpretation of it may be received. See *Strabo*, lib. xvi. *Athenæus*, lib. xlix. *Plin. Nat. Hist.* lib. vi. and xi. *Hieronymis Opera*, tom. iv. *Barrow's Travels*, vol. i. *Drake's Voyages*. *Buffon, Nat. Hist.* vol. vi. *Bryant on the Plagues of Egypt*, art. Locusts. *Harmer's Observations*, vol. ii., &c.

ACRIS, in natural history, a name given to the locust, because it is said to feed *τας ακρας των φυτων*, on the tops of trees.

ACRIS, in surgery, the extremity of a fractured bone.

ACRISIUS, in mythology, a king of Argos, who being told by the oracle that he should be killed by his grandchild, shut up his only daughter Danaë in a brazen tower; but Jupiter came down to her in a golden shower, and Perseus, who afterwards killed Acrisius, was the fruit of their amour.

ACRISY, *Ακριςια*, Gr. from *a*, negative, and *κρινω*, to judge of, in medicine, that state of a disease in which no right judgment can be formed of its issue.

ACRITAS, in ancient geography, a promontory of Messenia, now *Capo di Gallo*, between Methone to the W. and Corone to the E. where the Sinus Coronæus begins.

ACRIVIOLA, in botany, the nasturtium Indicum, or Indian cress.

ACROAMA, *ακροαομαι*, to hear, in philosophy, theology, &c. any thing sublime, profound, or abstruse; hence ACROAMATICI, was a denomination given to those disciples of Aristotle,

&c. who were admitted into the secrets of the inner or acroamatic philosophy.

ACROATHON, or ACROATHOUM, in ancient geography, a town on the top of mount Athos, whose inhabitants, according to Mela, lived much longer than in any other country: it is now *La Cima di Monte Santo.*

ACROBALYTÆ, of *ακρος*, and *βαλλω*, to throw, a name given to the soldiers of Tarentum, who were famous for throwing the javelin to great distances, while on horseback.

ACROBATICA, or ACROBATICUM, from *ακρος*, high, and *βαινω*, I go; an ancient climbing engine, among the Greeks, similar to the scansorium among the Latins. Vitruvius and Aquinus suppose it to have been used for both civil and military purposes.

ACROCERAUNIUM, in ancient geography, a promontory of Epirus, on which are situated the ACROCERAUNIA, or MONTES CERAUNII, *ακρος* high, *κεραννος* thunder; so called from their being often thunder-struck. They ran between the Ionian sea and the Adriatic; where Illyria ends, and Epirus begins; and are the modern Monti della Chimera. They are called by Horace, *Infernes scopulos.*

ACROCHIRISMUS, *ακροχειρισμος*, among the ancient Greeks, a kind of gymnastic exercise, wherein only the hands and fingers were employed. Hippocrates ascribes to it a virtue of extenuating the rest of the body, and making the arms fleshy.

ACROCHOLIA, *ακροκωλια* from *ακρος*, extreme, and *κωλον*, a limb. Those extremities of animals, which are used in food, or of which jellies are made. Also an ancient name for the pensile wart. See WART.

ACROCORINTHUS, in ancient geography, a steep hill, over hanging the city of Corinth, famous for an acropolis, or citadel. On its top stood a temple of Venus; and lower down issued the fountain of Pyrene.

ACRODRYA, from *Ακρον*, and *δρυς*, an oak, in natural history, all fruits, that have rinds, or shells, such as acorns, almonds, &c.

ACROK'E. On Crook. See CROOK.

ACROMION, or ACROMIUM, from *Ακρος*, and *ωμος*, shoulder, in anatomy, the upper part of the scapula or shoulder-blade. See ANATOMY.

ACROMONOGRAMMATICUM, from *ακρος*, *μονος*, *γραμμα*, letter, among poets, a kind of poem, or composition, wherein each subsequent verse commences with the letter with which the verse preceding terminates.

ACROMPHALIUM, or ACROMPALON, *ακρος*, and *ομφαλος*, the navel; the tip of the navel.

ACRON, a physician of Agrigentum, who recommended lighting large fires, and purifying the air with perfumes, to stop the pestilence that raged at Athens, about A. A. C. 473. Also a king of the Ceninenses, whom Romulus slew.

ACRON, a district of the Fantee territory, on the Gold Coast of Guinea, Africa. Its capital is Assam, or Apam, a commodious sea-port, where the Dutch have a small fort. This place was destroyed with most of the inhabitants, in 1811, by the Ashantees. A week after it was plundered and laid in ruins by Attah, late king of Akim; it is about fifty miles E. N. E. of Cape Coast. GREAT ACRON is a kind of republic, farther inland.

ACRON, or ACROS, in botany, among the ancients, the capitulum, top, or flower of a plant. Also in medicine, that which is most excellent Likewise the height, or crisis of a disease.

ACRONIUS LACUS, in ancient geography, a lake formed by the Rhine, soon after its rise out of the Alps, and after passing the greater lake at Constance, called Venetus, and now the Bodensee, or Lesser Lake of Constance.

ACRONYCHAL, or ACRONICHUS. See ACRON. This appellation was particularly applied to the superior planets, when they were come to the meridian of midnight.

ACRONYCTÆ, in astronomy, stars, rising in the twilight, about sun-setting.

ACROPOLIS, in ancient geography, the citadel, and one of the divisions of Athens; the citadel standing on a rock or eminence was inaccessible, except on one side. At the foot was the temple of Minerva.

ACROPOLITA, (George,) one of the Byzantine historians, was born at Constantinople, in 1220, and employed in some of the most important affairs of the empire; being sent ambassador to Larissa, to establish a peace with Michael of Epirus; and constituted judge to try Michael Comnenus, suspected of engaging in a conspiracy. He wrote a continuation of the Greek history, from the taking of Constantinople by the Latins, till it was recovered by Michael Palæologus, (to whom he was chancellor,) in 1261, a treatise concerning Faith, Virtue, and the Soul; an Exposition of the Sermons of St. Gregory Nazianzen, &c.

ACROPOSTHIA, from *ακρος*, extreme, and *ποσθη*, the prepuce, the extremity of the prepuce, which is cut off in circumcision.

ACROSPELOS, in botany, the wild oat grass, or bromus.

ACROSPIRE, in natural history, &c. the same with PLUMULE, which see.

ACROSS'. On Cross. See CROSS.

> When other louers in armes *acrosse*,
> Reioice their chiefe delight;
> Drowned in teares to mourne my losse.
> I stand the bytter nyght
> In my window. *Surrey.*

It was anciently the manner for the bishop to lay both his hands *across* on the head of the confirmed, not only in imitation of Jacob, but in allusion to the death of Christ in whom we believe, and from whom we receive the Holy Ghost. *Comber's Companion.*

ACROSTICK, from *ακρος*, extremity, and *στιχος*, verse, a poetical composition, in which the initial letters of the lines or the verses form the name of some person or thing. The acrostic is obviously an artificial and adventitious arrangement of poetry; and has been very fancifully and even fantastically cultivated. Sometimes the acrostic has been formed of the first letters of the lines, sometimes of the last, and sometimes it is to be read downwards, and at others upwards.

The appellation has been applied by some authors to two ancient epigrams in the Anthology; in honour of Bacchus and Apollo. Each con-

sists of twenty-five verses, the first whereof is the argument of the whole, and the other twenty-four composed of four epithets, beginning each with the same letter, and thus following in the order of the twenty-four letters of the Greek alphabet, from A to Ω; each comprehending four epithets, which makes ninety-six in all for each god.

The most curious of these fanciful acrosticks which we have seen, occurs in the "De Laude Virginum," of the celebrated Aldhelm. It consists of thirty-eight lines, each beginning and ending with the successive letters of the words of the first line, and thus the first and last lines, and the initial and final letters of each line consist of the same words. Only in the last line the words occur backwards, and the final letters are to be read upwards throughout the piece.

M etrica Tirones nunc promant carmina casto S
E t laudem capiat quadrato carmine virg O
T rinus in arce Deus, qui pollens secla creavi T
R egnator mundi regnans in sedibus alti S
I ndigno conferre mihi dignetur in æthr A
C um sanctis requiem, quos laudo versibus isti C
A rbiter altithronus qui servat sceptra supern A
T radidit his cœli per ludum scandere lime N
I nter sanctorum cuneos qui laude perenn I
R ite glorificant moderantem regna tonante M
O mnitenens dominus, mundi formator et aucto R
N obis pauperibus confer suffragia cert A
E t ne concedas trudendos hostibus istin C
S ed magis exiguos defendens dextera tanga T
N e prædo pellax cœlorum claudere lime N
V el sanctos valeat noxarum fallere scen A
N e fur strophosus foveam detrudat in atra M
C onditor a summo quos Christus servat Olymp O
P astor ovile tuens ne possit tabula rapto R
R egales vastans caulas bis dicere pup pu P
O mnia sed custos defendat ovilia jam nun C
M axima præcipuum quæ gestat numine nome N
A ddere præsidium mater dignare precat U
N am tu perpetuum promisisti lumine lume N.
T itan quem clamant sacro spiramine vate S
C ujus per mundum jubar alto splendet ab Ax E
A tque polos pariter replet vibramine fulmen N
R ex regum et princeps populorum dictus ab æv O
M agnus de magno de rèrum regmine recto R
I llum nec mare nec possunt cingere cœl I
N ec mare navigerum spumoso gurgite valla T
A ut zonæ mundique stipant æthera cels A
C laromur vitam qui castis moribus isti C
A uxiliante Deo vernabant flore perenn I
S anctis aggrediar studüs dicere paupe R
T anta tamen digne si pauper prœmia proda T
O mnia cum nullus verbis explanat apert E
S otsac animrac tnamorp cnun senorit acirte M.

Aldhelm quaintly calls this *quadratum carmen*, a square verse.

But the acrostick form of verse, which has been called alphabetical poetry, has clearly been employed for useful purposes. When books were few, and writing could but rarely be resorted to as a record, the acrostic form of poetry presented an easy method of assisting the memory to retain detached sentences: and thus moral maxims and forms of devotion were preserved from age to age, which might otherwise have been lost. We have upon this principle seven of the psalms of the Hebrew old Testament, a poem, Proverbs xxxi. 10—31, and four chapters of Jeremiah's Lamentations, regular acrosticks, i. e. three of them perfectly alphabetical, in which every line is marked by its initial letter, and the other nine in which the stanzas are so distinguished. For other peculiarities of these singular poems, we refer the reader to "Bishop Lowth's Lectures on the Hebrew Poetry."

Acrostics, among ecclesiastical writers, denote the end of verses of psalms, which the people sang by way of chorus, or response, to the *præcentor*, or leader of the psalm.

ACROSTICUM, Rustyback, Wall-rue, or Fork-fern, in botany, a genus of plants of the class cryptogamia, order filices. The fructifications are accumulated on the whole inferior surface of the frond, so that they every where cover it.

ACROSTOLIUM, in ancient naval architecture, the extreme part of the ornament on the prows of ships; which it was usual to tear off from vanquished vessels, and fix them to the conqueror's, as a token of victory.

ACROTELEUTIC, from *ακρος* and *τελος*, end, among ecclesiastical writers, the end of a verse or psalm; or something added thereto, to be sung by the people, as the *Gloria Patri*, &c.

ACROTERIA, among ancient physicians, signified the larger extremities of the body, as the head, hands, and feet, and their extremities.

Acroteria, in architecture, little pedestals without bases, placed at the middle and the two extremes of pediments, sometimes serving to support statues; also the statues themselves in such situations.

ACROTERIASM, in old surgery, was the act of cutting off the extreme parts of the body, i. e. the amputation of any extremity.

ACROTHYMIA, or Acrothymion, from *ακρος*, extreme, and *θυμος*, thyme, a sort of wart, described by Celsus as hard, and rough, with a narrow basis and broad top; the top is of the colour of thyme; it easily splits and bleeds. It is also called *thymus*.

ACT, *v. n.*
Ac'tion,
Ac'tionable,
Ac'tionless,
Act'ivate,
Act'ive,
Ac'tively,
Acti'veness,
Activ'ity,
Act'less,
Ac'tor,
Ac'tress,
Ac'tual,
Actual'ity,
Ac'tually,
Ac'tuate,
Actua'tion.

Ago, *actum*, to do; to exercise any power or faculty; to perform, to assume a character or part, used extensively in a judicial and legislative sense.—Act signifies a thing done. Action a doing; the former expressing an incident, the latter a habit or process. To actuate, is to influence the act of another.

And this way is cleped penance; of which man shuld gladly herken and enqueren with all his hirte, to wete, what is penance, and whennes it is cleped penance, and how many maner es ben of *actions* or workings of penance. *Chaucer Personnes Tale*

You, that are king, though he do wear the crown,
Have caus'd him, by new *act* of parliament,
To blot out me. *Shakspeare's Henry VI.*

Bot. Are we all met?
Quin. Pat, Pat, and here's a marvellous convenient

place for our rehersal. This green plot shall be our stage, this hawthorn brake our tyring house, and we will do it in *action*, as we will do it before the duke.

Shakspeare's Midsummer Night's Dream.

YORK. As in a theatre, the eyes of men,
After a well grac'd *actor* leaves the stage,
Are idly bent on him that enters next,
Thinking his prattle to be tedious:
Even so, or with much more contempt, men's eyes
Did scowle on Richard.

Shakspeare's K. Richard II.

The world hath had in these men fresh experience, how dangerous such *active* errors are.

Hooker.

Active and stirring spirits live alone,
Write on the others, Here lies such a one.

Herbert.

As wounds once healed leave a scar behind them, so remitted injuries leave commonly in the *actors* a guilty remembrance. *Hall's Contemplations.*

This earth is only made for *action*, not for fruition.

Idem.

Only the *actions* of the just,
Smell sweet and blossom in the dust. *Shirley.*

It is an *act* of profanation for any unholy person to handle holy things, and holy offices.

Bishop Taylor's Sermons.

Some bend the stubborn bow for victory;
And some with darts their *active* sinews try.

Dryden.

'Tis virtuous *action*, that must praise bring forth;
Without which, slow advice is little worth:
Yet they, who give good counsel, praise deserve;
Tho', in the *active* part they cannot serve. *Denham.*

Honour and shame from no condition rise:
Act well your part; there all the honour lies.

Pope.

The frequent contemplation of death, as it shows the vanity of all human good, discovers likewise the lightness of all terrestrial evil, which certainly can last no longer than the subject upon which it *acts*.

Rambler.

If we consider him in his omnipresence; his being passes through, *actuates*, and supports the whole frame of nature. *Spectator.*

A lively faith is able to anticipate in some measure, the joys of that heavenly society, which the soul shall *actually* possess hereafter.

Cowper's Letters.

ACT, *Actus*, in physics, an effective exercise or application of some power or faculty. In this sense, *act* stands opposed to power, *potentia*, which is only the capacity of acting, not the exertion of that capacity.—Metaphysicians give various divisions of act; viz. into infinite, as the act of creating; and finite, as the act of moving:—transient, or those exercised in other beings, as heating; and immanent, which remain in their own subject, as thinking.

ACTA CONSISTORII, the edicts or declarations of the council of state of the Roman emperors, upon which the senate and soldiers often swore, either through flattery or compulsion, as we do upon the Bible.

ACTA DIURNA, and ACTA POPULI, were a sort of Roman gazette, containing an authorized narrative of the transactions worthy of notice which happened at Rome. They differed from Annals in that only the greater and more important matters were recorded in the latter, and those of less note in the former. Their origin is attributed to Julius Cæsar; but some trace them to Servius Tullius.

ACTA SENATUS, acts of the senate, were minutes of what passed and was debated in the senate house. These were also called *Commentarii* and *υπομνηματα*.

ACT, in law, an instrument in writing, for declaring or justifying the truth of any thing. In which sense, records, decrees, sentences, reports, certificates, &c. are called acts.

ACT, in logic, is particularly understood of an operation of the human mind. Thus to discern and examine, are acts of the understanding; to judge and affirm, are acts of the will, &c.

ACT, in the universities, signifies a thesis maintained in public by a candidate for a degree. The candidates for a degree of bachelor and master of arts are to hold philosophical acts; and those for bachelor of divinity, theological acts, &c. At Oxford, the time when masters or doctors complete their degrees is also called the act; which is held with great solemnity. At Cambridge, they call it the commencement.

ACT OF FAITH, *Auto da Fé*, in the Romish church, is, or rather was, a solemn day held by the Inquisition, for the punishment of heretics, and the absolution of the innocent. See INQUISITION.

They usually contrived the Auto to fall on some great festival, that the execution might impress the greater awe. A competent number of prisoners in the Inquisition being convicted of heresy, either by their own voluntary or extorted confession, or on the evidence of witnesses, they were, in the morning of the day, brought into the great hall, where they were attired for the procession. This was generally led by Dominican friars; after which came the penitents, some with san-benitoes, and some without, according to the nature of their crimes; being all in black coats without sleeves, and bare-footed, with a wax candle in their hands. Then followed the penitents who had narrowly escaped being burnt, who over their black coats had flames painted with their points turned downwards. Next came the negative and relapsed, who were to be burnt, having flames on their habits pointing upwards. After these, such as professed doctrines contrary to the faith of Rome, who, besides flames pointing upwards, had their picture painted on their breasts, with dogs, serpents, and devils, all open-mouthed, about it: each prisoner attended with a familiar of the Inquisition: and those to be burnt having a Jesuit on each hand, who was continually exhorting them to abjure. After the prisoners, came a troop of familiars on horseback; then the inquisitors, and officers of the court, on mules; and last of all, the inquisitor-general on a white horse, led by two men with black hats and green hatbands. At the place of execution, the prisoners were placed at one end of a large scaffold, the inquisitors at the other. A sermon was preached, and a priest ascended a desk near the middle of the scaffold, to take the abjuration of the penitents, and recite the final sentence of those who were to be put to death. These were now formally and most hypocritically delivered

to the secular magistrates, who were at the same time besought not to touch their blood, or put their lives in danger! The prisoners were now carried to the secular gaol loaded with chains, and brought thence in an hour or two before the civil judge; who, after asking in what religion they intended to die, sentenced such as professed the religion of Rome, to be first strangled, and then burnt to ashes; and such as died in any other faith, to be burnt alive. Both classes then returned to the place of execution, where stakes were prepared, for such as persisted in their heresy, about four yards high, having a small board towards the top for the prisoner to be seated on. The negative and relapsed being first strangled and burnt, the professed mounted their stakes by a ladder; and the Jesuits, after exhorting them to be reconciled to the church, left them with the assurance that the devil was standing at their elbow to receive their souls, and carry them with him into hell. On this, the cry was, let the dogs' *beards be made*; which was done by thrusting flaming furzes, fastened to long poles, against the prisoners' faces, till they were burnt to a coal. At last, fire was set to the furze at the bottom of the stake, and the flame seldom reaching higher than the seat they sat on, they were rather roasted than burnt to death, amidst the most savage exclamations of joy!

We have narrated these horrid scenes in the past tense, sincerely hoping and believing they are for ever past, as pretended acts of religion, even in the most devoted popish countries. The inquisition is, in Portugal and Spain, at this time, rather an irregular and badly conducted court for the punishment of civil offences. But the record of these atrocities had need remain awhile before us, that those countries who are most entirely emancipated, may never more return to that domination of the priesthood that originated them.

Act of Grace, in English law, an extraordinary act of the king in council, whereby, at the beginning of a new reign, or on other great occasions, a free pardon has been sometimes granted to criminals.

Acts of the Apostles, one of the sacred books of the New Testament, containing the history of the infant church, during the space of twenty-nine or thirty years, from the ascension of our Lord to the year of Christ 63.—It was written by St. Luke, and addressed to Theophilus, the person to whom the evangelist had before dedicated his gospel. The style of this work, which was originally composed in Greek, is much purer than that of the other canonical writers; and it is observable, that St. Luke, in his quotations from the Old Testament, always makes use of the Septuagint version. It may likewise be remarked, that *less* critical attention has been paid to this book in our own country, than to any other part of the New Testament.

Acts of the Apostles, spurious: Of these there were several, particularly; 1. *Acts*, supposed to be written by Abdias, the pretended bishop of Babylon, who gave out that he was ordained bishop by the apostles themselves, when they were upon their journey into Persia. 2. *The Acts of St. Peter*; from the school of the Ebionites. 3. *The Acts of St. Paul.* Eusebius, who had seen it, pronounces it of no authority. 4. *The Acts of St. John the Evangelist*; 5. *The Acts of St. Andrew*; 6. *The Acts of St. Thomas the Apostle*; received particularly by the Manichæans. 7. *The Acts of St. Philip*; 8. *The Acts of St. Matthias.*

Acts of Councils, in ecclesiastical affairs, contain the proceedings, debates, motions, &c. as well as the canons delivered. Hence we have two kinds of synodical collections, one containing all the acts, or transactions, relating to matters of faith and doctrine; the other, containing only the canons relating to discipline, called the Book of Canons.

Acts of Pilate, in ecclesiastical history, a relation said to have been sent by Pilate to the emperor Tiberius, concerning Jesus Christ, his death, resurrection, &c. as testified by Tertullian, in his Apol. cap. 5. and 20, 21. The heretics forged Acts in imitation of them, but both the genuine and the spurious are lost.

ACTÆA, in botany, the *Aconitum Racemosum*, *Herb Christopher*, or *Bane-berry*; a genus of the monogynia order, belonging to the polyandria class of plants. Its characters are: Cal. a perianthium consisting of four roundish, obtuse, concave leaves, which fall off. Cor. four petals, larger than the calyx, pointed at both ends, and falling off. Stam. numerous capillary filaments; the antheræ roundish, erect, and didymous. Pist. an ovate germen; no stylus; the stigma thickish and obliquely depressed. The seeds are very numerous, semiorbicular, and incumbent in a double order. There are four species; viz.

1. *Actæa Alba*, the American herb christopher, a native of North America.

2. *Actæa Cimicifuga*, a native of Siberia.

3. *Actæa Japonica*, the Japanese herb christopher, a shrub, native of Japan.

4. *Actæa Racemosa*, or American black or wild snakeroot, a native of North America.

5. *Actæa Spicata*, or common herb christopher, a native of several parts of Britain.

ACTÆON, in fabulous history, the son of Aristæus and Autonoe, a great hunter. He was turned by Diana into a stag, for looking on her while bathing; and was torn to pieces by his own dogs. Also, a Corinthian youth, killed by Archias, one of the Heraclidæ, in an attempt to carry him off from his father's house. *Plut. in Amat. Narrat.*

ACTANIA, in ancient geography, an island in the North Sea, west of Holstein, and not far from the mouth of the Eyder and Elbe; now *Heligoland.*

ACTE, in botany, the elder. See Sambucus.

Acte, in mythology, one of the Horæ. 2. In history, a mistress of Nero, of the family of Attalus.

ACTIAN games, in Roman antiquity, solemn games instituted by Augustus, in memory of his victory over Marc Anthony at Actium, A. U. C. 714, B. C. 37. They were celebrated every fifth year. Virgil insinuates them to have been instituted by Æneas. Æn. iii. v. 280.

Actiaque Iliacis celebramus littora ludis.

By way of compliment to Augustus; attributing

that to the hero from whom he descended, which was done by the emperor himself.

ACTILIA, military utensils.

ACTINE, *ακτινη*, in botany, a name of the herb bunias, or napus; the brassica napus of Linnæus.

ACTINIA, in zoology, a genus belonging to the order of vermes molluscæ. Its genuine characters are, the body oblong and smooth, attaching itself firmly by its basis to rocks or other solid substances, having a dilatable apex hooked within. The mouth furnished with crooked teeth, the rostrum cylindrical and radiated. There are five *species*, some of which make a beautiful appearance and are called *Animal Flowers*, *Sea Anemonies*, and *Urtica Marina*. They are viviparous, and form one of those wonderful links in the chain of creation, that connect the animal and vegetable kingdoms, by partaking of the nature of both. See ANIMAL FLOWER.

ACTINOBOLISM, from *ακτιν*, a sun beam, and *βολις*, a plumb line, in physics, diffusion, or the diradiation of light or sound, by which it flows every way from its centre. Also, applied in medicine, to the diffusion of the animal spirits, by which they convey the dictates of the mind to the organs of voluntary motion.

ACTINOLITE, in mineralogy, the actinotus vitreous of Linnæus, strahlstein of Werner, and amphibole actinote hexædre of Haüy; having three varieties, the crystallized, the asbestous, and the glassy. It is principally found in primitive districts, with a magnesian basis, never in secondary mountains. It accompanies talc, and some micaceous rocks, and abounds in the Tyrol, Mount St. Gothard, in Saxony, Norway, and Piedmont. It is also found in Cornwall and Wales, and some of the Scottish isles.

ACTIO, in Roman antiquities, an action at law, in a court of justice. The formalities were generally these: The injured person proceeded *in jus reum vocare*, to summon the offending party to the court, who was obliged to go, or give bond for his appearance. He could be summoned *vivâ voce*, by the plaintiff. If he would not go willingly, he might compel him, calling any by-standers to bear witness, by asking them *visne antestari;* the by-standers upon this turned their ear towards him in token of their consent. To this Horace alludes, lib. i. sat. 9. See ANTESTARI. The parties having met before the prætor, or other magistrate, the plaintiff stated his case, termed *edere actionem*, commonly performed by writing it on a tablet, and offering it to the defendant. Next came the *postulatio actionis*, or the plaintiff's petition to the prætor, for leave to prosecute. This was granted by writing at the bottom of it *actionem do*, or refused by writing *non do*. The petition being granted, the plaintiff *vadabatur reum*, i. e. obliged the defendant to give sureties for his future appearance in court. Meantime, the difference was often made up, either *transactione*, by letting the cause fall as dubious; or *pactione*, by composition. On the day appointed, the parties were summoned by an *accensus*. (See ACCENSI.) Upon the non-appearance of either, the defaulter lost his cause: —if they both appeared, the plaintiff proceeded *litem sive actionem intendere*, i. e. to prefer his suit; and desired judgment of the prætor, that is, to be allowed a *judex* or *arbiter*, or else the *recuperatores* or *centumviri;* which the prætor having assigned by the consent of both parties, and determined the number of witnesses to be admitted; the judges took a solemn oath to be impartial; and the parties the *juramentum calumniæ*. Then the trial began, which was called *disceptatio causæ*.

ACTION, in commerce, is a term used abroad for a certain part or share of a public company's capital stock: which is sold and transferred much in the same manner as stocks are with us. The proprietor is called an *actionary*

ACTION, in ethics, denotes the external signs or expressions of the sentiments of a moral agent.

ACTION, in farriery, is spoken of a horse, and expresses the general character of his motion. It is particularly applied to actions of his mouth.

ACTION, in oratory, is the outward deportment of the orator, or the accommodation of his countenance, voice, and gesture, to the subject of which he is treating. See ORATORY.

ACTION, in painting and sculpture, is the attitude or position of the several parts of the face, body, and limbs of such figures as are represented, and whereby they seem to be really actuated by passions. Thus we say, the action of such a figure finely expresses the passions with which it is agitated: we also use the same expression with regard to animals.

ACTION, in poetry, the same with subject or fable. Critics generally distinguish two kinds, the principal and the incidental. The principal action is what is generally called the *fable;* and the incidental an *episode*. See POETRY.

ACTIONS, among merchants, sometimes signify moveable effects; and we say the merchant's creditors have seized on all his actions, when we mean that they have taken possession of all his assets.

ACTIONARE, in law, to prosecute.

ACTIVE, in chemistry, is sometimes applied to those principles which are supposed to act of themselves, and do not need to be put in action by others: thus salt, sulphur, and mercury, are usually considered as active principles; and phlegm, earth, &c. as passive ones.

ACTIVE POWER, in metaphysics, the power of executing any work or labour: in contradistinction to speculative powers, as those of seeing, hearing, reasoning, &c. See METAPHYSICS.

ACTIVE PRINCIPLES. See ACTIVE in chemistry.

ACTIVE VERBS, are such as do not only signify doing, or acting, but have also nouns following them to be the subject of the action or impression. Thus *to love*, *to teach*, are verbs active; because we can say; *to love a thing, or teach a man*. See VERB.

ACTIUM, in ancient geography, a town situated on the coast of Acarnania, famous for a temple of Apollo, a safe harbour, and an adjoining promontory of the same name, in the mouth of the Sinus Ambracius over against Nicopolis. It afterwards became still more famous by Augustus's victory over Antony and Cleopatra; and for quinquennial games instituted there, called *Actia*. See ACTIAN GAMES.

ACTIUM, the promontory of, now called *Capo di Figalo, or Figo.*

ACTIUS, in mythology, a surname of Apollo, from Actium, where he was worshipped.

ACTON BURNEL, a village in Shropshire, eight miles from Shrewsbury, so named from the Burnels, who had a castle in it, once a magnificent structure, and now a fine ruin. A parliament was held here, in the reign of Edward I. wherein a statute, called the Statute Merchant, was made for the recovery and assurance of debts.

ACTON, EAST, a small town, 5 miles W. of London, once a place of considerable resort for its mineral waters, which have now fallen into disuse. The Uxbridge canal passes close by. It is a hamlet of.

ACTON, WEST; and both places derive their names from the Saxon Ac, or Aac, i. e. oak, which once abounded here.

ACTOR, among civilians, the proctor or advocate in civil courts or causes; as, *Actor ecclesiæ*, the advocate of the church; *actor dominicus*, the lord's attorney, &c.

ACTOR, in fabulous history, a warrior among the Aurunci, described by Virgil as a hero of the first rank. *Æn.* xii. Also, a son of Myrmidon and Physidice, the father of Menœtius. Patroclus was called, after him, Actorides.

ACTORUM TABULÆ, in Roman antiquity, tables in which the births of children were registered. They were commenced by Servius Tullius, and kept in the treasury of Saturn.

ACTRESSES, in the drama, appear to have been wholly unknown to the ancients, men or eunuchs always performing the female parts. Charles II. is said to have first encouraged their public appearance in England; but there is evidence that the queen of James I. performed in a court theatre. Originally the drama consisted of nothing more than a simple chorus, who sung hymns in honour of Bacchus. Thespis was the first that, in order to relieve this uniform chorus, introduced a declaimer who repeated some heroic or comic adventure. Æschylus introduced a second, changed the ancient recitals into dialogues, and improved the dresses of his actors. To him is attributed the addition of the cothurnus or buskin. Sophocles added a third, in order to represent the various incidents in a natural manner; and we do not find in any of the Greek tragedies above three persons in the same scene; a rule Horace thus alludes to,

Nec quarta loqui persona laboret.

This, however, did not prevent their increasing the number of actors in a comedy. Before the opening of a play, they named their actors in full theatre, together with the part they were to perform. The ancient actors were generally masked. Horace speaks of a kind of secondary actors in his time, whose business it was to imitate the first; and by their inferior performances, become foils to their principal. At Athens, actors were highly honoured. At Rome they were despised, and not only denied all rank among the citizens, but even when any one appeared upon the stage, he was expelled his tribe, and deprived of the right of suffrage. Cicero, indeed, esteems the talent of Roscius; but he values his virtues still more; virtues which distinguished him so remarkably above all others of his profession, that they seemed to have excluded him from the theatre.

ACTUAL, in philosophy and medicine, is opposed to potential, and is applied to any thing endued with a quality which operates by an immediate power inherent in it. For example, hot iron is called an actual cautery, in contradistinction from chemical caustics, which have a power of producing the same effects on animal solids, as actual fire; and which are called potential. Boiling water is actually hot, and brandy is potentially hot, as it heats the body, though of itself cold.

ACTUARIÆ NAVES, a kind of ships among the ancient Romans, chiefly designed for swift sailing.

ACTUARIUS, (J.) a celebrated Greek physician of the eleventh, or as some think, of the thirteenth century. Though commonly known by this appellation, (his title, in fact, as the chief medical attendant on the imperial court,) his name was Zacharias. He is distinguished by first introducing and recommending mild cathartics. His works were printed in one volume folio, by Henry Stephens, in 1567; and reprinted at Leyden in 3 vols. 12mo. 1556.

ACTUARIUS, in antiquity, a title of dignity, in the court of Constantinople, peculiar to physicians. See above.

ACTUARIUS, or ACTARIUS, in Roman antiquity, an officer appointed to write down the proceedings of a court, assembly, or the like. In the Eastern empire, he kept the military accounts, received the corn from the susceptores or storekeepers, and distributed it among the soldiers, to whom he acted as a kind of broker, or army agent.

ACTUATIO, *actuation*, in medicine, signifies the change wrought on a medicine, or any thing else taken into the body, by the vital heat, which is necessary to make it act, and produce its effect.

ACTUS, in ancient architecture, a measure in length equal to 120 Roman feet. In ancient agriculture, the word signified the length of one furrow, or the distance the plough goes before it turns.

ACTUS INTERVICENALIS, a space of ground four feet in breadth, left between the lands as a path.

ACTUS MAJOR, or ACTUS QUADRATUS, a piece of ground in a square form, whose sides were 120, and contents 14,400 feet being equal to half the jugerum. It was also called *modius* and *mina*.

ACTUS MINIMUS, a quantity of land 120 feet in length, and four in breadth; equal to the *sextans*, or sixth part of a jugerum.

ACTUANITES, in ecclesiastical history, a name sometimes given to the MANICHEES, from Acua, an alleged disciple of the apostle Thomas.

ACUBENE, in astronomy, a star of the third magnitude, on the southern claw of Cancer; called by Ovid labia; and by other writers acetabulum.

ACUHYATLI, in zoology, a large and venemous serpent of America, more usually known by the name of *cucurucu*, or *cucuruca*, which see.

ACUITION, in grammar, medicine, and prosody. See ACUTITION.

ACUL, a sea-port on the north coast of St. Domingo, whence the French were expelled in 1794, by the English, who took it by storm, S. S. W. of Cape François, distant eight miles. Also a small town of St. Domingo, on the south coast, sixteen miles S. W. of Les Cayes.

ACULEATED FINS, in ichthyology, a term applied by naturalists to the fins of fishes, which are armed with prickles. Those which want them are called, *non-aculeated*. Hence the *pugnitius marinus*, or stickle-back, a small prickly fish in the West Indies, is called also the ACULEATUS LONGUS.

ACULEOSA, in botany, the *Carduus polyacanthos*, or *Gorteria cibaris* of Linnæus.

ACULER, in the menage, is the motion of a horse, when in working upon volts, he does not go far enough forward at every motion.

ACULEUS, in zoology, a name sometimes given to the sting of a bee, scorpion, or the like.

AC'UMEN, *n.* } *Acuo*, to sharpen; *acu-*
ACU'MINATE, } *men*, sharpness. Express-
ACU'MINATED, } ing or referring to keenness
ACUMINA'TION. } of the intellectual powers.

The word was much affected by the learned Aristarchus in common conversation, to signify genius or natural *acumen*. *Pope.*

This is not *acuminated* and pointed as in the rest; but seemeth, as it were, cut off.
Brown's Vulgar Errours.

As it is reasonable, and even scriptural, to suppose that there is music in heaven, in those dismal regions perhaps the reverse of it is found; tones so dismal as to make even woe itself more insupportable, and to *acuminate* even despair. *Cowper's Letters.*

ACUMEN, in ancient music, was used to signify a sound produced by the intension or raising of the voice.

ACUMINA, in antiquity, a kind of military omen, or auspice, taken from the points, or edges of darts, swords, or other weapons, by examining whether they were bright or solid, sharp or blunted, and predicting the issue of a battle accordingly.

ACUMULO, a small town in Abruzzo Ulterior, seventeen miles N. W. of Aquila.

ACUNA, (Christopher de,) a Spanish Jesuit, born at Burgos, 1587. Having devoted some years to study, he went to make proselytes in Chili and Peru; and to make discoveries respecting the river of the Amazons. He is principally known as the author of a curious work, entitled *Nuevo Descumbrimiento de Gran Rio de los Amazones*, i. e. "A new Description of the Great River of the Amazons." This was published at Madrid, in four parts, in 1641; but all the copies, except two, were destroyed. From one of them a translation was made of the work, into French, and published in 4 vols. 12mo. 1682.

ACUPUNCTURE, in surgery, the operation, common among the Chinese and Japanese, of pricking diseased parts of the body with a gold or silver needle. It is also employed in some parts of America, but rather as an ornament than as a remedy. See *Philosophical Trans.* vol. xiii. No. 148.

ACURON, in botany, a name of the ALISMA, of LINNÆUS, which see.

ACUS, in ichthyology, a species of SYNGNATHUS, of which there are two varieties, viz. the acus of Aristotle, or tobacco-pipe fish, and the acus of Oppian, or gar fish. See SYNGNATHUS.

ACUS, in ichthyology, the Ammodytes, or Sand-eel.

ACUS MOSCHATA, in botany, a name for the Geranium muschatum. Also a name of the Scandix.

ACUSILAUS and Damagetus, in history brothers of Rhodes, and celebrated conquerors in the Olympic games. The Greeks strewed flowers over their father, Diægoras, complimenting him for having two such sons.

ACUSILAUS, a Greek historian, who lived, according to Josephus, before the expedition of Darius into Greece. He wrote a work entitled *Περι των Γενεαλογιων*, which the Jewish historian often quotes. Also an Athenian, who taught rhetoric at Rome, in Galba's reign.

ACUTE', *adj.* } *Acuo*, to sharpen: made
ACUTE'LY, } sharp, whetted, ingenious,
ACUTE'NESS. } piercing, penetrating, cunning.

PAROLL. I am so full of businesses, I cannot answer thee *acutely*.
Shakspeare's All's Well, fol. 231, act i. sc. 1.

He, that will look into many parts of Asia and America, will find men reason there, perhaps as *acutely* as himself, who yet never heard of a syllogism. *Locke.*

M. Colbert, the famous minister of Louis XIV. was a man of probity, of great industry, and knowledge of detail, of great experience, and *acuteness* in the examination of public accounts.
Smith's Wealth of Nations.

ACUTE ACCENT. See ACCENT.

ACUTE ANGLE, in geometry, is that which is less than a right angle, or which does not subtend ninety degrees.

ACUTE-ANGLED CONE, is according to the ancients, a right cone, whose axis makes an acute angle with its side.

ACUTE-ANGLED TRIANGLE, is a triangle whose three angles are all acute.

ACUTE-ANGULAR SECTION of a cone, is a term sometimes used by the ancient geometricians for the ellipsis.

ACUTE DISEASES, in medicine, are such as come suddenly to a crisis. It is used in distinction from chronic diseases.

ACUTE, in music, is applied to a sound or tone that is sharp or high, in comparison of some other tone. In this sense, *acute* stands opposed to *grave*.

ACUTELLA, in botany, the common ononis, or rest-harrow, a small prickly plant, with red or white flowers, and a tough spreading root.

ACUTIATOR, or ACUTOR, in old writers, a person that whets or grinds cutting instruments.

ACUTITION, or ACUITION, in medicine and chemistry, is used for sharpening or increasing the force of any medicine.

ACYROLOGIA, Gr. from *ακυρος*, improper, and *λογος*, speech, an improper acceptation, or expression, wherein a word or phrase is used in

some unusual or oblique sense, hardly reducible to the rules of language. Such is the word *spero*, sometimes used in Roman writers for *timeo*.

AD Bestias, in antiquity, a punishment of criminals, condemned to be thrown to wild beasts. It was also applied to gladiators hired to fight with wild beasts, otherwise called *Bestiarii*.

Ad Extra, in theology, a term used in speaking of the external operations of God; such as, creation, preservation, renovation, &c. See Ad Intra.

Ad Hominem, in logic, an argument drawn from the principles or prejudices of those with whom we argue, and which of consequence must be conclusive to them, though disbelieved by us.

Ad Intra, in theology, is understood of those acts of the Divine Being, whose term and effect is within his own essence: in which sense, acts or operations, *ad intra*, stand opposed to those *ad extra*.

Ad Libitum, is sometimes used in music, for at discretion, and is opposed to 'obligato.'

Ad Ludos, in antiquity, a Roman sentence, whereby criminals were condemned to entertain that barbarous people, either by fighting with beasts, or with each other, and thus executing justice on themselves.

Ad Metalla, in antiquity, the punishment of being doomed to work in the mines: the criminals were called *metallici*.

Ad Valorem, in commerce, is used in speaking of the duties, or customs, paid for certain commodities; rated according to the value or worth sworn to by the owner.

ADAES, the name of a lake, river, and town of Los Texas, New Mexico, not far from Louisiana. The lake is five leagues broad, ten in circumference, and of great depth. It abounds with fish. The river runs in a south east course, joining the Mexicano. The town of Adaes is 450 miles N. W. of New Orleans.

AD'AGE, *n.* } Ad'agy, } Adag'ical. } Etymologists are perplexed with regard to the derivation of this word. It comes immediately from the Latin *adagium*; a saying handed down from antiquity; an antique proverb.

The trite and common *adage* saith, Leaue not the certain for the vncertain. *Hall.*

Hugh. But thus you see the old *adage* verified,
Multa cadunt inter—you can guess the rest,
Many things fall between the cup and lip.
Jonson's Tale of a Tub, act iii. sc. 4.

The antithetic parallelism gives an acuteness and force to *adages* and moral sentences; and, therefore, abounds in Solomon's Proverbs.
Lowth's Isaiah, Prelim. Diss.

ADAGIO, Adageo. *ado*, Ital. in music, softly, leisurely. When repeated, it signifies the slowest of all movement, sometimes called Adagissimo.

ADAJA, a river of Spain, which enters the Douro, between Torderillas and Simancas.

ADARE, an ancient town of Ireland, on the river Maig, over which is a fine old bridge of nine arches. Here also are the remains of two religious houses, and of an ancient castle belonging to the Earl of Desmond. It is eight miles S. W. of Limerick.

ADALIDES, in Spanish history, officers of justice, in military matters. In the laws of king Alphonsus, they are spoken of as officers appointed to direct the marching of the forces in time of war.

ADAM, אדם, Heb. red earth, the first of the human race, and the progenitor of all mankind. The particulars of his creation, of his being placed in the garden of Eden, of the trial of his obedience, of his review and nomination of the animals, of the creation and introduction of his wife, of their disobedience, apologies, and punishment, of the birth of three of their children, with the murder of one of them, and Adam's own death, in his 930th year, are briefly narrated by Moses, in the first five chapters of Genesis; and as they are, or ought to be well known to every Christian, need not be here enlarged upon.

ADAM (Melchior.) See Melchior.

Adam, or Adom, a town in the Peræa, or on the other side the Jordan, over against Jericho, where the Jordan began to be dried up on the passage of the Israelites. *Josh.* iii. 16.

Adam, (Alexander,) a learned grammarian and school-master, was born at Rafford, in the county of Moray, 1741, of humble parents, who however, obtained for him so good an education, that he had read the whole of Livy before he was sixteen. In 1761, he became assistant master of the high school of Edinburgh, and in 1771, head master: soon after which, a dispute arose between him and his assistants, in consequence of his endeavours to introduce a new Latin grammar; and Dr. Robertson, the principal of the University being appealed to, and deciding against the use of our author's, Dr. Adam's work was published in 1772, under the title of The Principles of Latin and English Grammar. He also compiled a Summary of Geography and History, 1794. 8vo.; Roman Antiquities, 1791, 8vo.; Classical Biography and History; and an abridged dictionary, entitled, Lexicon Linguæ Latinæ Compendiarum, 8vo.; all of which are much esteemed. Dr. Adam, at the commencement of the French Revolution, imprudently mixed himself with party politics, which he too freely introduced amongst his pupils; but time cooled these dissensions and set him right with the public. He died of apoplexy in 1809, aged sixty-eight, and was honoured with a public funeral. *Life of Dr. Adam*, Edin. 8vo, 1810.

ADAMAH, a fenced city of Judea, belonging to the tribe of Naphtali.

Ad'amant, *n.* } Adamant'ean, } Adaman'tine. } *a* not: *δαμαω*, to tame; not to be tamed, impressed or broken; applied by the ancients to hard substances, particularly the loadstone or magnet, the diamond and most probably to granite.

As true as steel, as plantage to the moon,
As sun to day, as turtle to her mate,
As iron to *adamant*. *Tro. and Cres.* act iii. sc. 2.

You draw me, you hard-hearted *adamant*,
But yet you draw not iron; for my heart
Is true as steel. *Shakspeare.*

Let him change his lodging from one part of the town to another, which is a great *adamant* of acquaintance. *Bacon.*

Away
We'll be as differing as two *adamants*,
The one shall shun the other.
White Devil O. Pl. vi. 315.

Wide is the fronting gate; and, rais'd on high
With *adamantine* columns, threats the sky.
Dryden.

In *adamantine* chains shall death be bound,
And hell's grim tyrant feel th' eternal wound.
Pope.

Tho' *adamantine* bonds the chief restrain,
The dire restraint his wisdom will defeat,
And soon restore him to his regal seat. *Idem*

ADAMANTÆA, in mythology, the nurse of Jupiter in Crete, who suspended his cradle to a tree, that he might not be found either in heaven, earth, or sea, and had drums beat to drown his cries. She is supposed to be the Amalthea of Lactantius, and the Adrasteia of other writers.

ADAMANTII, in church history, a name given by some historians to the followers of Origen.

ADAMANTINE SPAR, in mineralogy, a stone of peculiar hardness, (approaching to that of the diamond) which has lately attracted the attention of chymists. It is found in China and Hither India, and as M. Pini alleges, in Italy; and exhibits two principal varieties.

The first, found in China, is of a grey colour of different shades, the larger pieces opaque; its fracture very brilliant, and its texture spathose, which causes its surface to appear striated. Its crystals are covered with a very fine crust of plates of silvery mica, mixed with particles of red felspar: sometimes sulphate of iron has been found on them. It is crystallized in six-sided prisms without pyramids, the length of which varies from half an inch, to an inch; and their thickness is about three-quarters of an inch. This stone will cut glass easily, and mark rock crystal. Its specific gravity is 3.710.

The second variety is the Corundum of Bombay, of a more spathose texture, whiter colour, and having fewer grains of magnetic iron.

'From its hardness,' says Dr. Ure, 'this stone is extremely difficult to analyze. M. Chenevix, by repeatedly heating it red hot, and then plunging it into cold water, caused it to appear fissured in every direction. He then put it into a steel mortar, about three quarters of an inch in diameter, and three inches deep, to which a steel pestle was closely fitted. A few blows of the pestle caused it to crumble, and the fragments were then easily reduced to an impalpable powder by an agate pestle and mortar. This powder was fused in a crucible of platinum with twice its weight of calcined borax; and the glass was dissolved by boiling in muriatic acid about twelve hours. The precipitates from this solution being examined, a specimen from China was found to give from 100 parts, 86.50 of alumina, 5.26 of silex, 6.50 of iron: one from Ava, alumina 87, silex 6.5, iron 4.5: one from Malabar, alumina 86.5, silex 7, iron 4: one from the Carnatic, alumina 91, silex 5, iron 1.5. The Rev. Mr. W. Gregor analyzed a specimen from Thibet, in the collection of Mr. Rashleigh, which gave him alumina 81.75, silex 12.125, oxide of titanium 4, water 0.937, but no iron.'

ADAMAS, in natural history, a name given by Pliny to the spume or *scoria* of gold; which is cast away as not being malleable.

ADAMAS, Adamant, in mineralogy, the diamond, is a genus of siliceous earth, composed of carbon and silica; found generally in sand or light earth. It is extremely hard, so as to be the best material for cutting glass, &c., retains the sun's rays in the dark, and consumes altogether as an inflammable substance. It is brought into Europe from Golconda and Brazil.

ADAMBEA, in botany, a genus of plants of the class polyandria and order monodelphia, of which but two species are known. Cal. hemispheric, containing five or seven cells. Cor. from five to seven petals. Cap. polyspermous fleshy, covering the calyx. It grows on the coast of Malabar, on stony and mountainous parts.

ADAMI Pomum, in anatomy, a protuberance in the fore part of the throat, the convex part of the thyoid cartilage. Also, in botany, the *citrus aurantium* of Linnæus.

ADAMITÆ, Adamites, in ecclesiastical history, the name of a sect of the second century, supposed to have been a branch of the Basilidians and Carpocratians. Epiphanius tells us, that they pretended to re-establish the state of innocence, in which Adam was at the moment of his creation, and imitated him in going naked. That they detested marriage; maintaining, that the conjugal union would never have taken place upon earth had sin been unknown, &c. Dr. Lardner wholly denies the existence of such a sect. See Works, v. ix. Similar absurdities are charged in the twelfth century, upon Tandamus, since known by the name of *Tanchelin*, of Antwerp, who was constantly attended by 3000 profligates in arms. His sect did not, however, continue long; but a similar one arose shortly after, under the name of *Turlupins*, in Savoy and Dauphine, where they committed the most brutal actions in open day. And in the beginning of the 15th century, one Picard, a native of Flanders, spread these notions in Germany, and Bohemia, particularly in the army of the famous Zisca. Some partizans of Picard, in Poland, Holland, and England, assembled in the night, and one of the fundamental maxims of their society, was said to be contained in the following verse:

Jura, perjura, secretum prodere noli.

But see Adamitism.

ADAMITISM, the opinions and practices of the Adamites. Beausobre, has shown, that the *Adamitism*, i. e. the nakedness of these people, is a mere calumny, forged by their adversaries, the Calixtines and Papists, at the time when the Vaudois first appeared. Jovet and Moreri speak of *Adamites* in England; and indeed the Romanists and reformed mutually reproach each other with having *Adamites* among them.

ADAMITUM, and Adimita, the hardest white stones, and stones in the bladder. The former, Paracelsus says, are a species of tartar.

ADAMPE, in geography, a territory on the Gold Coast of Africa, adjoining Acra, and extending to the Volta, and similar in its general character and appearance, but not so fertile.

ADAMPORE, a town of Bengal, in the district of Burdwan.

ADAM'S PEAK, or HAMMALED, a lofty mountain of Ceylon, said to be visible 150 miles off, and so named from a tradition of the natives, that Adam here obtained his last view of Paradise. It is 60 miles N. E. of Columbo. N. lat. 7°, 6′ E. lon. 80°, 43′.

ADAM'S APPLE, in botany. See ADAMI POMUM.

ADAM'S BRIDGE, a reef of rocks, which runs between Ceylon and the continent. See ADAM'S PEAK.

ADAM'S NEEDLE. See YUCCA.

ADAMSON, (Patrick,) Archbishop of St. Andrew's, was born in 1543, at Perth. In 1566, he set out for Paris, as tutor to a young gentleman; and Mary, queen of Scots, being that year delivered of a son, Mr. Adamson wrote a Latin poem on the occasion, hailing the royal infant as king of England and France, for which he was confined in France for six months. As soon as he recovered his liberty, he retired with his pupil to Bourges; and there wrote a Latin poetical version of the book of Job, and the Tragedy of Herod in the same language. In 1573, he returned to Scotland; and became minister of Paisley. He was afterwards one of the commissioners for settling the jurisdiction and policy of the church; and chaplain to the Earl of Morton, then regent. On the death of bishop Douglas, he was promoted to the archiepiscopal see of St. Andrew's, a dignity which brought upon him great trouble. In 1578, he submitted to the general assembly, which procured him peace for a short time, but the year following, they brought fresh accusations against him. Being attacked with a disease, in which the physicians could give him no relief, he happened to take a simple medicine from an old woman, which did him service; and who, being charged with witchcraft, he was accused of dealing with witches. In 1583, king James sent him ambassador to queen Elizabeth, at whose court he resided for some years: but returning to Scotland in 1584, the Presbyterian party was very violent against the archbishop, and excommunicated him. Accused of various frivolous crimes, the king deserted him, and granted the revenue of his see to the duke of Lennox, until goaded by poverty and oppression, he submitted to the wretched humiliation of recanting his opinions upon church government, publicly; which, however, availed him nothing. He died in abject poverty, in 1599. His works are contained in a 4to. vol. Lond. 1619.

ADAMSTOWN, a parish and town in the county of Wexford, Ireland; lamentably memorable on account of Scullabogue barn, in which 195 protestants were burnt alive, at the time of the Irish rebellion, in 1798. The remains of this building are still to be seen.—Also a small town of Pennsylvania, North America.

ADAMUS, in alchemy, a name for the philosopher's stone.

ADANA, an ancient town of Asia, in Natolia, the capital of the province of Aledulia, and seated on the river Choquen, or Adana; on the banks of which, stands a strong little castle, built on a rock. It has a great number of beautiful fountains brought from the river by means of waterworks. Over the river there is a stately bridge of fifteen arches. The climate is very pleasant and healthy, and the winter mild and serene: but the summer is so hot as to oblige the principal inhabitants to retire into the neighbouring mountains, where they spend six months among shady trees and grottoes, in a most delicious manner. The adjacent country is rich and fertile, both in corn and fruits. Adana is also a considerable wine market. It is 30 miles NE. of Tarsus on the road to Aleppo.

ADANAD, a town of Hindostan, in the district of Shirnada, and province of Malabar, 25 miles S. E. of Calicut. It is remarkable as the principal residence or throne of the Alvangheri Tamburacul, the chief of the Namburies, a very proud class of Brahmins, who will take their meals with no other class, and only suffer the elder branches of their families to marry, lest the distinction should be rendered too common.

ADANSONIA, in botany, ETHIOPIAN SOURGOURD, MONKIES-BREAD, or AFRICAN CALABASH TREE, a genus of plants of the order monodelphia, class polyandria; and the characters of which are: CAL. a perianthium one-leaved, half five-cleft, cup form, (the divisions revolute,) deciduous: COR. five petals, roundish, nerved, revolute, growing reciprocally with the claws and stamina: STAM. of numerous filaments, coalesced beneath into a tube, and crowning it, expanding horizontally; the antheræ kidney form, incumbent: PIST. an egged germ; the stylus very long, tubular, variously intorted; the stigmata numerous (10) prismatic, villous, ray expanded: PER. an oval capsule, woody, not gaping, two celled, with farinaceous pulp, the partitions membraneous: The seeds are numerous, kidney-shaped, rather bony, and involved in a friable pulp.

There is at present but one known species belonging to this genus, the Baobab, abavi, abevo arbu, or guanabanus, which is perhaps the largest production of the whole vegetable kingdom, and is a native of Africa.

ADAPT′, *v.* ADAPTA′TION, ADAP′TION, ADEPT. *n* & *adj.* } Ad: *apto:* to fit or suit one thing to another. An adept is one who possesses the qualifications suited to a specific purpose or employ.

For no man so soone as hee knowes this [criticism] or reades it, shall be able to write the better; but as he is *adapted* to it by nature, he shall grow the perfecter writer. *Jonson's Discoveries.*

'Tis true, but let it not be known,
My eyes are somewhat dimmish grown;
For nature, always in the right,
To your decays *adapts* my sight. *Swift.*

It is not enough, that nothing offends the ear; but a good poet will *adapt* the very sounds, as well as words, to the things he treats of. *Pope's Letters.*

Composed upon particular occasions, yet designed for general use; delivered out as services for Israelites under the law, yet no less *adapted* to the circumstances of Christians under the gospel; they present religion to us in the most engaging dress, communicating truths which philosophy could never investigate in a style which poetry can never equal, while history is made the vehicle of prophecy, and creation lends all its charms to paint the glories of redemption. *Bishop Horne on the Beauties of the Psalms.*

From stucco'd walls smart arguments rebound,
And beaux *adept* in every thing profound,
Die of disdain, or whistle off the sound.
Cowper's Hope.

ADAPTERS, or ADOPTERS. See CHEMISTRY.

ADAR, אדר, Heb. mighty, the name of a Hebrew month, answering to the end of February, and beginning of March, the 12th of their sacred, and 6th of their civil year. On the 7th day of it, the Jews celebrate the death of Moses; on the 13th, they have the feast of Esther; and on the 14th, the feast of Purim, for their deliverance from Haman's conspiracy. See VEADAR.

ADARCE, in the materia medica of the ancients, a saltish humour concreting about the stalks of reeds, and other vegetables, in Cappadocia and Galatia: we also read of it in Italy; and of a native kind produced in Indian reeds, as sugar in the cane. It was used as a topic to rub the skin in leprosy, sun-burning, freckles, &c.

ADARCON, ADARCONIM, an ancient coin mentioned in Scripture, usually of gold, derived, as some think, from the gold pieces coined by Darius, called δαρειχοι. They are valued variously; according to Dr. Bernard, they weighed two grains more than our guinea, but the gold being very fine and little alloyed, it may be taken at worth about twenty-five shillings sterling. There was one in lord Pembroke's cabinet a few years since, which weighed 129 grains.

ADARIDGE, or ADARIGES, in chemistry, sal-ammoniac.

ADARME, in commerce, a small Spanish weight, the sixteenth part of an ounce troy.

ADARNECH, in chemistry, auripigmentum, or orpiment.

ADARTICULATION, in medicine, is used by some physicians for αρθρωδια, by others, for διαρθρωσις. See ARTHRODIA and DIARTHROSIS.

ADATAIS, ADATSI, or ADATYS, in commerce, a fine muslin or cotton cloth, made in Bengal.

ADAUNT', to discourage, subdue. See DAUNT.

King William *adaunted* þat fole of Walys,
And made him bear him truage, and byhote hym and hys. *R. of Gloucester*, p. 61.
Wherewith the rebel rather was the more
Encouraged than *addaunted*; and begun
T' adventure further than he did before;
Seeing such a monarch had so little done.
Daniel's Civil War, b. iv.

ADAW', of uncertain derivation and obsolete; to daunt, keep under, abate.

But yeelded with shame and grief *adawed*.
Spencer's Shep. Kal. Feb.

ADAYS', on days.

Distillations of celestial days are conveyed in channels not pervious to an eye of sense, and now *adays* we seldom look with other, be the object never so beauteous or alluring.
Taylor's Episcopacy Asserted, Epist. Ded.

ADCHER, or ADHER, in the materia medica, a name given by Avicenna and Serapion, to the Scœnanth, or camel's hay; as well as to the common rush.

ADCORDABILES DENARII, in old law books, money paid by the vassal to his lord, upon the selling or exchanging of a feud.

ADCOR'PORATE, or ADCOR'PORATE, *v.* } Ad: *corpus*. See INCORPORATE.

ADCREDULITARE, in law, to purge one's self of an offence by oath.

ADCRESCENTES, among the Romans, soldiers entered in the army, but not yet put on duty; from these the standing forces were recruited. See ACCENSI.

ADD', *v.*
AD'DIBLE,
ADDIBIL'ITY,
ADDIT'AMENT,
ADDI'TION,
ADDI'TIONAL, *n.* & *a.*
ADDI'TIONALLY,
ADDI'TIONARY,
AD'DITORY.
} Ad: *do*, to give to; to put together; to increase a number, or quantity.

SAL. To guard a title that was rich before;
To gild refined gold; to paint the lily;
To throw a perfume on the violet;
To smooth the ice, or *add* another hue,
Unto the rainbow; or with taper light
To seek the beauteous eye of heaven to garnish,
Is wasteful and ridiculous excess.
Shakspeare's King John.

Only retain
The name, and all th' *addition* to a king;
The sway, revenue, execution,
Beloved sons, be yours; which to confirm,
This coronet part between you.
Shakspeare's King Lear.

Mark if his birth makes any difference;
If, to his words, it *adds* one grain of sense.
Dryden.

They, whose muses have the highest flown,
Add not to his immortal memory.
But do an act of friendship to their own. *Idem.*

CHAR. Though land and monies be no happiness,
Yet they are counted good *additions*.
Beaumont and Fletcher.

What is necessary, and what is *additionary*.
Herbert.

The *additory* fiction gives to a great man a larger share of reputation than belongs to him, to enable him to serve some good end or purpose. *Arbuthnot.*

Additionally to this, they[the Jews] observed numberless rites and customs according to the tradition of the elders. *Bryant.*

ADDEEM', or ADDOOM'. } From *deem* and *doom*. See DEEM.

For loe, the winged god, that woundeth harts,
Caused me be called to account therefore;
And for reuengement of those wrongful smarts,
Which I to others did inflict afore,
Addem'd me to endure this penance sore.
Spenser's Faerie Queene, b. vi. can. 8.

She scorns to be *addeem'd* so worthless base,
As to be mov'd to such an infamy.
Daniel's Civil Wars.

ADDA, in geography, a river of Switzerland and Italy, which rises in the mount Braulio, in the country of the Grisons, and passing through the Valteline, traverses the lake Como, and the Milanese, and falls into the Po, near Cremona. Its navigation was much improved by a canal, dug in 1771.

The ADDA gave name, in part, to that portion of the Italian republic and kingdom of Italy, (now subject to Austria,) called the department of the Adda and Oglio, and which contained the northern part of the Bergamasco, and the whole of the Valteline.

ADDA-EL, in zoology, the Arabian name of a small species of lizard, described by Bruce, as found at Atbana, beyond the ruins, near the site of the ancient Mene, and to which many medicinal virtues are ascribed by the natives.

ADDACE, in natural history, a name by which the Africans call the common antelope. See GAZELLA.

ADDEPHAGIA, from Ἀδδη, much, and φαγω, I eat, in medicine, a term sometimes used to express greediness or voraciousness as a disease.

AD'DER, Ættep Naddpe, Saxon, a viper, a poisonous reptile; formerly applied to serpents in general.

Or is the *adder* better than the eel,
Because his painted skin contents the eye?
Shakspeare.

An *adder* did it; for, with doubler tongue
Than thine, thou serpent, never *adder* stung.
Idem.

The *adder* teaches us where to strike, by her curious and fearful defending of her head. *Taylor.*

ADDER, in zoology, a venemous reptile of the serpent kind, more usually called a viper. It is sometimes confounded with the asp: thus, the deaf adder, spoken of in the Bible, is not properly the adder, but the asp.

ADDER-BOLT, the dragon fly. See LIBELLA.

ADDER-NOWED, or KNOTTED, in heraldry, is a particular twisting of the adder in a coat of arms. See HERALDRY.

ADDER CURLING ERECTED, in heraldry. See HERALDRY.

ADDER, SEA, in ichthyology, the English name of the sygnathus typhle, which see.

ADDER'S-TONGUE, in botany, the ophioglossum of Linnæus, a medicinal plant, so called, either from its resembling the tongue, or curing the bite of a viper. Skinner says, from its serving as a lurking place for adders. No part of the fructification is visible, except the fruit, which is an oblong, double capsule, divided into a great number of cells, each of which opens transversely, and contains a number of small seeds. It is esteemed one of the best vulnerary herbs this country produces.

ADDER, WATER, in zoology, a name given to the coluber.

ADDER-WORT, in botany, snakewood. See POLYGONUM.

ADDEXTRATORES, or ADDEXTRARII, in the court of Rome, the pope's mitre-bearers; thus called, on account of their walking at the pope's right hand, when he rides out.

AD'DICE, or ADZE, AXE. } Adepe, a kind of axe, a crooked instrument used by carpenters, coopers, &c for cutting wood under the foot.

The *addice* hath its blade made thin, and somewhat arching. *Moxon's Mechanical Exercises.*

I had thought I had rode upon *addices* between this and Canterbury. *Lyly. Moth. Bomb.* c. 10.

ADDICT', *v.* ADDICT'EDNESS, ADDIC'TION. } Ad: *dico*, to say to; not used in English agreeably to its obvious rendering; rather to give one's self up to, to devote, to consecrate. Contrary to the assertion of Johnson, it is used in a good as well as in a bad sense.

To studies good *addict* of comely grace.
Mir. for Mag. p. 175.

It is a wonder how his grace should glean it;
Since his *addiction* was to courses vain;
His companies unletter'd, rude, and shallow;
His hours fill'd up with riots, banquets, sports.
Shakspeare

ASO. Yours entirely, *addicted* Madame.

ARG. I require no more, dearest Asotus; henceforth let me call you mine.
Jonson's Cynthia's Revels

Ye know the house of Stephanus; that they have *addicted* themselves to the ministry of the saints.
1 *Cor.* xvi. 15.

I am neither author or fautor of any sect: I will have no man *addict* himself to me; but, if I have any thing right, defend it as truth's.
Ben Jonson.

Those know how little I have remitted of my former *addictedness* to make chymical experiments.
Boyle.

ADDICO. See ADDICTIO.

ADDICTI, in Roman antiquity, insolvent debtors, who were adjudged by the twelve tables to a kind of temporary servitude to the creditor.

ADDICTIO, ADDICTION, in the Roman law, the making over goods to another, either by sale or by legal sentence; the goods so delivered were called *bona addicta*.

ADDISON, (Launcelot,) D.D. son of a clergyman of the same name, was born at Maulds Meaburne, in the parish of Crosby, Ravensworth, Westmoreland, and educated at Queen's College, Oxford. He was chosen one of the Terra Filii in 1658; when his attachment to the exiled royal family, excited him to make some severe reflections in an oration, on the pride and ignorance of his superiors, and exposed him to so strong a feeling of censure, that he could only obtain forgiveness, by recanting the obnoxious expressions publicly, on his knees.

At the restoration, he quickly rose in the royal favour, was made chaplain of Dunkirk, chaplain in ordinary to the king, rector of Milston, in Wiltshire, prebendary of Sarum, dean of Litchfield, and archdeacon of Coventry. His life and writings reflect honour upon his memory, as a Christian, a gentleman, and a clergyman.

He expired on the 20th of April, 1703, leaving three sons: Joseph Addison, Gulston, afterwards governor of Fort St. George; Launcelot, master of arts, and fellow of Magdalen College, Oxford; and one daughter, married first to Dr. Sartre, prebendary of Westminster, and afterwards to Daniel Combes, Esq.

ADDISON, (Joseph,) son of Dr. Launcelot Addison, was born May 1, 1672, at Milston, near Ambresbury, in Wiltshire; of which place his father was rector. As he was from his infancy intended for orders, his domestic culture, he tells us, was judiciously calculated to leave upon his mind the most powerful impressions of religion.

He acquired the rudiments of education under private tutors; but, in his thirteenth year was removed to the Charter-House, then under the care of Dr. Ellis; and, where he first contracted his memorable acquaintance with sir Richard Steele. In 1687, he was entered of Queen's College, Oxford, where some Latin verses which he composed procured him the patronage of Dr. Lancaster, afterwards provost of the College; through whose interest, he was, in 1689, elected demy of Magdalen. All his powers were now

directed to the cultivation of his mind, and his fondness for Latin compositions prevailing, he produced his celebrated Musæ Anglicanæ, a collection of poems, from which Boileau, according to Tickel, ever afterwards conceived a high opinion of English genius: and observed that, "he would not have written against Perrault, had he before seen such excellent pieces by a modern hand."

In his twenty-second year, Addison first appeared as an English writer, in verses addressed to Dryden; and published shortly afterwards a translation of part of Virgil's Georgic on the Bees, of which Dryden spoke highly. About the same time he composed the arguments prefixed to the several books of Dryden's Virgil. His next paper of verses contained the character of English poets, of the first rank, inscribed to Henry Sacheverell, who if not himself a poet, was, at least, a writer of verses. In this poem, is a very confident and discriminating character of Spenser, whose works, it afterwards appeared, he had never read. About this time, he was diverted from his intention of entering into holy orders, by the influence of Mr. Montague, then chancellor of the Exchequer, to whose friendship he had been introduced by Mr. Congreve. It is evident, that he was now learning the trade of a courtier. Montague had written verses without the slightest claim to excellence; and, Addison joined his name with those of Cowley and Dryden. In 1695, he addressed a poem to king William, with an introductory dedication to lord Somers; and in 1697, produced his Latin poem, on the celebrated peace of Ryswick, dedicated to his friend Montague. This, beside paving the way to a pension of £300 per annum, has been pronounced the best Latin poem since the Æneid. Upon receiving his pension, he resolved upon an excursion to the Continent, and having staid a year at Blois to learn the French language, he proceeded into Italy, where he beheld with the eyes of a classic, and the rapture of a poet, the ancient monuments and remains of Pagan Rome.

His poetical epistle to Lord Halifax, descriptive of this journey, is considered amongst the most elegant of his productions. In Italy, he wrote his Dialogues on Medals, and some acts of his Cato; and after an absence of two years returned to England in pecuniary embarrassment, through the non-payment of his pension. He had also been deprived, by the death of king William, of a small appointment about the person of prince Eugene. Shortly after his return he published his travels, dedicated to Lord Somers; and so great was the popularity of the first edition, that it was enhanced to five times its original price before a reprint could be obtained. Of many parts of this book, however, Dr. Johnson thinks it no severe censure to say, they might have been written at home; but the bold, yet delicate delineations, the elegant language, and charming variety of his style rendered it the favourite of the public, and soon established its fame as a standard English classic.

On the victory of Blenheim, Lord Godolphin lamented to Lord Halifax, that it had not been sufficiently celebrated; and desired him to mention some superior poet who was capable of doing justice to the theme. Halifax named Addison; and no sooner had the poet read to his patron what he had written as far as the simile of the angel, than he was appointed commissioner of appeals. On the following year, accompanying Lord Halifax to Hanover, he was made under secretary of state About this time, to divert the public from the rage for Italian operas, he endeavoured to introduce a musical drama in our own language, and produced his Rosamond, which on its first appearance was hissed from the stage. Shortly after, the duke of Wharton being appointed Lord Lieutenant of Ireland, Addison became his secretary, and was presented with the additional honour of "keeper of the Records in Birmingham's Tower, with a salary of £300 per annum. Swift observes of him, with respect to this office, that he made it a rule never to return fees to his friends out of politeness! During his residence in Ireland, the publication of the Tatler was commenced by Steele, without any communication of his design; but the insertion of a remark which Addison had given him with respect to a passage in Virgil, discovered the author: and the subject of our memoir became an invaluable auxiliary in this first series of our familiar classics. The Tatler was succeeded in about two months by the Spectator, a series of essays published early every day; designed to guide the flow of daily conversation, and to improve the manners of the fashionable world. In short the Spectator may be considered as a sort of "Arbiter Elegantiarum," as Johnson terms it; pouring its small rays and short imperfect strokes of light upon the common walks of familiar life, and is no less calculated to please the imagination by its sprightly and instructive style, than to improve the affections by its refinement and delicacy. The descriptions of living characters which it contained were numerous, and were drawn to such perfection, that many of them were known by the spirit and expression of their portraits, and pointed out by the world. The papers, thus rapidly produced, display considerable depth of literature and criticism, maintained with great justness of thought and dignity of language; and the miscellanies are happily varied with elegant fictions and refined allegories. Addison however, seems not to have completely prosecuted his original design; and this admired work terminated abruptly on the 16th of September, 1712. His Cato, produced in 1713, raised Addison's reputation still higher. As an historical play, it was at first considered to have peculiar political views; and England being then distracted with strong party opinions, it is not to be wondered that it was variously received, or that its performance created some confusion. It had, however, so much merit, that the queen solicited the honour of a dedication of it to herself; it has also been introduced upon foreign stages, and translated into almost all the languages of Europe. Steele took advantage of the fame of Cato, to commence the publication of the Guardian, to which Addison contributed; distinguishing all his papers with a small hand, (☞) as in the Spectator by one of the letters in

the name of the muse CLIO. Steele also attributes to Addison the comedy of the Drummer, which he carried for him about this time to the play-house, and of which he afterwards sold the copy for fifty guineas.

Being largely engaged with public affairs, Addison frequently entered with warmth into political discussions, and wrote several pamphlets of which The present State of the War, The Whig Examiner, and The Trial of Count Tariff, were the most remarkable. On the death of Queen Anne, Addison was made secretary to the Regency, and was required to write to the Elector of Hanover, announcing the vacancy of the throne; but he was so long seeking for choice expressions that the Lords grew impatient, and called to Mr. Southwell, a clerk, to dispatch the message, which he immediately did, and not a little valued himself on the occasion.

December 23rd, 1715, he published the Freeholder, in defence of government, a work full of convincing arguments, singular pleasantry, and considerable embellishment. He also gave the world about this time his Tory Fox Hunter, a matchless performance, which can scarcely fail of delighting even bigotry itself. In August, 1716, he married the Countess dowager of Warwick, a union which as it neither found nor made the parties equal, afforded very little or no addition to their happiness. The lady remembering her rank, treated him with a sort of condescending ceremony, and appeared never to forget him as the tutor of her son. Rowe's ballad of the Despairing Shepherd, is said to have been written upon this match.

In 1717, he was made one of the principal secretaries of state, an office for which he was altogether ill adapted, as he could neither speak with boldness nor eloquence; nor had any portion of the readiness of a man of business. He was therefore useless in the house of Commons, and in the office he could not issue an order without wasting his time in search of fine expressions. At last he obtained his dismission with a pension of £1500 per annum.

After his retirement from public business, he laid down plans for his future literary labours, wrote a Defence of the Christian Religion, proposed a Tragedy on the Death of Socrates, an English Dictionary on the plan of the Italian Della Crusca, a Version of the Psalms, &c. These, however, he never completed.

In the decline of his life, a political dispute arose between the subject of our memoir and his friend Steele. It was occasioned by Lord Sunderland's having attempted to introduce a bill for limiting the creation of peers. This being warmly supported by the former and opposed by the latter, produced several pamphlets on both sides, heated with acrimonious expressions; nor could a perfect reconciliation ever afterwards be effected.

At length after an useful but chequered life, Addison felt his end sensibly approaching, and forgetting all human affairs, endeavoured to prepare for his last moments. With a natural wish to die in peace with the world, he sent for Mr. Gay, and told him he had injured him: but if he lived to recover, he would make him ample recompence. The latter was not sensible of any injury, but supposed he might have been the means of withholding some preferment from him. Lord Warwick, his son-in-law, was a young man of loose opinions and irregular habits, whom Addison had used every effort to reclaim. One experiment however, remained to be tried, the effect of a last interview. He sent for the young nobleman in his dying moments, and on his desiring with great tenderness to know his last injunction, said to him, "I have sent for you, that you may see with what peace a christian can die." Whether this touching interview had any effect upon the young earl, is not known. He died himself shortly after. Tickel alludes to this circumstance in the following lines of his elegy:

> He taught us how to live, and oh! too high
> The price of knowledge, taught us how to die.

After having given directions to Mr. Tickel respecting the publication of his works, and dedicated them to his friend Mr. Craggs, Addison expired June 17th, 1719, at Holland House in the 47th year of his age, leaving an only child, a daughter.

In the habits and external manners of Mr. Addison, there was a timorous or sullen taciturnity; by some attributed to an extreme, native modesty. Steele mentions, with regret, this remarkable bashfulness. Chesterfield calls him the most timorous and awkward man that he ever saw: and Addison himself, speaking of his deficiency in conversation, used to observe, that with respect to intellectual wealth, he could draw bills to a thousand pounds, though he had not a guinea in his pocket.

Of Addison's life before marriage, Pope has given some details. He had in his house with him Budgel, and perhaps Philips, besides whom, his chief companions were Steele, Cary, Davenant, and Colonel Brett. With some one of these he always breakfasted, afterwards studied all the morning; then dined at a tavern, and went to Button's coffee-house, in the evening. Button had been servant in the countess of Warwick's family; and now, under the patronage of Addison, kept a coffee-house on the south side of Russel-street, two doors from Covent-garden, where the wits of the day used to assemble. From the coffee-house he went again to the tavern, where he often sat late and drank too much wine.

On the whole, the fame of Addison, though never entitling him to exalted rank as a politician or a man of public business, and considerably on the wane perhaps, as a poet, and even as a critic, compared to the estimation his pieces enjoyed at the period of their publication, rests on the solid basis of that real excellence in the style and manner, as well as in the whole tendency of his writings, which will render it all-enduring while the language of his country survives. He can be satirical without being invidious, and witty but not malevolent: calling back the wanderer from the path of virtue, rather by exhibiting new attractions in her charms, than following him with frowns, and threats, and anathemas; and must be ever regarded by impartial history, as one of the soundest patriots and best public writers that our annals can boast.

ADDISON, a county of the state of Vermont, North America, intersected by the Green Mountains: it is bounded on the E. by lake Champlain and divided into two parts by Otter Creek, being thirty miles long, and thirty-seven broad; and contains twenty-one townships and 7000 inhabitants. The capital is Middlebury. Also, a town of the above county on lake Champlain.

ADDITAMENTS, in chemistry and pharmacy, ingredients added to medicines already compounded. It is also an heraldic term signifying any remarkable addition to a coat of arms.

ADDITION, in algebra. See ALGEBRA.

ADDITION, CHARACTER OF, is +, which is usually expressed by plus. Thus 3 + 4, denotes the sum of 3 and 4; and is read 3 plus 4. See ARITHMETIC.

ADDITION, in music, a dot marked on the right side of a note, signifying that it is to be sounded or lengthened half as much as it would have been without such a mark.

ADDITION OF DECIMALS, fractions, whole numbers, &c. See ARITHMETIC.

ADDITIONS, in distilling, such things as are added to the wash, or liquor, while in a state of fermentation, in order to improve the vinosity of the spirit. See DISTILLING.

ADDITIONS, in heraldry, some things added to a coat of arms, as marks of honour; and therefore directly opposite to abatements. As BORDURE, CANTON, GYRON, PILE, QUARTER, &c. See these articles.

ADDITIONS OF DEGREES, are those we call names of dignity; as knight, lord, earl, marquis, &c.

ADDITIONS OF ESTATE, or QUALITY, are yeoman, gentleman, esquire, and such like.

ADDITIONS OF PLACE, are the names of the places where persons reside added to their name, such as of Thorpe, of Dale, or of Woodstock. Where a man hath household in two places, he shall be said to dwell in both; so that his addition in either may suffice. By statute 1 Henry V. cap. 5, it was ordained, that in such suits or actions, where process of outlawry lies, such addition should be made to the name of the defendant, to show his estate, mystery, and place where he dwells; and that the writs not having such additions shall abide if the defendant take exception thereto; but not by the office of the court.

ADDITIVE, something to be added to another.

ADDITIVE RATIO, in geometry, is, that whose terms are disposed to addition, that is, to composition, in opposition to subtractive ratio, whose terms are disposed to subtraction, i. e. to division.

ADDITIVE EQUATIONS, in astronomy, those which are to be added to the sun's mean anomaly, in order to find the true one.

AD'DLE, *v.* & *adj.* Aidlian: Ang. Sax. To be sick or ill; to be useless, to answer no good purpose, to be empty. Applied to eggs, putrid or diseased.

Could your mouldy brain be so *addle*, to imagine
I would marry a stale widow at six and forty?
Ford's Love's Sacrifice.

There's one with truncheon, like a ladle;
That carries eggs too fresh or *addle*;
And still at random, as he goes,
Among the rabble rout bestows. *Hudibras.*

Bare trees, and shrubs, but ill you know
Could shelter them [the birds] from rain or snow
Stepping into their nests, they paddled,
Themselves were chill'd, their eggs were *addled.*
Cowper's Pairing Time Anticipated.

ADDORSEE', in heraldry, or endorsed, back to back, as lions rampant. Leigh gives a coat of arms of this kind to Achilles, at the siege of Troy.

ADDOUBORS, in law. See REDUBBORS.

ADDRESS', *v.* & *n.* } *Addresser.* Fr. *Derecar*, Span. to approach in a straight line, to attend to; to employ time in; to apply to, either by speaking or writing; the noun also signifies a person's exterior demeanour.
ADDRESS'ER. }

Uprose from drowsie couche, and him *addrest*,
Unto the journey which he had dehight.
Sp. F. Q. iii. 8.

It is a most high privilege and advantage to us that we are allowed to pray, and *address* our devotions to God. *Barrow.*

The young hero had *addressed* his prayers to him for his assistance. *Dryden.*

The prince himself, with awful dread possess'd,
His vows to great Apollo thus *addressed.* *Idem.*

His suit was common; but, above the rest,
To both the brother-princes thus *addrest.* *Idem.*

The difficulty of the first *address* on any new occasion, is felt by every man in his transactions with the world; and confessed by the settled and regular forms of salutation which necessity has introduced into all languages. *Rambler*

How shall I speak thee, or thy power *address*,
Thou god of our idolatry—the press? *Cowper*

ADDUA, in ancient geography, a river of Cisalpine Gaul, now ADDA, which see.

ADDUBBED, dubbed, created. *Bailey.*

ADDUCE', *v.* } Ad: *duco;* to lead to; to bring forward, to urge, to allege.
ADDUC'TION, }
ADDUC'TIVE. }

The price had, it seems, before the tax, been a monopoly price; and the argument *adduced* to shew that sugar was an improper subject for taxation, demonstrated, perhaps, that it was a proper one.
Smith's Wealth of Nations.

ADDUCENT MUSCLES, or ADDUCTORS, from *ad*, to, and *ducere*, to draw, those which bring forward, close, or draw together, the parts of the body, whereto they are annexed.

ADDUCTION, in anatomy, the motion or action of the adducent muscles. Thus the ADDUCTOR BRACHII serves to draw the arm toward the trunk of the body; though Winslow finds its office more complicated, and that it acts in concurrence with the flexors and extensors, in bending and extending the arm.

ADDUCTOR INDICIS, is a muscle of the fore-finger, arising from the inside of the bone of the thumb, and inserted into the first bone of the fore-finger, which it draws towards the thumb.

ADDUCTOR MINIMI DIGITI PEDIS; the same as transversalis pedis.

ADDUCTOR OCULI, a muscle of the eye, so called, because it inclines its pupil towards the nose. It is also called *bibitorius;* because it directs the eye toward the cup in drinking.

ADDUCTOR POLLICES, a muscle of the thumb, which arises tendinous, and ascends obliquely towards a broad termination, at the superior part

of the first bone of the thumb. Its office is to bring the thumb near the fore-finger.

ADDUCTOR POLLICIS PEDIS, called also *antithenar*, is a muscle of the great toe, which arises from the inferior part of the os cuneiforme tertium, and is inserted into the internal part of the ossa sessamoidea of the great toe; which it draws nearer the rest.

ADDUCTOR PROSTATÆ, a name by which Santorini describes a muscle, called by Winslow, prostaticus superior. Albinus, from its office, has called it compressor prostatæ.

ADDULCE', *v.* Ad: *dulcis*, to sweeten; to render sweet or agreeable to the palate.

Thus did the French ambassadors, with great shew of their king's affection, and many sugared words, seek to *addulce* all matters between the two kings.
Bacon's Henry VII.

ADEB, in commerce, an Egyptian weight, used principally for rice, and generally consisting of 210 okes, each of three rotolos. The adeb is altogether equal to about two drams less than the English pound.

ADEC, in chemistry, sour milk.

ADECTOS, a medicine that allays the sense of pain, or the uneasiness created by stimulants.

ADEL, or ADAIEL, a kingdom on the eastern coast of Africa, extending, according to Mr. Salt, from the town of Zeila to the straits of Babel-mandel. This country produces corn, and feeds a great number of cattle. The inhabitants carry on a trade in gold, silver, ivory, oil, frankincense, pepper, and other merchandises of Arabia and the Indies. The king was formerly a vassal of Abyssinia: but the Adelites being Mahometans, and the Abyssinians a sort of Christians, in 1535 they came to an open rupture, and the Adelites threw off the yoke of their neighbours, seeking protection from the Grand Seignior. They are represented by modern travellers as a very warlike race, and the most formidable enemies of the Abyssinian tribes. The principal towns mentioned by travellers, are Adela, Zeila, and Barbara; the last two being flourishing seaports.

ADEL, in ichthyology, the lavearetus, or albula nobilis. These are generally treated of by authors as two different kinds of fish. But Artedi contends that they are the same species, and distinguishes them by the name of the coregenus, with the upper jaw flat, and longer than the under; and with fourteen rays in the back fin.

ADELA, a principal town of the kingdom of ADEL, which see.

ADELANTADO, Span. the deputy of a province.

ADELFORS, a town and gold mine in the parish of Alsheda, and district of Jonkioping, in the province of Smaland, Sweden. It was first discovered in 1738, but is not very productive.

ADELIA, in botany, a genus of plants of the order monadelphia, class dicœcia; the characters of which are: CAL. a perianthium, one-leaved, three parted; the florets sublanced and concave. The female calyx is a five-leaved perianthium; the leaflets sublanced, concave, persistent: no COR.: STAM. many capillary filaments the length of the calyx, conjoined at the base; the antheræ roundish: PIST. a roundish germen; the seeds solitary and roundish. In the natural method, this genus belongs to the 38th order, tricoccæ. There are three species; the bernardia, the ricinella, and acidoton, for which we have no proper names in English. They are natives of Jamaica.

ADELIANS, the inhabitants of ADEL, which see.

ADELING. See ATHELING.

ADELME, or ALDHELME, son to Kenred, and nephew to Ina, king of the West Saxons; after having been educated abroad, he was abbot of Malmsbury thirty years. He is said to have been the first Englishman who wrote in Latin, and who brought poetry into England; and the first bishop of Sherburn. He lived in great esteem till his death, which happened in 709. He was canonized, and is mentioned with great honour by Camden and Bayle; William of Malmsbury wrote his life. The last writer says, that Aldhelme, anxious to instruct his countrymen, then semi-barbarous, and half heathens, frequently took his station on the public roads or bridges, and by mixing sacred with lighter topics, won their attention, and meliorated their minds. *Malmsbury*, 3 Gale, 339.

ADELPHI, otherwise FRATELLI ISLANDS, four isles of the Grecian Archipelago, E. of Scopelo, in N. lat. 39°, 22.′ E. long. 24°, 4′.

ADELPHIANI, in church-history, a sect of ancient heretics, who fasted always on Sundays.

ADELPHIUS, the founder of the sect of Adelphiani.

ADELUNG, (John Christopher,) a distinguished German grammarian, philologist, and general scholar, was born in 1734, at Spantekow, in Pomerania. His education was begun at the public schools of Anclam and Closterbergen, and finished at the University of Halle. In 1759, he was appointed professor of the Academy at Erfurt, which office he relinquished, and settled at Leipsic in 1761. Here he was made librarian to the elector of Saxony in 1787, a situation which he held, with the honorary title of Aulic counsellor, until his death in 1806.

Adelung, as well as a great scholar, was also a bon vivant, and boasted of his cellar as a *bibliotheca selectissima*. It is said to have contained forty kinds of wine. But his literary day consisted regularly of fourteen hours. He was the author of a Grammatical and Critical Dictionary, Leipsic, 1774-1786, 5 vols. 4to; of which work new enlarged editions appeared in 1793-1801. Glossarium Manuale ad Scriptores medii et Infimæ Latinitatis, Halle, 1772-1784; three German Grammars; a Treatise on German Style, 2 vols. 8vo; Supplements to Jœcher's Dictionary of Literary Men, 2 vols. 4to; History of Human Folly, or Lives of the most celebrated Necromancers, Alchymists, Exorcists, Diviners, &c.; a Cyclopædia in four parts, a work of great merit; Essay on the History of the Civilization of Mankind; The History of Philosophy, 3 vols.; Treatise on German Orthography, 8vo; The History of the Teutones, their Language and Literature, before the general Migration, 8vo; Mithridate, or a Universal Table of Languages, with the Lord's Prayer in one hundred Languages, 8vo.

ADEMPTION, in civil law, implies the revocation of a grant, donation, or the like.

ADEN, formerly a rich and considerable town of Arabia Felix. It is seated by the sea side, a little eastward of the straits of Babelmandel, and is the capital of a district, or small state, of the same name; but the principal trade it carried on formerly, is now transferred to Mocha. It was taken by the Turks in 1538, and by the Persians in 1605. This district was declared an independent state in 1735, and is governed by its own magistracy. Long. 4°, 0′. E. Lat. 13°, 0′. N.

ADEN, in anatomy, *αδην*, Gr. a gland, glandule, or glandular swelling.

ADENANTHERA, in botany, BASTARD FLOWER FENCE, a genus of plants of the order monogynia, and class decandria. In the natural method, it belongs to the thirty-third order, *Lomentaceæ*. The characters are: CAL. a perianthium of one very small five-toothed leaf: COR. five, bell-shaped, lanceolate, sessile petals, convex within and concave under: STAM. ten erect subulated filaments, shorter than the corolla; the antheræ roundish, incumbent, bearing a globular gland on the exterior top: PIST. a long gibbous germen; the stylus subulated the length of the stamina; the stigma simple: PER. a long compressed membraneous legumen. The seeds very numerous, roundish, and remote.

Only one species of this plant is known in Britain; but there is a variety, with scarlet seeds, which is rare, and grows slowly. It is a native of India.

ADENANTHOS, in botany, a genus of plants of the order monogynia, and class tetrandria, found in New Holland, and so named by Labillardiere.

Its general characters are, CAL. Involucrum, single flower, from four to eight short leaves. COR. One petal, inferior, tubular, cut round near the base, nectary four glands united with the permanent base of the corolla inside. STAM. four short filaments. ANTHERÆ, oblong, and erect. PIST. Germen superior, round: style thread-shaped, longer than the corolla: stigma thicker than the style. PER. Not turned, one cell, single seed. There are four species of this genus.

ADENAU, a market-town and bailiwic of Neuburg, in the Prussian grand duchy of the Lower Rhine.

ADENBURGH, or ALDENBURGH, a town of Westphalia, in the duchy of Berg, 12 miles N. E. of Cologne, and 17 W. of Bonn.

ADENODUS, in botany, a genus of plants of the order monogynia, and class dodecandria, so named by Loureiro, but in fact a species of the ELÆCARPUS, which see. It is a native of Cochin China.

ADENOIDES, in anatomy, glandulous, or of a glandular form; an epithet applied to the PROSTATÆ.

ADENORF, a lordship belonging to Prussia, in the grand duchy of the Lower Rhine.

ADENOSMA, in botany, a New Holland species of the acanthi, or acanthaceæ, with a backed capsulæ. See ACANTHUS.

ADENOS, in commerce, a kind of marine cotton, which comes from Aleppo.

ADENOSUS ABCESSUS, in medicine, a crude hard tubercle, proceeding from obstructions, difficult of discussion, and resembling the appearance of a gland.

ADEONA, in mythology, a goddess invoked by the Romans when they undertook a journey.

ADEPHAGIA, in mythology, the goddess of gluttony, to whom the Sicilians paid religious worship. *Ælian* i. 5. 11. c. 27.

ADEPS, in anatomy, fat; an animal oil, secreted from the blood and contained in the membrana adiposa, or, as Boerhaave calls it, the membrana cellulosa; which is a congeries of a great number of membranous leminæ, joined irregularly to each other at different distances, so as to form numerous interstices which communicate with each other. Neumann divides fats, from their consistence, into three kinds; the first called *pinguedo* is soft and thin; and is found in birds, reptiles, and fishes. The second is thick, liquefies less readily, and is denominated *axungia*. The third is more hard and firm; when taken from the animal it is called *adeps*, and when freed from the skins, &c. *sevum*. The two last kinds of fat are chiefly found in quadrupeds. Animal fats are useful in external applications, for softening and suppling, for abating pains and spasms, and for promoting maturation.

ADEPTI, ADEPTS, from *adipisci*, to obtain, a denomination given to the proficients in alchemy; as Ripley, Lully, Paracelsus.

ADEPTISTS. See ADEPTI.

AD'EQUATE, *v.* & *adj.* } Ad: *æquus*, to lay
AD'EQUATELY, } flat or even to; to equalize, to make equal.

"To fear God that is wisdom;" that is, is the proper and *adequate* wisdom suitable to human nature, and to the condition of mankind.
Hale's Contemplations.

Those are *adequate* ideas, which perfectly represent their archetypes or objects. Inadequate are but a partial or incomplete representation of the archetypes, to which they are referred. *Watts's Logick.*

Gratitude consists *adequately*, in these two things: first, that it is a debt; and secondly, that it is such a debt, as is left to every man's ingenuity, whether he will pay or no, *South.*

Piety is the necessary Christian virtue, proportioned *adequately* to the omniscience and spirituality of that infinite Deity. *Hammond's Fundam.*

ADEQUATE, in logic, is applied to the objects of science. The adequate object of a science includes the material and formal object; the material object of a science, is that part which is common to it with other sciences; the formal is that which is peculiar to itself.

ADEQUATE IDEAS, or notions, in metaphysics, are such images or conceptions of an object, as perfectly represent it, or answer to all the parts and properties of it.

ADERAIMIN. See ALDERAIMIN.

ADERNO, a town of the Val di Demona, in Sicily, at the foot of Mount Ætna: anciently ADRANUM, 17 miles W. N. W. of Catania.

ADES, or HADES, *αδης*, from *α* and *ιδειν*, to see, the invisible state. In the heathen mytho-

logy, it comprehends all those regions that lie beyond the river Styx, viz. Erebus, Tartarus, and Elysium. See HELL. Strictly, Ades was the god of hell among the Greeks, as Pluto among the Latins.

Dr. Campbell has a long and interesting dissertation on the use of this word, prefixed to his Gospels, in which he contends, that it never means either simply the grave, the place of departed bodies, or a place of punishment for souls, in the New Testament: but solely the intermediate state, or abode of departed spirits generally. Thus, according to his view, both the rich man and Lazarus, in the parable, Luke xvi. 19—23, were in *ἅδης*, only in very different situations.

ADESSENARII, ADESSENARIANS, from *adesse*, to be present, in church history, a sect of the Reformation, who held Jesus Christ really present in the eucharist; but in a manner different from transubstantiation. They were greatly divided amongst themselves.

ADFECTED EQUATION, in algebra, is that where the unknown quantity is found in two or more different degrees, or powers.

ADFILIATIO, ADFILIATION, a Gothic custom, where a person who has children by a former wife, renders them capable of inheriting equally with the children of the second. This is called, by some, *adoptio per matrimonium*; and is still retained in Germany, under the name *eindkindschafft*, and *uni prolium*.

AD FINES, a town of Swisserland, supposed to be the modern Pfin, not far from the borders of Suabia, about half way between Constance and Frauenfield. It was so called, because after Cecinna, general of Vitellius, had defeated the Helvetii, it formed the border of the Roman empire in this quarter.

ADHA, in mythology, a festival which the Mahometans celebrate on the 10th day of the month *Dhoulhegiat*, which is the 12th and last of their year. It signifies the month of pilgrimage, because on that day they sacrifice with great solemnity, at Mecca, and no where else, a sheep, which is called by the same name as the festival itself. The Turks call this festival the Great Beiram. See BEIRAM.

ADHATODA, in botany, the Malabar nut, the justicia of Linnæus. Tournefort enumerates four species.

ADHELM, or ALDHELME. See ADELME.

ADHELME'S HEAD, (St.) a lofty promontory on the coast of Dorset, 440 feet in altitude, nearly perpendicular to the sea, and exhibiting the ruins of a small chapel.

ADHERE', *v.*
ADHE'RENCE,
ADHE'RENCY.
ADHE'RENT, *n.* & *adj.*
ADHE'RER,
ADHE'SION,
ADHE'SIVE.

Ad: *hæreo*: to stick to, to be fixed to; to cleave to, hold and maintain; to be attached to.

Good gentlemen, he hath much talk'd of you;
And sure I am, two men there are not living,
To whom he more *adheres*. *Shaksp. Hamlet.*

Every man of sense will agree with me, that singularity is laudable; when, in contradiction to a multitude, it *adheres* to the dictates of conscience, morality, and honour. *Boyle.*

Princes must give protection to their subjects and *adherents* when worthy occasion shall require it. *Raleigh.*

The firm *adherence* of the Jews to their religion is no less remarkable than their dispersion; considering it as persecuted or contemned over the whole earth. *Addison.*

If slow, yet sure, *adhesive* to the tract,
Hot steaming up. *Thomson.*

ADHERENCE, ACTION OF, in Scots law; an action competent to a husband or wife, to compel either party to adhere, in case of desertion.

ADHESION, in anatomy, a term for one part sticking to another, which in a natural state are separate. For the most part, if any of those parts in the thorax or belly lie in contact, and inflame, they grow together. The lungs very frequently adhere to the pleura. The dura mater always adheres to the cranium, and there have been instances of adhesion of the intestines.

ADHESION, in philosophy. See COHESION.

ADHI'BIT, Ad: *habeo, adhibeo*, to have to or near; to make use of; to pay attention to; to accredit.

To which counsel there were *adhibit* very few, and they very secret. *Sir T. More's Works*, p. 52.

Salt, a necessary ingredient in all sacrifices, was *adhibited* and required in this view only, as an emblem of purification. *President Forbes's Letter to a Bishop.*

ADHIL, in astronomy, a star of the sixth magnitude, upon the garment *συρμα*, of Andromeda, under the last star in her foot.

ADJA'CENCY, *n.* } Ad: *jaceo*, to lie near
ADJA'CENT, *n.* & *adj.* } to; lying beside; bordering on something.

And gif thy mynd be ferne therto with me,
I sal this mekil eik to my werke. quod sche
For til induce the cieties *adjacent*,
Vnto the bargane. *Douglas*, book vii. p. 227

It may corrupt within itself, although no part of it issue into the body *adjacent*. *Bacon*

Uniform pellucid mediums, such as water, have no sensible reflection but in their external superficies, where they are *adjacent* to other mediums of a different density. *Newton.*

He, with Palemon, oft recorded o'er
The tales of hapless love in ancient lore,
Recall'd to memory by th' *adjacent* shore.
Falconer's Shipwreck.

ADIANTHUM, in botany, maiden-hair; a genus of plants of the order filices, and class, cryptogamia. The GEN. CHAR. is, fructifications collected in oval spots under the reflected tops of the fronds. Botanical writers enumerate forty-four species. They are perennials and the following are the most remarkable:

1. ADIANTHUM CAPILLUS VENERIS, or true maiden-hair, is a native of the southern parts of France; likewise said to grow plentifully in Cornwall.

2. ADIANTHUM PEDATUM, or American maiden-hair, a native of Canada.

3. ADIANTHUM TRAPEZIFORME, or black American maiden-hair, a native of Jamaica. Others are the Adianthum reniforme, or monophyllum, the hemionitis, or felix hemionitis, adianthum radiatum, lonchitis radiata, or trichomanes Americanum radiatum, &c.

ADIAPHORISTS, or ADIAPHORISTÆ, from

α, privative, and διαφορος, different, a name given in the sixteenth century to the moderate Lutherans who adhered to the sentiments of Melancthon; and afterwards to those who subscribed the Interim of Charles V.

ADIAPHOROUS, Adiaphorus, in chemistry, a name given by Mr. Boyle to a kind of spirit distilled from tartar and some other vegetable bodies; and which is neither acid, vinous nor urinous; but in many respects different from any other sort of spirit.

ADIAPNEUSTIA, from α, δια, and πνεω, I breathe, in medicine, signifies defective respiration, from dense pores, &c.

ADIAPTOTOS Αδιαπτοτος, firm, a name given by physicians to a remedy for the cholic, consisting of stone parsley, henbane-seed, white pepper, &c. made into an electuary.

ADIARRHŒA, from α, δια, and ῥεω, I flow, in medicine, a total suppression of all the necessary evacuations.

ADIATORIX, in history, the Roman governor of Galatia, in the time of Anthony, who, to recommend himself to the favour of that general, put to death in one night the whole of the inhabitants of Heraclea, in Pontus, for which Augustus caused him to be strangled. *Strabo.* xii.

ADJAZZO, or Ajaccio. See Ajaccio.

Adject', *v.* Adjec'tion, Adjecti'tious, Ad'jective, Adjec'tively. } Ad: *jacio, adjicio, adjectum*, to cast or throw to; to throw in additionally; to super-add.

That unto every pound of sulphur, an *adjection* of one ounce of quicksilver; or unto every pound of peter, one ounce of sal-ammoniac, will much intend the force, and consequently the report, I find no verity. *Brown's Vulgar Errours.*

It is probable that they made the child's name by *adjecting* the syllable son to the appellation of the father. *Fuller's Worthies.*

There is a gross mistake made between an *adjected* and an *adjective* word; that is, between a word *laid close* to another word, and a word which *may lye close* to another word. *Tooke's Div. of Porley.*

An Adjective, in grammar, is defined by Harris, as having no assertion, and denoting only such an attribute as has not its essence either in motion or its privation. It is clearly a word *adjected* or adjoined to another to exhibit its qualities be they what they may. We reserve to the article Grammar, the more full consideration of its functions.

ADIEU', *à dieu*, Fr. to God; I commend you to God; Farewell.

Ne gave him leave to bid that aged sire
Adieu! but nimbly ran her wonted course.
Faerie Queene.

Use a more spacious ceremony to the noble lords; you restrained yourself within the list of too cold an *adieu*: be more expressive to them.
Shakspeare's All's Well that ends Well.

While now I take my last *adieu*,
Heave thou no sigh, nor shed no tear;
Lest yet my half-clos'd eye may view
On earth an object worth its care. *Prior.*

ADIGE, a considerable river of Italy, which taking its rise south of the lake Glare among the Alps, runs south by Trent, then east by Verona, in the territory of Venice, and falls into the gulph of Venice, north of the mouth of the Po; passing in its course, Tyrol, Brixen, Trent, Verona, and Rovigo.

ADILABAD, a town of Hindostan, in the Mahratta dominions, and province of Khandest, on the Poornah river, twenty miles south of Boorhampoor, near which is a lake, held in great veneration by the Hindoos.

ADIMANTUS, in history, 1. a commander of the Athenian fleet taken by the Spartans, whose life alone was spared by the captors. 2. A brother of Plato, mentioned by Diogenes. 3. A Corinthian general who taunted Themistocles. 4. A king struck with thunder, for mocking Jupiter. *Ovid.*

AD INQUIRENDUM, in law, a judicial writ, commanding inquiry to be made of any thing touching a cause depending in the king's court.

Adjoin', *v.* Adjoin'edly Adjoin'ant, *n.* & *a.* Ad'junct, *n.* &. *adj.* Adjunc'tion. } Ad: *jungo, junctus*, Lat. *joindre joint*, Fr. to join to; to connect one with another, to fasten, to place near, or contiguous.

Also I bequeth unto as many godchildern as I have lyving in the countie of Essex, and specially in the parrishes to my mansion *adioynant*, to every of them viiid. *Fabian's Will.*

Here with these grave *adjoynts*
(These learned maisters,) they were taught to see,
Themselves to read the world, and keep their points. *Dan. Civ. Wars.* iv. 69

As one, who long in populous city pent,
Forth issuing on a summer's morn to breathe
Among the pleasant villages and farms
Adjoin'd, from each thing met conceives delight.
Milton.

Learning is but an *adjunct* to ourself,
And where we are, our learning likewise is.
Shakspeare's Love's Labour Lost.

As a massy wheel,
Fixt on the summit of the highest mount,
To whose huge spoke ten thousand lesser things
Are mortis'd and *adjoined*. *Shakspeare.*

Th' *adjoining* fane the assembled Greeks express'd.
And hunting of the Caledonian beast. *Dryden.*

In learning any thing, as little should be proposed to the mind at once as is possible; and, that being understood and fully mastered, proceed to the next *adjoining*, yet unknown, simple, unperplexed proposition, belonging to the matter in hand, and tending to the clearing what is principally designed.
Locke.

Corrections or improvements should be as remarks *adjoined*, by way of note or commentary, in their proper places; and superadded to a regular treatise.
Watts.

ADJOINING Angles, in geometry. See Geometry.

Adjourn' Adjourn'ment } Ad: *jour*, day, *ajourner*, Fr. to separate, in order to put off the consideration of business to another day, or time specified, or understood; to another part of the same day; also to refer indefinitely; to postpone, to delay.

To maynten his partie þei hete to help him wele,
He *aiorned* þam to relie in þe north at Carlele,
After Midesomer's tide þorgh comon ordinance
No lenger sulc þei bide, bote forth and stand to chance. *R. Brunne.*

And vpon ye viii day of July, kynge [Henry VI.] this yere began his parlyament at Westmynster, and so contynued it tyll Lammas, and then it was *aiourned* vnto Seynt Edwardes daye. *Fabyan.*

Or how the sun shall, in mid heaven, stand still
A day entire, and night's due course *adjourn*,
Man's voice commanding.
Milton's Paradise Lost.

During the *adjournments* of that awful court, a neighbour of mine was telling me, that it gave him a notion of the English hospitality to see Westminster hall a dining-room. *Tatler.*

ADJOURNMENT, in law, from *ad*, to, Lat. and *jour*, day, Fr. The putting off a court, or other meeting till another day. Adjournment and prorogation of the parliament are to be distinguished; the former being an act of each house itself; whereas the latter is an act of royal authority.

ADIPOCIRE, from *adeps*, fat, and *cera*, wax, a chemical substance of a light brown colour, formed by the soft parts of animal bodies after death, and when kept for some time from the atmospheric air, or exposed to water. It is generally formed when a considerable *quantity* of human bodies have been interred together, and was first noticed in the burial ground of the Innocents at Paris; where the poor had been interred in pits of thirty feet deep, and twenty broad, with nothing but thin planks between them. There have, however, been instances of bodies interred separately, being changed into this substance.

Mary Howard, aged forty-four, died on the 12th May, 1790, and was buried in a grave, ten feet deep, at the east end of Shoreditch churchyard, ten feet to the east of the great common sewer, which runs from north to south, and has always a current of water in it, the usual level of which is eight feet below the level of the ground, and two feet above the level of the coffins in the graves. In August 1811, the body was taken up, with some others buried near it, for the purpose of building a vault, and the flesh in all of them was converted into adipocire or spermaceti. At the full and new moon the tide raises water into the graves, which at other times are dry. To explain the extraordinary quantities of fat or adipocere formed by animals of a certain intestinal construction, Sir E. Home observes, that the current of water which passes through their colon, while the loculated lateral parts are full of solid matter, places the solid contents in somewhat similar circumstances to dead bodies in the banks of a common sewer.—*Philosophical Transactions*, 1813.

Grave diggers assert that near three years are required to change a body into this curious substance. But Dr. Gibbes of Bath, found, that lean beef secured in a running stream was converted into this fatty matter at the end of a month. He judges from facts, that running water is most favourable to this process. He took three lean pieces of mutton, and poured on each a quantity of the three common mineral acids. At the end of three days, each was much changed: that in the nitric acid was very soft, and converted into the fatty matter; that in the muriatic acid was not in that time so much altered; the sulphuric acid had turned the other black. M. Lavoisier thinks that this process may hereafter prove of great use in society.

The chemical properties of adipocire have attracted some attention, since its discovery on so large a scale, at Paris: and the principal facts established, seem to be, that a true ammoniacal soap is first yielded, composed of ammonia, a concrete oil, and water. An analysis of the oil may be obtained pure from this substance, and to that more strictly, the name adipocire is given.

One French chemist gives the result of the exposure of a human liver to the common air, as terminating in a similar substance. It partly putrified, he says, when first exposed in his laboratory, without emitting any very noisome smell. Larvæ of the dermestes and bruchus, attacked and penetrated it in various directions: at last it became dry, and after more than ten years' suspension, it was converted into a white friable substance, resembling dried agaric, which might have been taken for an earthy substance. In this state it had no perceptible smell. M. Poulletier was desirous of knowing the state of this animal matter, and experiment soon convinced him and M. F. that it was very far from being in the state of an earth. It melted by heat, and exhaled in the form of vapour, which had the smell of a very fetid fat; spirit of wine separated a concrescible oil, which appeared to possess all the properties of spermaceti. Each of the three alkalis converted it into soap; and, in a word, it exhibited all the properties of the fatty matter of the burial-ground of the Innocents exposed for several months to the air.

For the following abridgment of M. Fourcroy's experiments on this matter, we are indebted to Dr. Ure.

1. This substance is fused at a less degree of heat than that of boiling water, and may be purified by pressure through a cloth, which disengages a portion of fibrous and bony matter. 2. The process of destructive distillation by a very graduated heat was begun, but not completed on account of its tediousness, and the little promise of advantage it afforded. The products which came over were water charged with volatile alkali, a fat oil, concrete volatile alkali, and no elastic fluid during the time the operation was continued. 3. Fragments of the fatty matter exposed to the air during the hot and dry summer of 1786, became dry, brittle, and almost pulverulent at the surface. On a careful examination, certain portions were observed to be semi-transparent, and more brittle than the rest. These possessed all the apparent properties of wax, and did not afford volatile alkali by distillation. 4. With water this fatty matter exhibited all the appearances of soap, and afforded a strong lather. The dried substance did not form the saponaceous combination with the same facility or perfection, as that which was recent. About two-thirds of this dried matter separated from the water by cooling, and proved to be the semi-transparent substance, resembling wax. This was taken from the surface of the soapy liquor, which being then passed through the filter, left a white soft shining matter, which was fusible and combustible. 5. Attempts were made to ascertain the quantity of

volatile alkali in this substance, by the application of lime, and of the fixed alkalis, but without success: for it was difficult to collect and appreciate the first portions which escaped, and likewise to disengage the last portions. The caustic volatile alkali, with the assistance of a gentle heat, dissolved the fatty matter, and the solution became perfectly clear and transparent at the boiling temperature of the mixture, which was at 185° F. 6. Sulphuric acid, of the specific gravity of 2.0, was poured upon six times its weight of the fatty matter, and mixed by agitation. Heat was produced, and a gas effluvium of the most insupportable putrescence was emitted, which infected the air of an extensive laboratory for several days. M. Fourcroy says, that the smell cannot be described, but that it is one of the most horrid and repulsive that can be imagined. It did not, however, produce any indisposition either in himself, or his assistants. By dilution with water, and the ordinary processes of evaporation and cooling, properly repeated, the sulphates of ammonia and of lime were obtained. A substance was separated from the liquor, which appeared to be the waxy matter, somewhat altered by the action of the acid. 7. The nitrous and muriatic acids were also applied, and afforded phenomena worthy of remark, but which for the sake of conciseness are here omitted. 8. Alcohol does not act on this matter at the ordinary temperature of the air. But by boiling it dissolves one-third of its own weight, which is almost totally separable by cooling as low as 55°. The alcohol, after this process, affords by evaporation a portion of that waxy matter which is separable by acids, and is therefore the only portion soluble in cold alcohol. The quantity of fatty matter operated on was four ounces, or 2304 grains, of which the boiling spirit took up the whole except twenty-six grains, which proved to be a mixture of twenty grains of ammoniacal soap, and six or eight grains of the phosphates of soda and of lime. From this experiment, which was three times repeated with similar results, it appears that alcohol is well suited to afford an analysis of the fatty matter. It does not dissolve the neutral salts; when cold, it dissolves that portion of concrete animal oil from which the volatile alkali had flown off; and when heated, it dissolves the whole of the truly saponaceous matter, which is afterwards completely separated by cooling. And accordingly it was found, that a thin plate of the fatty matter, which had lost nearly the whole of its volatile alkali, by exposure to the air for three years, was almost totally dissolved by the cold alcohol. The concrete oily or waxy substance obtained in these experiments, constitutes the leading object of research, as being the peculiar substance with which the other well known matters are combined. *See Journal de Physique*, tom. xxxviii. &c. *Nicholson's Journal*, vol. iv. p. 135. *Phil. Trans.* 1794, vol. lxxxiv. vol. lxxxv.

ADIPOSA MEMBRANA, in anatomy, a membrane that incloses the *Cellulæ Adiposæ*.

ADIPOSA VENA, in anatomy, a vein, arising from the descending trunk of the cava, which spreads itself on the coat and fat of the kidneys.

ADIPOSE, a term used by anatomists for any cell, membrane, &c., that is remarkable for its fatness. See ADEPS.

ADIPOSI DUCTUS, in anatomy, vessels which convey the fat into the interstices of the muscles, or part between the flesh and the skin.

ADIPSON, from the privative *α*, and *διψα*, thirst, in medicine, a name given by Hippocrates, to oxymel, the ptissana, and other medicines, administered for allaying thirst.

ADIPSOS, in botany, the Egyptian palm tree; also, an epithet for the glycerrhiza or liquorice tree of Linnæus. Likewise, in medicine, a catapotium, or pill, composed by Asclepiades, and mentioned by Galen.

ADIRBEITSAN, in geography. See AZERBIJAN.

ADIRGE, in chemistry, *sal ammoniacum*.

ADIT OF A MINE, the hole or aperture, whereby it is entered and dug, and by which the water and ores are carried away. The term amounts to the same with *cuniculus* or *drift*, and is distinguished from *air-shaft*. See MINING.

ADIT OF A SHIP, in antiquity, was a space in the upper part, where the ship was widest, at which people entered, anciently called *agea*.

ADITS OF A THEATRE, *aditus theatri*, in antiquity, were doors on the stairs, whereby persons entered from the outer porticos, and descended into the seats.

ADITIS, in history, an ancient tribe of Arabs, frequently mentioned in the Koran, and said to have been descended from Ace, the son of Acos, or Uz, *Gen.* x. 22, 23. Incredible accounts are given of their stature; but see Sales's Introduction to the Koran, and *Kor.* chap. vi.

ADIVE, in zoology, a small jackal, the canis aureus of Linnæus, and resembling, according to Buffon, a small fox.

ADJUDGE', *v*, ADJUDG'MENT, ADJUDICA'TION, } Ad: *judico*, to judge, or sentence to; to express a judicial decision; to determine an affair.

Then the kynge made a promyse by othe, that he wolde be obedyent vnto the court of Rome, and stand and obey all things y^t^ the court woll *adiuge* hym.
Fabian.

To her therefore
The fayrest lady was *adjudg'd* for paramore.
Spencer's Faerie Queene.

I have shewed sir Kenelm Digby both our translations of Martial's Vitam quæ faciunt beatiorem, &c. and to tell you true, he *adjudged* your's the better.
Howell's Letters.

ADJUDICATION, in Scots law, the name of that action by which a creditor attaches the heritable estate of his debtor, or his debtor's heir, in order to appropriate it to himself, either in payment or security of his debt; or, that action by which the holder of an heritable right, labouring under any defect of form, may supply that defect.

ADJUNCT, in metaphysics, some quality belonging to either body or mind, whether natural or acquired. Thus thinking is an adjunct of the mind, and growth of the body.

ADJUNCT, in music, a word employed to denominate the connection or relation between the

principal mode and the modes of its two-fifths, which, from the intervals that constitute the relation between them and it, are called its adjuncts.

ADJUNCT, in philosophy, something added to another, without being any necessary part of it. Thus water absorbed by cloth or a sponge, is an adjunct, but no necessary part of either of these substances.

ADJUNCTS OF THE GODS, or ADJUNCT GODS, among the Romans, were a kind of inferior deities, added as assistants to the principal ones. Thus, to Mars was adjoined Bellona and Nemesis; to Neptune, Salacia; to Vulcan, the Cabiri, &c.

AD JURA REGIS, in ecclesiastical affairs, a writ brought by the king's clerk, against him who endeavours to eject him presented to a living, and thus to prejudice the king's right of presentation.

ADJURE', *v.* } Ad: *juro*, to swear to; to
ADJURA'TION, } put upon oath; to prescribe the solemnity of an oath; to charge earnestly, or solemnly.

But Jesus held his peace. And the high priest answered and said unto him, I *adjure* thee by the living God, that thou tell us whether thou be the Christ, the Son of God. *Matt.* ch. xxvi. v. 63.

SPIRIT. She will be swift
To aid a virgin, such as was herself,
In hard besetting need; this will I try,
And add the power of some *adjuring* verse.
Milton's Comus.

A Persian humble servant of the sun,
Who though devout, yet bigotry had none,
Hearing a lawyer grave in his address,
With *adjurations* every word impress;
Supposed the man a bishop, or at least,
(God's name so much upon his lips,) a priest,
Bowed at the close with all his graceful airs,
And begged an interest in his frequent prayers.
Cowper.

ADJUST', *v.* } *Ajuster*, Fr. to dispose; to
ADJUST'ER, } set in order; fit, adopt, me-
ADJUST'MENT. } thodize, accommodate.

For these ne been yet no remedies of the malady, but they ben a manner norishing of thy sorrows, that rebell ayenst thy curacion. For whan time is I shal moue and *aiust* soch things, that percen hem ful depe. *Chaucer*, ii. b. *of Boecius.*

It is a vulgar idea we have of a watch or clock, when we conceive of it, as an instrument made to shew the hour; but it is a learned idea, which the watch-maker has of it; who knows all the several parts of it, together with the various connections and *adjustments* of each part. *Watts's Logick.*

What, but God?
Inspiring God! who, boundless spirit all;
And unremitting energy pervades,
Adjusts, sustains, and agitates the whole?
Thomson.

It is observable, that, either by nature or by habit, our faculties are fitted to images of a certain extent, to which we *adjust* great things by division, and little things by accumulations. *Rambler.*

Promises of friendship are, like all others, useless and vain, unless they are made in some known sense, *adjusted* and acknowledged by both parties. *Rambler*, No. 13.

ADJUTAGE. See AJUTAGE.

ADJUTANT, in the military art, is an officer, whose duty is to assist the major, by distributing the pay, and overseeing the punishment of the common men: besides which, he is to receiv orders every night from the brigade major; which after carrying to the colonel, he delivers out t the serjeants. When detachments are to be made he gives the number to be furnished by each com pany or troop, and assigns the hour and place o rendezvous. He also places the guards, receives and distributes the ammunition to the companies &c.. and, by the major's orders, regulates th price of bread, beer, and other provisions.

ADJUTANT-GENERAL, is an officer of distinc tion, who aids and assists the general. He form the several details of duty of the army, with th brigade majors, and keeps an exact state of each brigade and regiment, with a roll of the lieutenant generals, major generals, colonels, lieutenant colonels, and majors. Every day at head quarters, he receives orders from the general officer of the day, and distributes them to the majors of brigades, from whom he receives the number of men they are to furnish for the duty of the army, and informs them of any details which concern them. On marching days, he accompanies the general to the ground of the camp. He makes a daily report of the situation of all the posts placed for the safety of the army, and of any changes made in their posts. In a day of battle, the adjutant-general sees the infantry drawn up, after which he places himself by the general to receive orders. In a siege, he visits the several posts and guards of the trenches, and reports their situation, and how circumstanced; he gives and signs all orders for skirmishing parties, (if time permit,) and has a serjeant from each brigade, to carry any orders which he may have to send.

ADJUTANTS-GENERAL, among the Jesuits, a select number of fathers, who resided with the general of the order, each of whom had a province or country assigned him, as England, Holland, &c., and their business was to inform the father general of state occurrences in such countries. To this end they had their correspondents delegated, emissaries, visitors, regents, provincials, &c.

ADJUTE',
ADJ'UTANCY, } Ad: *juro—jutum*, to help to;
ADJ'UTANT, } to assist; to succour; to promote
ADJUV'ANT, } the advantage of. Adjute is
ADJU'MENT, } now obsolete.
ADJU'TORS.

Whereon the king a parliament procur'd,
To fix some things whose fall he else might fear,
Whereby he hop'd the queen to have abjur'd,
His son, and such as their *adjutors* were.
Drayton's Baron's Wars.

ACC. For there be
Sixe batchelers, as bold as he,
Adjuting to his companee,
And each one hath his liverie.
Jonson's King's Entertainment at Welbeck.

I have only been a careful *adjuvant*, and was sorry I could not be the efficient. *Sir H. Yelverton*, 1609.

He had a due regard for his person; for in great battles he would set in his pavilion, and manage all by *adjutants*. *Bacon's Disc.*

As nerves are *adjuments* to corporal activity, so are laws the hinges on which politique bodies act and move. *Waterhouse.*

It was no doubt disposed with all the *adjutancy* of definition and division. *Burke.*

ADJUTORIUM, in anatomy, the humerus shoulder bone. Also, a term used by physicians for any medicine in a prescription but the capital one.

ADJYGHUR, or the impregnable fortress, as the word signifies, an ancient fortress of Hindostan, in the province of Bundelcund, which commands the mountain-pass between Callinger and Pannah. It resisted the British arms for some time in 1809, and cost the besiegers a great number of troops before it was evacuated by the zemindar. On this occasion, the father-in-law of that chieftain, was sent into the female apartments by the British, to announce to the wives of the zemindar the necessity of their leaving the place; when he cut the throats of all the women and children, eight in number, and afterwards his own, without the slightest disturbance being heard without.

ADLE-EGGS. See ADDLE.

ADLEGATION, in the public law of the German empire, a right claimed by certain states of the empire of adjoining plenipotentiaries, in public treaties and negociations, to those of the emperor, for the transacting of matters which relate to their common interests. Several princes and states of the empire, enjoy the right of legation, (or sending ambassadors on their own particular affairs,) who have not that of adlegation, and *vicé versâ*.

ADLERBERG, or ARLBERG, one of the Suabian territories, of the Tyrolese Alps, separating the Tyrol from the country of the Grisons. It gives name to the adjacent lordships of Voralberg, and is covered with pines and brushwood. Joseph II. cut a fine road across these hills in 1786.

ADLOCUTION, ADLOCUTIO, in Roman antiquity, the address made by generals to their armies, to encourage them before a battle; often expressed on medals by the abbreviature ADLOCUT. COH.—The general is represented as seated on a tribunal, or on a bank or mount of turf, with the cohorts ranged orderly round him.

ADLONGUM, in music, ancient church music written in square notes and semibreves.

ADMAH, the most easterly of the four cities that were destroyed by fire from heaven with Sodom.

ADMANUENSES, in ancient law books, denote persons who swore by laying their hands on the book, and thus stood opposed to clerks, whose word was, according to Ducange, reputed as their oath.

ADMEA'SURE, ADMEA'SUREMENT. } See MEASURE.

The antient and most effectual method of proceeding is by writ of *admeasurement* of pasture.*****And upon this suit all the commoners shall be *admeasured*. *Blackstone's Commentaries.*

ADMETUS, in mythology, a king of Pheræ in Thessaly, whose cattle Apollo kept for nine years, and obtained from the Fates, a dream, that Admetus should never die, if any one could be found to sacrifice life in his behalf, which Alcestæ his wife, did. *Ovid de Art.* Am. iii. Pont. iii. &c.

ADMINICLE, in Scots law, signifies any writing or deed referred to by a party, in an action of law, for proving his allegations.

ADMINICULATOR, an ancient officer of the church, whose business it was to attend to, and defend the cause of the widows and orphans.

ADMIN'ISTER, *v.* ADMIN'ISTRATE, *v.* ADMINISTRA'TION, ADMINISTRA'TOR. } Ad: *ministro*, from *minus*, or *minor*, to serve to; to act as servant, agent, or deputy; to officiate under the sanction of law or otherwise; to give, to help, to supply.

Power me thought yᵗ I had to keep from mine enemies, and mee seemed to shine in glory of renoume, as manhood asketh in mean, for no wight in mine *administracion*, coud none yuels ne trechery by soth cause on me putte.

Chaucer, Test. of L. b. ii. f. 304.

There are dyuersites of gyftes, yet but one sprete. And ther are differences of *admynystracyōs*, and yet but one Lorde. *Bible*, 1539. 1 *Cor.* ch. xii.

For forms of government let fools contest;
What'er is best *administer'd*, is best.
Pope's Essay on Man.

He [the king] is ours,
T' *administer*, to guard, t' adorn the state,
But not to warp or change it. We are his,
To serve him nobly in the common cause,
True to the death, but not to be his slave.
Cowper's Task.

ADMINISTRATION, in anatomy, a name given by Galen and Harvey to the manner of dissecting the human body, particularly the muscles. In which sense, administration is synonymous with *encheiresis*, exercise, &c.

ADMINISTRATOR, in law, he to whom the ordinary commits the administration of the goods of a person deceased, in default of an executor. An action lies for, or against an administrator, as for, or against an executor; and he shall be accountable to the value of the goods of the deceased, and no farther: unless there be waste, or other abuse chargeable on him. If the administrator die, his executors are not administrators; but the court is to grant a new administration.—If a stranger, who is neither administrator nor executor, take the goods of the deceased, and administer, he shall be charged and sued as an executor, and not as an administrator. The administrator, in Scot's law, is a person legally empowered to act for another whom the law presumes incapable of acting for himself. Thus tutors or curators are sometimes styled administrators in law to pupils, minors, or fatuous persons. But more generally the term is used to imply that power, which is conferred by the law upon a father, over the persons and estates of his children during their minority.

ADMIRABILIS SAL, the same with Glauber's salt. See CHEMISTRY.

ADMIRAL, *amiral*, Fr. of doubtful etymology. The chief commander of a greater or smaller number of ships of war, or of the whole naval force of a country.

He also, in battle in sea, overthrew Rodericus Rotundus, *admiral* of Spain, in which fight the *admiral* with his son were both slain, and seven of his gallies taken. *Knolles.*

Make the sea shine with gallantry, and all
The English youth flock to their *admiral*.
Waller.

ADMIRAL, in naval politics, an officer who takes the command of a fleet or squadron, or the general government of the king's navy; together with the hearing and determining all causes that may arise, civil or criminal, within the circle of maritime affairs.

With respect to the origin of this title, authors are divided, although the office itself has been established in almost all maritime countries. Some have traced it to the oriental languages; others to the Greek; but the most probable opinion, is that of Spelman, who thinks, that both the name and dignity were derived from the Saracens, and, by reason of the holy wars, brought amongst us; for *admiral*, in the Arabian language, signifies a prince, or chief ruler, and was the ordinary title of the governors of cities, provinces, &c. and therefore they called the commander of the navy by that name, as a name of dignity and honour. And indeed there are no instances of admirals in this part of Europe, before the year 1284, when Philip of France, who had attended St. Louis in the wars against the Saracens, created an admiral. Du Cange assures us, that the Sicilians were the first and the Genoese the next, who gave the denomination of *admiral* to the commanders of their naval armaments; and that they took it from the Saracen or Arabic *Emir*, a general name for every commanding officer.

The name also occurs once in the history of France, in the year 558. *And. Com.* vol. i. p. 23.

The exact time when this word was introduced among us, is uncertain; some think it was in the reign of Edward I. before whose time, the chief naval officer was distinguished by the name of 'custos maris.' But Sir Henry Spelman is of opinion that it was first used in the reign of Hen. III. because neither the laws of Oleron, made in 1266, nor Bracton, who wrote about that time, make any mention of it; and that the term admiral was not used in the charter of the eighth of Hen. III. wherein he granted this office to Richard de Lacey, by these words, *Maritimam Angliæ*; but in the fifty-sixth year of the same reign, not only the historians, but the charters themselves, very frequently use the word admiral. It is certain, however, that in the reign of Edw. I. who distinguished himself in the naval service of the crusades, the title of admiral de la mer du roy d'Angleterre, was conferred for the first time, as a mark of public honour, on W. de Leybourne. Shortly afterwards, the jurisdiction of the English seas was committed to the management of three or four admirals, all of them holding the office *durante bene placito*; and each having particular limits under his charge and government: as admiral of the fleet of ships, from the mouth of the Thames, northward, southward, or westward. Besides these, there were admirals of the Cinque Ports, as in the reign of Edward III. when one William Latimer was styled *admiralis quinque portuum*; and we sometimes find that one person has been admiral of the fleets to the southward, northward, and westward, at the same time.

From the reign of Edward II. a regular succession of admirals may be distinctly traced; and in the thirty-fourth of Edward III. John de Beauchamp, lord warden of the Cinque Ports, was created high-admiral of England. There was, however, a title above this, viz. '*locum tenens regio super mare*,' the king's lieutenant-general of the seas. The office of high-admiral was soon after divided for a few years into those of the northern and western admiral. Richard Fitz Alain, son of the earl of Arundel, being made admiral of England, by patent of Richard II. was succeeded by the duke of Albermarle, under the title of high-admiral of the north and west; but the title of admiralis Angliæ, was resumed in the reign of Henry IV. and conferred upon the king's brother; and the office itself invested with most of its present powers. Persons of high rank, frequently unacquainted with naval concerns, were placed in it, as a post of honour; and thus it continued until 1632, when it was put into commission, as it remained during the protectorate of Cromwell. James II. while yet duke of York, exercised the functions of lord high-admiral for several years, during the reign of his predecessor, and had the merit of making it a most effective and useful office: some of its naval regulations being still observed. In the time of William and Mary, the powers of lord high-admiral were committed, by stat. ii. cap. 2. to the lords commissioners of the admiralty. Prince George of Denmark enjoyed this office a short time, in the reign of queen Anne; and during his commission, a change took place in its perquisites, which, with the exception of £2500 per annum, he alienated to the crown. After his relinquishment, the office returned to seven lords-commissioners, according to the original statute of William and Mary, and the annual income was augmented to £1000 for each; although, at present, that of the first lord is equal to £5000 per annum. The surplus revenue, so deviated, forms what are called the droits of admiralty, and is applied at the pleasure of government.

To the office of Lord HIGH ADMIRAL, or Lords Commissioners of the Admiralty of England, belong the universal government and management of the Royal Navy, the decision of all maritime cases, whether civil or criminal, a jurisdiction upon or beyond the sea in all parts of the world; upon the sea coasts in all ports, havens, or harbours, and upon all rivers below the nearest bridge to the sea. According to the terms of the patent, he is empowered "To preserve all public streams, ports, rivers, fresh waters and creeks, whatsoever, within his jurisdiction, as well for the preservation of the ships as of the fishes; to reform too strait nets and unlawful engines, and punish offenders; to arrest ships, mariners, pilots, masters, gunners, bombadiers, and any other persons whatsoever, able and fit for the service of ships, as often as occasion shall require, and wheresoever they shall be met with; to appoint vice-admirals, judges, and other officers, *durante bene placito*; to remove, suspend,

or expel them, and put others in their places; to take cognizance of civil and maritime laws, and of death, murder, or maim." The Lord Warden of the Cinque Ports has, nevertheless, a jurisdiction exempt from the control of the Admiralty within these ports. The jurisdiction of the Lord High Admiral is confined to the sea; for instance, if a man be killed in any ship riding in great rivers, beneath the lowest bridge towards the sea, he has legal cognizance; but, if a man be killed above the lowest bridge, or upon any arm of the sea where the land can be seen on both sides, the coroner of the county is the proper person to enquire into it, and where a coroner may enquire the admiral has no jurisdiction. Between high and low water mark, also, the common law and the Admiralty have jurisdiction by turns; one upon the water, the other upon the land. The High Admiral is empowered to grant commissions to inferior admirals, enabling them to enforce obedience in all branches of the service, to institute courts martial, to take cognizance of all maritime transgressions committed against the articles of war, under the direction of a deputy Judge Advocate.

The perquisites given to this office by the patent, consist of "treasure, deodands, derelicts, found within his jurisdiction; all goods picked up at sea; all fines, forfeitures, ransoms, recognizances, and pecuniary punishments; all sturgeons, whales, porpusses, dolphins, rigs, and grampusses, and all such large fishes; all ships and goods of the enemy coming into any creek, road, or port, by stress of weather, mistake, or ignorance of the war; all ships seized at sea, salvage, &c. together with his shares of prizes." This officer anciently carried a gold whistle, set with precious stones, at the end of a gold chain; and the office itself is of so great power, honour, and profit, that it has been conferred mostly on princes of the blood. All officers, commanders, and soldiers of ships of war, are bound to observe the commands of the High Admiral, on pain of death, or other punishment. Considering the great power and influence of the office, there is, perhaps, a degree of prudence in its having been put for some years past under the administration of commissioners, who, by W. and M. stat. ii. c. 2. are declared to have the same authority, jurisdiction, and power, as the Lord High Admiral.

ADMIRAL OF SCOTLAND, THE LORD HIGH, was anciently one of the great officers of the crown, and supreme judge in all maritime cases that occurred within that part of Great Britain. In the year 1651 this great officer was dignified with the title of "The King's Lieutenant and Justice General upon the Seas." But since the Union, the powers of this office have been vested in the Admiralty of Great Britain, who appoints a Vice Admiral, or Judge, who executes the duties of it, and presides over an Admiralty court in Scotland.

ADMIRAL OF THE FLEET is the highest naval officer under the British High Admiralty office, distinguished when he embarks by hoisting the union flag at the main top gallant mast head. This office is of considerable authority, and has lately been filled by a member of the royal family.

ADMIRALS being commanders in chief of any fleet, or squadron, rank with field marshals in the army, and always carry their flags at the main top gallant mast head, from which they are designated admirals of the red, of the white, of the blue.

The VICE ADMIRAL is a civil officer, appointed by Lords Commissioners of the High Admiralty. There are several of them established in different parts of Great Britain, with judges and marshalls under them, exercising their respective jurisdictions within certain limits. The Vice Admiral of England was formerly the Deputy of the Lord High Admiral, but the place being now a sinecure, is commonly conferred on some officer of distinction. Scotland has one Vice Admiral, Ireland has four, and the Governors of colonies are commonly empowered by a commission to preside over Vice Admiralty Courts The Vice Admiral carries his flag at the fore top mast head, takes rank with lieutenant generals in the army, and, within his jurisdiction, maintains considerable dignity and influence. His decisions, however, are not final, a right of appeal lying to the High Court of Admiralty in London.

ADMIRAL is also an appellation given to the most considerable ship of a fleet of merchantmen, or of the vessels employed in the cod-fishery of Newfoundland. The vessel that first arrives is also entitled to this appellation, and the commander has the privilege of choosing what place he pleases on the shore to dry his fish; gives proper orders and appoints the fishing-places to those who come after him; and as long as the fishing season continues, carries a flag on his main mast.

ADMIRAL, in zoology, or rather conchology, the name given by authors to a very beautiful and very precious shell fish of the *voluta* genus, belonging to the order of *vermes testacea*. See VOLUTA. Of these the curious reckon four species. 1. The grand-*admiral*. 2. The vice-*admiral*. 3. The orange-*admiral*. And, 4. The extra-*admiral*. The first of these is the most esteemed, and a single shell has been sold in Holland for five hundred florins. It is of a very elegant and bright white enamel, and is variegated with bands of yellow, representing in some degree the colours of the flags of a man of war at sea; hence it obtained its name. It is of a very curious shape, and formed with particular elegance about the head; the clavicle being exerted. There runs along the centre of the large yellow band in this shell, a fine denticulated line, which is its distinguishing character. The vice-*admiral* is an elegant shell, but its head is less beautifully wrought than in the *admiral*, and its broad band wants the denticulated line, so remarkable in that. The orange-*admiral* has more yellow than either of the others. The extra-*admiral* has the same bands with these, but they run one into another, aud form a more mixed clouding.

ADMIRALTY. The power, or officers appointed to administer the naval affairs of a state. Also the place where they assemble for business.

They requested liberty to cite John Paith to appear by his proctor in the English court of *admiralty*.
Milton's State Letters.

Having consulted with Mr. Whitlock, the lawyer, about the validity of a commission drawn from a research into the office of the *admiralty*.

Sir H. Wotton, Rem. p. 418.

ADMIRALTY properly signifies the office of lord high admiral, whether discharged by one single person, or by joint commissioners called *lords of the admiralty*.

ADMIRALTY, COURT OF, is a sovereign court, instituted by Edward III. and held by the lord high admiral, or lords of the admiralty, where cognizance is taken in all maritime affairs, whether civil or criminal.—All crimes committed on the high seas, or on great rivers below the first bridge next the sea, are cognizable in this court only, and before which they must be tried by judge and jury. But in civil cases the mode is different, the decisions being all made according to the civil law. By statute 39. Geo. III. all offences whatsoever committed on the high seas, shall be liable to the same punishments as if committed on shore, and shall be tried and adjudged in the same manner as felonies; and persons wilfully casting away any vessel, or procuring it to be done, are by the 43d of the king declared to be felons, without benefit of clergy: if the offence be committed in the body of a county, they shall be tried as other felons; if upon the seas, under stat. 28 Henry VIII. which gives the criminal jurisdiction to the Admiralty Court. Of late years a regular Admiralty Sessions of Oyer and Terminer has been held twice in the year at the Old Bailey, London. The commission includes the members of the Privy Council, Lords of the Treasury, the Secretary of the Admiralty, some of the City Aldermen, &c. and with the exception that it is limited to maritime causes, is similar to that granted to the judges on other occasions.

An appeal lies from the inferior Courts of Admiralty to the HIGH COURT OF ADMIRALTY OF ENGLAND, also by 8 Eliz. c. 5. appeal lies from the latter court to commissioners appointed by the court of Chancery; and in case of prize decisions, an appeal lies to commissioners of the Privy Council. And this by virtue of divers treaties with foreign nations, by which particular courts are established in the maritime countries of Europe for the decision of this question; whether lawful prize or not? for this being a question between subjects of different states, it belongs entirely to the law of nations, and not to the municipal laws of either country, to determine it. When sentence has been given by a foreign Admiralty, the party may libel for execution here, without the process of another trial; since all Admiralty courts are supposed to be established upon the same general basis, the decisions of those belonging to other nations, are admitted here, and shall not be examined, that ours may be credited there.

VICE ADMIRALTY COURTS are established in all the dependencies of Great Britain, and are of two kinds, *Prize Courts and Instance Courts*. The affair of Prize Courts, is to enquire into all cases of vessels condemned as prizes, detained by neutrals or enemies, lawfully or unlawfully, and all things that affect cases of capture generally. Courts of this description were established during the late war, at Antigua, the Bahamas, Barbadoes, Bermuda, Bombay, Calcutta, the Cape of Good Hope, Ceylon, Gibraltar, Halifax, Jamaica, Malta, Madras, Newfoundland, and Tortola. Instance Courts are intended to enquire into all misdemeanours in merchant ships, &c. and have been established at Berbice, St. Croix, St. Christopher's, Dominica, Demerara, Essiquibo, Granada, Martinique, Trinidad, and St. Vincents.

ADMIRALTY, JUDGE OF THE, an office originally established in 1640, and filled for the most part, by two or three persons. At the revolution a considerable change took place in it; since which it has been restricted to an individual, whose salary is now £2500 per annum. The Judges of the Vice Admiralty courts in the colonies are allowed in some places £2000 a year from the consolidated fund, besides other perquisites.

ADMIRALTY, REGISTRAR OF THE, holds an office of great pecuniary importance by patent of the High Admiral, or the Lords Commissioners, in virtue of which he assists in the judicial proceedings of the Admiralty courts.

ADMIRALTY, MARSHAL OF THE, is an officer who bears the mace before the Admiralty Judge, attends naval executions, arrests ships and persons, and commits offenders to the Marshalsea.

ADMIRALTY, PROCURATORS OF THE, in all the High Admiral's affairs, and suits of the crown, act as solicitors in the High court of Admiralty; since both the *Counsel of the Admiralty*, and the *diplomatic solicitor of the Admiralty*, are chiefly occupied about the military parts of their official duty.

ADMIRALTY BAY, a large bay on the west coast of Cooke's Straits, New Zealand, S. Lat. 40°, 37′. E. Long. 176°, 54′.

ADMIRALTY INLET, an entrance to the supposed straits of Juan de Fuca, on the west coast of New Georgia, in N. Lat. 48°, 30′, W. Long. 124°. 15′.

ADMIRALTY ISLANDS, a cluster of islands to the north of New Britain, in the south Pacific Ocean, in about 2°, 18′ S. Lat. and 116°, 44 E. Long. These islands were visited by Morello, in 1781, and again by the expedition in search of La Perouse, in 1793, when the natives appeared very friendly. They are blacks, and of large stature.

ADMIRALTY ISLAND, a large island on the west coast of North America, between the shore of that continent and George the Third's Archipelago. It is about 180 miles in circumference, and is inclosed with numerous noble bays, and covered with fine timber, especially of the pine tribe. This island presents strong evidence of the encroachment of the Pacific on the western shores of the neighbourhood; Vancouver's men having traced the remains of a vast forest of trees into the sea. But the inhabitants were of a very hostile disposition, and prevented the French navigator from much close inspection of their domain. N. Lat. 57°, to 58°. W. Long. 134° to 135°

ADMIRE', *v.* AD'MIRABLE, AD'MIRABLENESS, AD'MIRABLY, ADMIR'ANCE, ADMIRA'TION, ADMIR'ER, ADMIR'INGLY. Ad: *miror*, to wonder at, in a good or bad sense, but more frequently in the former; to look at, observe, or regard with surprise, wonder, pleasure, delight, or veneration, as extraordinary or singular; agreeable, or the contrary.

LA. You haue displac'd the mirth,
Broke the good meeting with most *admir'd* disorder. *Shakspeare's Macbeth.*

It is very remarkable to see the manufactures in England, not knowing whether more to *admire* the rarity or variety thereof. *Fuller's Worthies.*

As such we lov'd, *admired*, almost ador'd,
Gave all the tribute mortals could afford,
Perhaps we gave so much, the pow'rs above
Grew angry at our superstitious love;
For when we more than human homage pay,
The charming cause is justly snatched away.
Dryden's Elegies.

Enthusiastick *admiration* seldom promotes knowledge. *Sir Joshua Reynold's Discourses.*

Throughout the whole, the author appears to have been a most critical reader; and a most passionate *admirer* of the Holy Scriptures.
Bishop Newton on Paradise Lost.

ADMIT', *v.* ADMIS'SIBLE, ADMIS'SION, ADMIT'TABLE, ADMIT'TANCE, ADMIT'TER. Ad: *mitto*, to let in; to receive into a place where one is; to introduce; to allow or suffer to be brought in or forward; to give credit to; to assent to a statement; to acknowledge the force of an argument.

Let all kyngs beware how, aftir they haue once tasted of God's trewth, they *admitte* siche popish flatterers into their court and counsaill.
Expos. of Daniel, by G. Joye, c. ii. fol. 41.

I *admit* the case as possible, but yet as such a case, as I trust in God, this good man shall see the skye fall firste, and catche larkes ere it happē.
Sir Thomas More's Works, p. 22.

What,
If I do line one of their hands?—tis gold
Which buys *admittance*.
Shakspeare's Cymbeline.

And, if I give thee honour due,
Mirth, *admit* me of thy crew,
To live with her, and live with thee,
In unreproved pleasures free.
Milton's L'Allegro.

There's news from Bertran: he desires
Admittance to the king; and cries aloud,
This day shall end our fears. *Dryden.*

My father saw you ill designs pursue;
And my *admission* shew'd his fear of you.
Idem.

Blindness being a privative term unto sight, this appellation is not *admittable* in propriety of speech, and will overthrow the doctrine of privations.
Brown's Vulgar Errours.

Suppose that this supposition were *admissible*, this would not any way be inconsistent with the eternity of the divine nature and essence.
Hale's Contemplations.

ADMISSION, in ecclesiastical affairs, the bishop's acknowledgment that he approves the parson presented to a cure, which he gives on examination, by saying admitto te habilem.

ADMITTENDO CLERICO, is a writ granted to him who hath recovered his right of presentation against the bishop in the common pleas.

ADMITTENDO IN SOCIUM, in law, is a writ for the association of certain persons to Justices of Assize formerly appointed.

ADMIX', *v.* ADMIX'TION, ADMIX'TURE. Ad: Ang. Sax. miscan, by contraction mics, to mix; to mingle or blend.

My son Pallas, this zoung lusty syre,
Exhort I wald to tak the stere on hand,
Ne war that of the blude of this ilk land
Admyxt standis he, takand sum strynd,
Apoun his moderis syde of Sabyne kynd.
Douglas, b. viii. p. 260.

Though many waies may be found to light this powder, yet is there none I know to make a strong and vigorous powder of salt-peter; without the *admixtion* of sulphur.
Brown's Vulgar Errours.

All metals may be calcined by strong waters; or by *admixtion* of salt, sulphur, and mercury.
Bacon.

The corruption of philosophy, from the *admixture* of superstition and theology, is much more extensive and pernicious, either to whole bodies of philosophy or their parts. *Idem.*

Possibly all metals may be of one species, and the diversity may proceed from the *admixture* of different bodies with the principles of the metal.
Ray's Wisdom of God in the Creation.

ADMON'ISH, *v.* ADMON'ISHER, ADMON'ISHMENT, ADMONI'TION, ADMONI'TIONER, ADMON'ITIVE, ADMON'ITOR, ADMON'ITORY. Ad: *moneo*. In Wiclif we read moneste, in other of our early writers, monish: to put in mind; to advise, apprize, exhort; to reprove gently, in order to prevent evil conduct.

And euery orakyl of Goddis *admonist* eik,
That we the realme of Italy suld seik.
Douglas, b. iii. p. 80.

God sayth: Love thy neighbour as thyself; that is to say, to salvation both of lif and soule. And moreover, thou shalt love him in word, and in benigne *admonesting*, and chastising, and comfort him in his anoyes, and praye for him with all thy herte.
Chaucer Personnes Tale, V. 2. p. 325.

But yet be wary in thy studious care.—
Thy grave *admonishments* prevail with me.
Shakspeare's Henry V. p. 1.

Ambition of great and famous auditories, I leave to those whose better gifts and inward endowments are *admonitioners* unto them of the great good they can do, or otherwise thirst after popular applause.
Hale's Golden Remains.

Yet take heed, worthy Maximus, all ears
Hear not with that distinction mine do; few
You'll find *admonishers*, but urgers of your actions.
Beaumont and Fletcher's Valentinian.

To the infinitely Good we owe
Immortal thanks; and his *admonishment*
Receive, with solemn purpose to observe
Immutably his sovereign will, the end
Of what we are. *Milton.*

Horace was a mild *admonisher*; a court satirist, fit for the gentle times of Augustus.
Dryden.

Me fruitful scenes and prospects waste,
Alike *admonish* not to roam;
These tell me of enjoyments past
And those of sorrows yet to come.
Cowper's Shrubbery.

ADMONITIO FUSTIUM, among the Romans, a military punishment, not unlike our whipping, but performed with vine branches.

ADMONITION, in ecclesiastical affairs, a part of discipline much used in the ancient church. It was the first act, or step, towards the punishment, or expulsion of delinquents. In case of private offences, it was performed, according to the evangelical rule, privately: in case of public offence, openly, before the church. If either of those sufficed for the recovery of the fallen person, all further proceedings in the way of censure ceased: if they did not, recourse was had to excommunication.

ADMONT, a market-town, in the circle of Judenburg, Upper Syria, between the Ens and Belta, six miles N.N.E. of Rottenman.

ADMORTIZATION, in the feudal customs, the reduction of the property of lands or tenements to mortmain. See MORTMAIN.

ADMOVE' *v.* } Ad: *moveo*, to move to-
} wards, to approach.

If, unto the powder of loadstone or iron, we *admove* the north pole of the loadstone, the powders or small divisions will erect and conform themselves thereto: but if the south pole approach, they will subside, and inverting their bodies, respect the loadstone with the other extream. *Brown's Vulgar Errours.*

ADNA'SCENT, *v.* } Ad: *nascor, natus*, to
ADNATE' } grow to; growing to, or upon.

Moss, which is an *adnascent* plant, is to be rubbed and scraped off with some instrument of wood which may not excorticate the tree. *Evelyn's Sylva.*

Osteologers have very well observed, that the parts appertaining to the bones, which stand out at a distance from their bodies, are either the *adnate* or the enate parts, either the epiphyses, or the apophyses of the bones. *Smith's Old Age.*

ADNATA, in anatomy, a thick white membrane, investing the ball of the eye; and forming its outermost coat; called also *circumossalis and circumcalcalis*. It is the tunica adnata, that makes what we commonly call the white of the eye: whence it is also called the albuginea. It springs from the pericranium, and grows to the exterior part of the tunica cornea, serving to connect the whole eye both to the palpebræ, and the adjacent bones, and thus keep it fast in the socket. A little round aperture is left in the forepart, called the sight, through which the iris and pupilla appear. The adnata abounds with veins and arteries, which, though ordinarily not visible, are conspicuous in ophthalmies, which are properly inflammations of this part.

ADNATA is also a term used for such things as grow upon animal or vegetable bodies, whether inseparably, as hair, wool, horns, &c. or accidentally, as the several epistical plants. Among gardeners, it denotes those off-sets, which by a new germination under the earth, proceed from the lily, narcissus, hyacinth, and other flowers, and afterwards grow to true roots; what the French call cayeux, or stalks.

ADNOUN, ADNOMEN, or ADNAME, in grammar, another name for an adjective.

ADO', *n.* See DO.

And when he was come in, he saith unto them, why make ye this *ado*, and weep? the damsel is not dead but sleepeth. *Mark* v. 39.

A man that is inquisitive is commonly envious, for to know much of other men's matters cannot be because all that *ado* may concern his own estate. *Bacon's Essay on Envy.*

They moved, and in the end persuaded, with much *ado*, the people to bind themselves by solemn oath. *Hooker.*

Let's follow, to see the end of this *ado*. *Shakspeare.*

I made no more *ado*, but took all their seven points in my target. *Shakspeare's Henry IV.*

With much *ado*, he partly kept awake;
Not suff'ring all his eyes repose to take.
Dryden.

AD OCTO, q. d. to the eighth number, a term used by some ancient philosophers, to denote the highest, or superlative degree.

ADOLES'CENCE, *n* } Ad: *olesco*, to
ADOLES'CENCY. } grow perceptibly; to advance to adult age or maturity; usually the time of life between twelve and twenty-one. The Romans extended the period to forty years. Livy calls the Tarquins adolescentes, although they were above thirty years of age. Cæsar is styled adolescens, when six and thirty.

Those times which we term vulgarly the old world, were indeed the youth or *adolescence* of it. *Howell's Letters.*

He was so far from a boy, that he was a man born, and at his full stature, if we believe Josephus, who places him in the last *adolescency*, and makes him twenty-five years old. *Brown.*

ADOLESCENTIA, ADOLESCENCE, from *adolescere*, to grow, the state of growing youth; which has been understood to last as long as the fibres continue to grow, either in magnitude or firmness. It is commonly computed to be between fifteen and twenty-five, or even thirty years of age; though in different constitutions its terms are very different.—The Romans usually reckoned it from twelve to twenty-five in boys; and, to twenty-one in girls, &c.—And yet, among their writers, *juvenis* and *adolescens* are frequently used indifferently, for any person under forty-five years.

ADOLPHUS FREDERICK SCHACHT, a silver mine in Sweden, which produced a great deal of silver between 1742 and 1747.

ADOLLAM. See ADULLAM.

ADOM, a territory lying toward the interior of the Gold Coast of Africa. It is of small extent and little known.

ADONAI, אדני, Heb. i. e. the Lord, one of the names of the Supreme Being in the Scriptures. The proper meaning of which is, *lords*, in the plural number; as *Adoni* is *lord*, in the singular. The Jews, who either out of respect, or superstition, do not pronounce the name of *Jehovah*, read *Adonai* in the room of it, as often as they meet with Jehovah in the Hebrew text. Leigh, (in his Crit. Sacr.) observes, that "the word κυριος, [synonimous with אדני, *Adonai*,] is in the writings of the Apostles simply and absolutely ascribed to *Christ* saith *Cunchius*, a thousand times. In the Old and New Testaments

this title is attributed to God, more than a thousand times, saith *Gerhard*. The Hebrew word אדני, *Adonai*, springs from אדן, *Adon*, and that from *Eden*, which signifieth a *base* or *pillar*, which sustaineth any thing; the Greek [κυριος,] *one who hath rule or dominion*, being a word of relation. Our English word *Lord*, hath much like force with the Hebrew אדני, being contracted of our old Saxon word *Laford*, which is by interpretation, *a sustainer*." *Leigh's Crit. Sacr.* in verb κυριος.

ADONI, a district of Hindostan, in the province of Bejapoor, on the south side of the Toombuddra. It extends between the 15th and 16th degree of N. Lat. and has the Nizam's dominions to the north, and the Gooty hills southward. This is a portion of the Balaghaut districts, part of the Nizam's territory, which he definitively ceded to the British in 1800, and is included in the Bellary collectorship of the government of Bombay.

ADONI, a city of Hindostan, in the province of Bejapoor, the capital of the above district. It stands in N. Lat. 15°, 32′. and E. Long. 77°, 16′. 145 miles S.W. of Hyderabad, (175 travelling miles) 243 from Seringapatam, and 310 from Madras. This town is falling to decay, but is finely and strongly situated on a hill, where numerous fountains of water are found, and the relics of several magnificent structures. It fell to the Mahomedan princes of the Decan, in the sixteenth century, at which period (1568) it was esteemed almost impregnable by its former masters, the rajahs of Bijanagur. A temporary independent state was created in the neighbourhood by the Patans during the last century; to this succeeded the dominion of Bazalet Jung, the brother of Nizam Ali; that of Tippoo, who besieged, and almost destroyed Adoni, in 1787; and finally, that of the British, to whom the city was ceded with the province in 1800.

ADONIA, in antiquity, solemn feasts in honour of Venus and of her beloved Adonis. The Adonia were observed with great solemnity by most nations; Greeks, Phœnicians, Lycians, Syrians, Egyptians, &c. From Syria, they are supposed to have passed into India. They were observed at Alexandria in the time of St. Cyril; and at Antioch, in that of Julian the Apostate, who happened to enter the city during the solemnity, which was taken for an ill-omen. The Adonia lasted two days: on the first of which, certain images of Venus and Adonis were carried, with all the pomp and ceremonies practised at funerals: the women wept, tore their hair, beat their breasts, &c. imitating the cries and lamentations of Venus for the death of her paramour. This lamentation they called Αδωνιασμος. The Syrians were distinguished for their dolorous cries on this occasion, shaving their heads, &c. Among the Egyptians, the queen herself used to carry the image of Adonis in procession. St. Cyril mentions an extraordinary ceremony practised by the Alexandrians: a letter was written to the women of Byblos, to inform them that Adonis was found again: this letter was thrown into the sea, which (it was pretended) did not fail punctually to convey it to Byblos in seven days; upon the receipt of which, the Byblian women ceased their mourning, sung his praises, and made rejoicings as if he were raised to life again. Or rather, according to Meursius, the two offices of mourning and rejoicing made two distinct feasts, which were held at different times of the year, the one six months after the other; Adonis being supposed to pass half the year with Proserpine, and half with Venus. The Egyptian Adonia are said to have been held in memory of the death of Osiris; by others, of his sickness and recovery. Bishop Patrick dates their origin from the slaughter of the first-born in the time of Moses. The Abbè Banier wrote a Memoir on the subject; and among Shakspeare's poems, is a long one on Venus's affection for Adonis. The text of the Vulgate in Ezekiel vii. 14. says, that this prophet saw women sitting in the temple, and weeping for Adonis: according to the reading of the Hebrew text, they are said to weep for *Tammuz*, or the *hidden one*. Now among the Egyptians, Adonis was adored under the name of Osiris, who was sometimes called Ammuz, or Tammuz, *the concealed*, to denote probably his death or burial. The Hebrews also, in derision, call him *the dead*, Psalm cvi. 28. and Lev. xix. 28; and at other times, the image of jealousy, Ezekiel viii. 5, because he was the object of the god Mars's jealousy. F. Calmet is of opinion, that the Ammonites and Moabites gave him the name of Baal-peor. See Baal-peor.

ADONIC, in poetry, a short kind of verse, consisting of a dactylus and a spondeus, or a trocheus; such as *rara juventus*. It is so named from Adonis, having been originally used in the Threnæ, or lamentations for that favourite of Venus.

ADONIDES, in botany, authors who have given descriptions, or catalogues, of the plants cultivated in some particular place. *Linnæus.*

ADONIDIS Horti, Adonis's gardens, an appellation for gardens beautifully arranged, and more intended for pleasure than profit.

ADONION, among the ancient botanists, a species of southernwood, according to Gorræus, which used to be set in pots, and served as an ornament for gardens.

ADONIS, or Adonius, in ancient geography, a river of Phœnicia, rising in mount Lebanon, and falling into the sea, after a north-west course, at Byblos.

Adonis, in antiquity, a drink made of wine, mixed with flour of roasted *ador;* otherwise called *Cyceon.*

Adonis, in botany, Bird's-Eye, or Pheasant's Eye; a genus of the class polyandria, order polygynia. It is associated with the multisliquæ, or twenty-sixth natural order. The characters are, cal. a perianthium, consisting of five obtuse concave leaves, somewhat coloured, and deciduous; cor. from five to fifteen oblong petals obtuse and glossy; stam. very numerous, short, subulated filaments; the antheræ oblong and inflected: pist. numerous germina collected in a head; no styli; the stigmata acute and reflected; no pericarpium; the receptacle is oblong and spiked. The seeds numerous, irregular, angular, gibbous at the base, reflected at the top, somewhat prominent, and awnless. The most remarkable species are:

1. ADONIS ANNUA, a native of Kent.
2. ADONIS ÆSTIVALIS.
3. ADONIS APENNINA.
4. ADONIS VERNALIS, or perennial adonis.

ADONIS, in the heathen mythology, the son of Cinyras, king of Cyprus, and the favourite of the goddess Venus. He was said to have been killed by a wild boar, to the inconsolable grief of the goddess, in the Idalian wood. The fables, respecting his fate, after his death, are very contradictory; some representing him as having been turned into a blood-coloured flower; others into a river, which, at certain seasons, flowed with blood; and a third tradition stating, that Venus having applied to Jupiter for his restoration to life, he was allowed to spend one half of the year with her, and the other with Proserpine. See ADONIA.

ADONIS, in zoology, a small fish, of the anguilliform kind, of a cylindric shape, and about six inches long. Ray supposes this fish, which is also called *exocætus* to be the same with the exocœtus, of Bellonius, or the *gattorugine*. It is remarkable for sleeping on the surface of the water, and near the shores; and Rondeletius affirms, that he has seen them sleeping upon the dry rocks.

ADONISTS, a party among divines and critics, who contend against the Hebrew points.

ADONIUM. See ADONION.

ADONIUS. See ADONIS.

ADONI-ZEDEK, אדני־צדק, Heb. i. e. the Lord's Justice, or the Lord of Justice, a heathen king of Jerusalem, who, jealous of the Israelites under Joshua, formed an alliance with four neighbouring princes, to stop their progress.—*Joshua* x.

ADOORS', Adv: At doors, at the door.

But what, Sir, I beseech ye, was that paper,
Your Lordship was so studiously employed in,
When you came out *adoors*.
Beaumont and Fletcher's Woman Pleased.

If I get in *adoors*, not the power o' th' country, nor all my aunt's curses shall disembogue me.
Idem, Little Thief.

The other of them came to another of like condition in like manner, as desiring her company, but so as she would go out *at doors*.
Gataker's Spiritual Watch.

ADOPT', v. ADOPT'EDLY, ADOP'TION, ADOP'TIVE. } Ad: *opto*, to choose; to exercise the will and the judgment with regard to an object; to prefer; particularly to select the child of another person, and to provide for it as one's own. The Roman customs abound with instances of this practice. See our GENERAL ARTICLE.

For when Rene, Duke of Angeou, last king of Scicile, departed without any heire male of hys wyfe lawfully begotten, he did *adopt* to his heyre of all his realmes and dominiõs, Lewes the Eleventh, father to the third kyng Charles. *Hall*, p. 457.

To all the duties of evangelical grace, instead of the *adoptive* and cheerful boldness which our new alliance with God requires, came servile and thrall-like fear.
Milton of Ref. in Eng. b. i.

Tythe is not simply a Levitical duty, but respectively; not the natural child of Moses's law, but the *adoptive*. *Spelman's Larger Work of Tythes.*

Adoptedly, as school-maids change their names.
By vain (though apt) affection. *Shakspeare.*

Were none of all my father's sisters left;
Nay, were I of my mother's kin bereft;
None, by an uncle's or a grandame's side;
Yet I could some adopted heir provide. *Dryden.*

Whether, *adopted* to some neighbouring star,
Thou roll'st above us in thy wand'ring race;
Or, in procession fix'd and regular,
Mov'st with the heaven's majestic pace;
Or call'd to more celestial bliss,
Thou tread'st with seraphims the vast abyss.
Ibid.

We are seldom at ease from the solicitation of our natural or *adopted* desires; but a constant succession of uneasinesses (out of that stock which natural wants or acquired habits have heaped up) take their will in their turns. *Locke.*

Spontaneous joys, where nature has its play,
The soul *adopts*, and owns their first-born sway;
Lightly they frolic o'er the vacant mind,
Unenvy'd, unmolested, unconfin'd.
Goldsmith's Deserted Village.

I have *adopted* the Roman sentiment, that it is more honourable to save a citizen, than to kill an enemy, and have been more careful to protect than to attack. *Johnson's Preface to Shakspeare.*

ADOPTER, in chemistry. See RECEIVER.

ADOPTIANI, in church history, a sect of heretics of the eight century, who advanced the notion, that Jesus Christ, is the Son of God, not by nature, but by adoption.

ADOPTION, in antiquity, was a common custom among the ancient Greeks and Romans, yet not practised, but for certain causes expressed in the laws, and with certain prescribed formalities. It was a sort of imitation of nature, intended for the comfort of those who had no children: wherefore he that was to adopt was to have no children of his own, nor to be likely to have children; yet eunuchs were not allowed to adopt; neither was it lawful for a young man to adopt an elder, because that would have been contrary to the order of nature. It was even required that the person who adopted should be eighteen years older than his adopted son, that there might at least appear a probability of his being the natural father.

Among the Greeks it was called υἱοτης *filiation*; and was allowed to such as had no issue of their own; excepting those who were not *their own masters*, e. g. slaves, women, madmen, infants, or persons under twenty years of age. Foreigners being incapable of inheriting at Athens, if any were adopted, it was necessary first to make them free of the city. The adopted had his name enrolled in the tribe and ward of his new father; for which entry a peculiar time was allotted, viz. the festival Ἀπατούρια. To prevent rash and inconsiderate adoptions, the Lacedæmonians insisted that adoptions should be confirmed in the presence of their kings. Adopted children were invested with all the privileges, and were obliged to perform the duties, of natural children; they ceased to have any claim of inheritance or kindred in the family which they had left, unless they first renounced their adoption; and by the laws of Solon, they were not allowed to do this, until they had children, to bear the name of the person who had adopted them: If they died without children, the inhe-

ritance could not be alienated from the family into which they had been adopted. It should seem, that by the Athenian law, a person, after having adopted another, was not allowed to marry without permission from the magistrate: in effect, there are instances of persons, who, being ill used by their adoptive children, petitioned for such leave. But it is certain some men married after they had adopted sons: and then their estates were equally shared between the adopted, and the children, if any, of such marriage.

The Romans had two forms of adoption; one before the prætor; the other at an assembly of the people, in the times of the commonwealth, and afterwards by a rescript of the emperor. In the former, the natural father addressed himself to the prætor, declaring that he emancipated his son, resigned all his authority over him, and consented he should be translated into the family of the adopter. The latter was practised, where the party to be adopted was already free; and this was called *adrogation*. The person adopted changed all his names; assuming the prename, name, and surname of the persons who adopted him.—Among the Turks, the ceremony of adoption is performed by obliging the person adopted to pass through the shirt of the adopter. Hence, among that people, to adopt, is expressed by the phrase, *to draw another through one's shirt*. Something like this was anciently observed among the Hebrews; as the prophet Elijah adopted Elisha for his son and successor, and communicated to him the gift of prophecy, by letting fall his cloak or mantle on him. But adoption, properly so called, does not appear to have been practised among the ancient Jews: Moses says nothing of it in his laws; and Jacob's adoption of his two grandsons, Ephraim and Manasseh, is not so properly an adoption, as a kind of substitution, whereby those two sons of Joseph were allotted an equal portion in Israel with his own sons. Besides the formalities prescribed by the Roman law, various other methods have taken place; which have given denominations to different species of adoption, among the Gothic nations, in different ages; such as,

Adoption by arms was when a prince made a present of arms to a person, in consideration of his merit and valour. Thus it was that the king of the Heruli was adopted by Theodoric. The obligation here laid on the adoptive son was, to protect and defend the father from injuries, affronts, &c. And hence according to Selden, the ceremony of dubbing knights took its origin as well as name.

Adoption by baptism was introduced into the Greek church, and came afterwards into use among the ancient Franks. The god-father was so far considered as the adoptive father. that his god-children were supposed to be entitled to a share in the inheritance of his estate. The term has sometimes been employed generally to the spiritual affinity contracted between children and their sponsors, in baptism.

Adoption by hair was performed by cutting off the hair of a person, and giving it to the adoptive father. Pope John VIII. is said thus to have adopted Boson, king of Arles.

Adoption by Matrimony, is the taking the children of a wife or husband by a former marriage, into the condition of proper or natural children; and admitting them to inherit on the same footing with those of the present marriage This is a practice peculiar to the Germans; among whom, it is more particularly known, by the name of *einkindschaft;* among their writers in Latin, by that of *unio prolium*, or *union of issues*. But the more accurate writers observe, that this is no adoption. See Adfiliation.

Adoption into Hospitals, is used for the admission of persons into certain hospitals, particularly that of Lyons; the administrators whereof have all the power and rights of parents over the children admitted.

Adoption of Academies, is the reception of a new academy into the body of an old one — Thus the French Academy of Marseilles was adopted by that of Paris; on which account, we find a volume of speeches extant, made by several members of the academy of Marseilles, deputed to return thanks to that of Paris for the honour.

Adoptive Arms, are those which a person enjoys by the gift or concession of another, and to which he was not otherwise entitled. They stand contradistinguished from arms of alliance.

Adoptive Gods, were the gods of other nations, adopted by the ancient Romans, and so styled in contradistinction to domestic ones. They were taken chiefly from the Egyptians: such as Isis, Osiris, Anubis, Apis, Harpocrates, Canopus, &c.

Adoptive Women, in ecclesiastical writers, we find adoptive women, or sisters, *(adoptivæ feminæ*, or *sorores,)* used for those handmaids of the ancient clergy, otherwise called *sub introductæ*.

ADOR, *ἄδορ*, in botany, a species of corn, called also, *Spelta* and *Zea*.

ADORAIM, a city belonging to the tribe of Judah, near Maresa, on the confines of Idumea. It was taken by Hyrcanus, in his expedition into Syria, to destroy the temple of the Samaritans on Mount Gerezim. *Joseph. Antiq.*

ADORAT, in chemistry, a weight of four pounds.

ADORATION, among the ancients, literally signified, to apply the hand to the mouth; *Manum ad os admovere*, *q. d.* to kiss the hand: this being, in the eastern countries, one of the great marks of respect and submission. Nothing can more plainly illustrate this primitive mode of adoration than the protestation of Job, chap. xxxi. 26, 27, 'If I beheld the sun when it shined, or the moon walking in brightness, and my mouth hath kissed my hand, this also were iniquity.' In the Hebrew idiom, kissing, (from such a usage perhaps,) commonly signifies adoration.

Herodotus considers the custom of kissing the hand in adoration, to have been adopted by the Greeks from the Persians: it certainly obtained at an early period all over the East.

The Romans practised adoration at sacrifices, and other solemnities; in passing by their temples, altars, groves, &c.: at the sight of statues, images, or the like, whether of stone or wood,

wherein any thing of divinity was supposed to reside. Usually there were images of the gods placed at the gates of cities, to remind those who went in or out, of the homage due to them. The Roman ceremony of adoration has been thus described: The devotee having his head covered, applied his right hand to his lips, the fore finger resting on his thumb, which was erect, and thus bowing his head, turned himself round from left to right. The kiss given, was called *osculum labratum*; for ordinarily they were afraid to touch the images of their gods themselves with their profane lips. Sometimes, however, they would kiss their feet, or even knees, it being held an incivility to touch their mouths, so that the adoration passed at some distance. Saturn, however, and Hercules, were adored with the head bare: whence the worship of the last was called *institutum peregrinum*, and *ritus Græcanicus*, as departing from the customary Roman method, which was to sacrifice and adore with the face veiled, and the clothes drawn round the head, to prevent any interruption in the ceremony, from the sight of external objects.

The primitive Christians adopted the Grecian rather than the Roman method, and adored always uncovered. Their ordinary posture of prayer was kneeling, but on sundays standing; and a superstitious regard to praying towards the east was introduced at an early period. Hence some of their Pagan opponents alleged, that they adored the sun.

Standing was an early eastern attitude of adoration; the body being inclined forward, and the eyes cast down to the earth; with the hands probably resting on the knees. Thus Solomon "stood before the altar of the Lord, in the presence of all the congregation of Israel, and spread forth his hands toward heaven, 1 Kings viii. 22. This was a posture practised both by the Greeks and Romans.

Sitting, with the under part of the thighs resting on the heels, was an ancient Egyptian practice of this kind; and most, if not all, the figures of Egyptian worshippers in their sacred edifices, are represented in this attitude. See also, 1 Chron. xvii. 16.

Kneeling, common in all ages and countries as a posture of adoration, we need hardly enumerate. It seems naturally to import a person's endeavouring to lessen his own self importance, and his consciousness of intercourse with a superior being.

Prostration, or the casting down of the whole person on the ground, accompanied sometimes by *kissing the ground*, was amongst the Persians the common mode of expressing reverence for their kings. If the party admitted to the royal presence, were a vanquished prince, he kissed, according to Herbelot, the prints of the horse-shoe of his conqueror, repeating this formula: 'The mark that the foot of your horse has left upon the dust, serves me now for a crown. The ring, which I wear as the badge of my slavery, is become my richest ornament. While I have the happiness to kiss the dust of your feet, I shall think that fortune favours me with her tenderest caresses, and her sweetest kisses.' The Jewish commander, Joshua, thus adored by prostration, Josh. vii. 6, 10., as did Manoah and his wife, Judges xiii 20. David and his princes, 1 Chron. xxi. 16.; the prophets frequently. Ezek. i. 28; iii. 23, &c.; and Jesus Christ himself, Matt. xxvi. 39. Amongst the Romans, the sick were always directed to lie down in the temple of Æsculapius.

Kissing the feet, walking *bare-footed*, and *putting off the shoes* in a ceremonious way from the feet, are other tokens of adoration practised both in ancient and modern times. For the last, see Exod. iii. 5. The Mahometans always observe this practice when they enter their mosques; and travellers report that there are seen as many slippers and sandals at the doors of an Indian pagoda, as there are hats hanging up in our churches. Mr. Wilkins mentions, upon his expressing a wish to enter the inner hall of the college of seiks, at Patna, he was informed, "it was a place of worship, and it was necessary for him to take off his shoes." Kissing the feet is a token of homage well known to be paid to the pope, and said by some writers to have been borrowed from a custom of the primitive church, in which the bishops were thus honoured; the people exclaiming as they offered this mark of respect, προσκυω, I adore thee. Others derive it from a custom of the imperial court. His holiness is said to wear a crucifix on his slipper, that scrupulous consciences may transfer the homage to Christ. It is recorded of Diocletian, that he had gems affixed to his shoes, that the people might the more readily offer him the honour of adoration in this way.

The following curious account of the mode of Hindoo adoration, which they call pōōja, is given by Mr. Ward in his "View of the history, literature, and religion of that people."

"Previously to entering on this act of idolatry, the person bathes: returning home he washes his feet, spreads a blanket, or some other proper thing to sit upon, and then sits down before the idol, having the articles necessary for worship before him: a kosha or metal basson, and a koshee, or smaller one; a small wooden stand, a metal plate, an iron stand to hold five lamps, a censer, a brass stand with a small shell placed on it, a metal plate on which to place flowers, a metal bowl into which the water and flowers are thrown after they have been presented to the idol, a metal jug for holding water, a metal plate to be used as a bell; a shell, or sacred conch, which sounds like a horn; with a number of dishes, cups, and other utensils for holding rice, paint, incense, betel, water, milk, butter, curds, sweetmeats, flowers, clarified butter, &c. Having all these articles ready, the worshipper takes water from the kosha with the koshee; and, letting it fall into his hand, drinks it; he then takes a drop more, and then a drop more, repeating incantations. After this, with the finger and thumb of his right hand, he touches his mouth, nose, eyes, ears, navel, breast, shoulders, and the crown of his head, repeating certain forms. He then washes his hands, makes a number of motions with his fingers, and strikes the earth with his left heel three times, repeating incantations. When this is done, he flirts the first finger and thumb of his right hand, waving

his hand toward the ten divisions of the earth; closes his eyes, and repeats incantations to purify his mind, his body, the place where he sits, as well as the offerings about to be presented (which it is supposed may have become unclean by having been seen or touched by a cat, a dog, a shackal, a shoodru, or a Mussulman.) Next, he takes a flower, which he lays on his left hand, and putting his right hand upon it, revolves in his mind the form of the god he is worshipping. He then lays the flower on his head, recites the outward forms of worship in his mind, and presents the offerings:—first, a square piece of gold or silver, as a seal for the god, inviting him to come and sit down, or visit him; and then, asking the god if he be happy, repeats for him "very happy." After this, he presents water to wash the feet; then rice, a vilwu leaf, eight blades of doorva grass, paint, and water, with incantations. He then presents water to wash the mouth, curds, sugar, honey, water to bathe in; then cloth, jewels, gold, silver, ornaments, bedsteads, curtains, a bed, pillow, cloth, printed cloth; clothes for men, women, or children; shoes, brass drinking cups, candlesticks, and whatever would be proper presents to the brahmuns, &c. &c. &c.—At last the person prostrates himself before the object of worship, and then retires to feast on the offerings with other brahmuns. This is a detail of the form of worship on a large scale, at which time it occupies the officiating brahmun two hours." Vol. ii. p. 64, *et seq.* 8vo.

The reader will observe from the foregoing historical collections, how various are, and have been, the objects of human adoration. Every gradation of respect and homage has been indicated by it: and its religious character is of course to be estimated entirely by our views of the being or object to whom it is addressed. It can scarcely need to be added that the second commandment seems expressly given to regulate our views of this subject, and to warn all sincere believers in Divine Revelation, of the guilt and danger of transferring any of the honours of 'a jealous God.'

ADORE', *v.* ADOR'ABLE, ADOR'ANT, ADORA'TION, ADORE'MENT, ADOR'ER. Ad: *oro*, from *os*, the mouth, properly to address oral prayers, but used more generally, to acknowledge the existence and power of the supreme Being; to reverence, with sentiments of awe and love; to worship; to invoke; to supplicate; to intreat.

With that my fader vincust stert on fute,
And to the goddis carpis to be our bute,
The haly sterne *adorit* he rycht thare,
Now, now, quod he, I tary no langare,
I follow, and quhidder ze gide me sall I wend.
Douglas, book ii. p. 62, Æneid.

And miche more execrable is it to serue or worship the [images] with any reuerent behauiour, ether by *adoracion*, prostracion, knelyng, or kissing.
The Exposicion of Daniel by Geo. Joye, fol. 35. col. 2.

Votum in the scriptures hath not one only sygnyfycacyon, but many. Some where it is a knowledgyng of Gods benefyghtes, some where a faythe in hys promyses, some wher an *adoracyon*, a worshypp.
Bale's Apology, fol. 52, col. 1.

Dye rather, die, and dying doe her serue,
Dying her serue, and liuing, her *adore*;
Thy life shee gave, thy life she doth deserue:
Dye rather, die, than euer from her seruice swerue.
Spencer's Faerie Queene.

——— Rejoicing, but with awe,
In *adoration* at his feet I fell
Submiss. *Milton's Paradise Lost.*

The priests of elder times deluded their apprehensions with soothsaying, and such oblique idolatries; and even their credulities to the literal and downright *adorement* of cats, lizards, and beetles.
Brown's Vulgar Errours.

The God of nature ordained from the beginning that he should be worshipped in various and sundry forms of *adorations*, which, nevertheless, like so many lines, should tend all to the same centre.
Howell's Letters.

'Tis *adoration*, some say, makes the God,
And who would pay it, where would be their altars,
Were no inferior creatures?
Dryden's Troilus and Cressida.

The mountain nymphs and Themis they *adore*,
And, from their oracles, relief implore. *Dryden.*

The people appear *adoring* their prince, and their prince *adoring* God. *Tatler*, No. 57.

Make future times thy equal act *adore*;
And be, what brave Orestes was before.
Pope's Odyssey.

Whilst as th' approaching pageant does appear,
And echoing crowds speak mighty Venus near;
I, her *adorer* too, devoutly stand,
Fast on the utmost margin of the land. *Prior.*

ADOREA, in Roman antiquity, grain, or a kind of cakes made of fine flour, and offered in sacrifice; or a dole or distribution of corn, as a reward for some service; whence by metonymy it is put for praise or rewards in general.

ADORN', *v.* and *n.* ADORN'ING, *adj.* ADORN'MENT. Ad: *orno*. Orno is of doubtful origin. Vossius derives it from Gr. Ωρα, time in general or any specific period, as Spring. In Greek authors, it also bears the signification of beauty, maturity; and may be applied to whatever is pleasing or agreeable. Wicklif uses ourn; to beautify, decorate, dress, or set off to the best advantage; to embellish.

Quham till this was the latter dulefull day,
With festuall flouris, and bewis as in May,
Did wele *adorne*, and feist and riot maid,
Throwout the toun, and for myscheif was glaid.
Douglas, b. ii. p. 47.

At his first settyng foote on land, the garter of thorder was set and made faste aboute his [Philip of Spain] legge, whiche was sent vnto hym by the quene, richly *adorned* with precious iewelles.
Fabyan, p. 715.

The holie senate was *adorned* with olde prudent persons: And not without teares I saie, it is at this houre ful of iäglers and liers. *The Golden Booke.*

He hath clothed me with the garments of salvation; he hath covered me with the robe of righteousness; as a bridegroom decketh himself with ornaments, and as a bride *adorneth* herself with her jewels. *Isaiah*, c. lxi v. 16.

This attribute was not given to the earth, while it was confused: nor to the heavens, before they had motion and *adornment*. *Raleigh's History of the World*

Her breast all naked, as net iuory,
Without *adorne* of gold or silver bright,
Wherewith the craftes-man wonts it beautific,
Of her dew honour, was despoyled quight.
Spencer's Faerie Queene, b. iii. c. 12

She held the very garment of Posthumus in more respect, than my noble and natural person, together with the *adornment* of my qualities.

Shakspeare's Cymbeline.

She'll to realities yield all her shows;
Made so *adorn*, for thy delight the more.

Milton.

Thousands there are, in darker fame that dwell,
Whose name some nobler poem shall *adorn*;
For, though unknown to me they sure fought well.

Dryden.

How negligently graceful he [the noble Montague] unreins
His verse, and writes in loose familiar strains;
How Nassau's god-like acts *adorn* his lines!
And all the hero in full glory shines!

Addison's Account of the greatest English Poets.

Yet 'tis not to *adorn* and gild each part
That shews more cost than art;
Jewels at nose and lips, but ill appear.

Cowley.

Let vanity *adorn* the marble tomb
With trophies, rimes, and scutcheons of renown;
In the deep dungeon of some Gothic dome,
Where night and desolation ever frown.

Beattie.

The task of an author is, either to teach what is not known, or to recommend known truths by his manner of *adorning* them. *Rambler.*

ADOS, in chemistry, water in which red hot iron has been cooled.

ADOSCULATION, in botany, a term that has been used to express the impregnation of plants by the falling of the farina fœcundans on the pistil.

ADOSSEE, probably from *ad*, to, and *dorsa*, backs, in heraldry, two figures or bearings, placed back to back. See HERALDRY.

ADOT'ED. See DOTE.

It falleth that the most wise
Ben other while of loue *adoted*.

Gower, Con. A. b. vi.

ADOUR, a river of France, which rises in the mountains of Bigorre, in the upper Pyrenees, and running N. by Tarbes through Gascony, afterwards turns E., and passing by Dax, falls into the bay of Biscay, about three miles below Bayonne.

ADOUY, a market town of Hungary, in the county palatine of Stuhlweissenburg, on the Danube; also the name of several small towns in the counties of Bihar, Beregh, and Saboltsch.

ADOWA, a city of Abyssinia, the capital of the province of Tigré, and residence of the sovereign; situated partly on the side, and partly at the foot of a hill, and commanding a magnificent view of the adjacent mountains. The houses are pretty regularly disposed into streets or alleys, and of a conical form, interspersed with trees and small gardens. The population cannot fall short of 8000. Here is a remarkable manufacture of cotton cloths, both coarse and fine, but particularly the former, which are considered to excel those made in any other part of Abyssinia, and which circulate like money. Adowa is the principal commercial town E. of the Tacazze, and the channel by which the communication between the coast and the interior is almost exclusively carried on. The provinces to the south abound in cattle and corn, which, with salt, constitute their chief articles of barter. About a thousand slaves pass through Adowa, to be shipped at Massuah and other ports on the Red Sea. A considerable number of Mahometans are resident, and visitors here, and are the only class of the population at all animated by the spirit of trade. The inhabitants are more civilized than is usual in Abyssinia. Long. 39°, 5'. E. Lat. 14°, 12', 30". N.

ADOWN', } See DOWN.
ADOWN'WARD. }

And stones *adonward* slonge vp hem ỳ nowe,
And myd speres and myd flon vaste of hem slowe,
And myd suerd and myd ax.

R. Gloucester, p 362.

Whan Phebus dwelled here in erth *adoun*,
As olde bookes maken mentioun,
He was the moste lusty bacheler.
Of all this world, and eke the best archer.

Chaucer. The Manciple's Tale.

Thrice did she sink *adown* in deadly sound;
And thrice he her revived, with busy pain.

Spencer's Faerie Queene.

In this remembrance, Emily, ere day
Arose, and dress'd herself in rich array;
Fresh as the month, and as the morning fair
Adown her shoulders fell her length of hair.

Dryden.

Her hair
Unty'd, and ignorant of artful aid,
Adown her shoulders loosely lay display'd,
And in the jetty curls ten thousand cupids play'd.

Prior's Solomon.

Adown Augusta's pallid visage flow
The living pearls with unaffected woe.
Discons'late, hapless, see pale Britain mourn,
Abandon'd isle! forsaken and forlorn!

Falconer's Ode on the Duke of York.

ADOXA, tuberous moschatel, hollow-root, or inglorious; in botany, a genus of the tetragynia order, belonging to the octandria class of plants; and in the natural method ranking under the thirteenth order, succulentæ.

The characters of this genus are: CAL. a perianthium beneath, divided into two segments, flat, persistent: COR. composed of one flat petal, divided into four ovate acute segments longer than the calyx: STAM. eight subulated filaments the length of the calyx; with roundish antheræ: PIST. has a germen beneath the receptacle of the corolla; four simple, erect, persistent styli, the length of the stamina; and simple stigmata: PER. a globular four-celled berry between the calyx and corolla. The seeds solitary and compressed. There is but one species, which is a native of the woods in Britain, and Europe.

ADPERCEPTION, in metaphysics, a term used by Leibnitz, to denote the act whereby the mind becomes conscious to itself of a perception.

AD PONDUS OMNIUM, to the weight of the whole; an abbreviation among physicians, signifying, that the last prescribed ingredient is to weigh as much as all the others put together.

AD QUOD DAMNUM, in the English law, a writ directed to the sheriff, commanding him to enquire into the damage which may befal the king, or other person, by granting certain privileges to a place, such as a fair, a market, or the like; or by granting lands in fee-simple to a body politic; or by turning or changing the

ways; in which cases, the party aggrieved may complain to the justices, at next quarter session; failing which complaint, the inquisition is recorded and becomes binding.

ADRA, a district and sea-port town of Granada in Spain, 45 miles S.E. of Granada, and 22 S.W. of Almeira. It was formerly called Adara, which see. Long. 3°, 10′ W. Lat. 36°, 4′ N. The river also on which it stands bears this name.

ADRACHNE, in botany, a species of the strawberry-tree, which grows plentifully in the island of Candy. See Arbutus.

ADRACLA, another name for the preceding shrub.

ADRAGANTH, in medicine, gum dragon. It distils by incision, from the trunk or roots of a plant which grows in the Levant. The gum is of different colours, white, red, grey, and black, and is useful in medicine. Skinners use great quantities of it in preparing their leather, and prefer the red and black. It is the astragulus tragacanthus of Linnæus.

ADRAMIRE, or Adrhamire, in law, to oblige one's self, before a magistrate, to do a thing. *Bailey.*

ADRAMMELECH, אדרמלך, of אדר, greatness, or אדרת, a cloak, and מלך, a king, Heb. i. e. the king's greatness, or cloak, an idol of the Assyrians, sometimes represented by the figure of a peacock, sometimes by that of a mule, to whom they sacrificed their children, by fire, in the most cruel manner. See Moloch. Also the name of one of the sons of Sennacherib, king of Assyria.

ADRAMYTTENUS Conventus, assizes or sessions, held at Adramyttium, being the eighth in order of the nine *Conventus Juridici* of the province of Asia.

Adramyttenus Sinus, in ancient geography, a part of the Egean Sea, on the coast of Mysia.

ADRAMYTTIUM, in ancient geography, now Adramiti; a town of Mysia Major, at the foot of Mount Ida. It was an Athenian colony, with a harbour and dock near the Caicus. *Strabo*, l. xiii.

Adramyttium, a city on the N. coast of Africa, westward of Egypt.

ADRANA, a river of Germany; now the Eder, rising on the borders of the country of Nassau, to the north-east of Dillenburg, and running through the landgraviate of Hesse into the Fulda. See Eder.

ADRANITÆ, or Hadranitani, the inhabitants of Adranum.

ADRANUM, or Hadranum, in ancient geography, now Aderno; a town of Sicily, built by the elder Dionysius, at the foot of mount Ætna, 400 years before Christ, and so called from the temple of Adranus. which see.

ADRANUS, or Hadranus, an idol worshipped by the ancient Sicilians.

Adranus, a river of Sicily, now called Fiume d' Aderno.

ADRASTEA, in antiquity, a name given to Nemesis, the goddess of revenge, or the punisher of injustice. The Egyptians placed her above the moon, that she might the more easily observe human actions. King Adrastus first erected a temple to this goddess, and some suppose gave her this name.

ADRASTIA Certamina, in antiquity, public games, instituted by Adrastus king of Argos, at Sicyon, A. M. 2700, in honour of Apollo.

Adrastia, in botany, a name given by De Candolle, to a plant of New Holland, called also oceana, of the class decandria, order digynia. Natural order, magnolia, according to Jussieu.

Its characters are, Cal. inferior, of five permanent pointed leaves. Pet, five oval, shorter than the calyx. Stam. filaments flat, anthers linear, of two cells. Pist. Germens two, globose. Styles straight and close together, awl-shaped. Seed solitary.

ADRASTUS, king of Argos, son of Talaus and Lysimache, acquired great honour in the famous war of Thebes, in support of Polynices his son-in-law, who had been excluded the sovereignty of Thebes by Eteocles his brother. Adrastus, followed by Polynices and Tydeus another son-in-law, Capaneus, Hippomedon his sister's son, Amphiaraus his brother-in-law, and Parthenopæus, marched against the city of Thebes; and this is the expedition of the Seven Worthies, which the poets have so often sung. All seven of them lost their lives in this war except Adrastus, who was saved by his horse called Arion. The war was revived ten years after, by the sons of the deceased warriors, and called the war of the Epigones, which ended with the taking of Thebes. In this contest fell Ægialeus, son of Adrastus; which afflicted him so much that he died of grief. Also a Phrygian prince, who fled to the court of Crœsus, and being made guardian to his son Atys, inadvertently slew him while hunting, and afterwards killed himself. *Herod.* i. 35.

ADRAZZO, the same with Adjazzo, or Ajaccio.

ADREAD′. See Dread.

Ther n'as baillif, ne herde, ne other hine,
That he ne knew his sleight and his covine:
They were *adradde* of him, as of the deth.
Chaucer. The Prologue. The Reve.

And on that o side of the towne
The kynge let make Ilion,
That high toure, that stronge place
Which was *adrad* of no manace
Of quarele, nor of none engyne.
Gower Con. A. b. v.

ADRETS, (Francis de Beaumont, baron des,) one of the chiefs of the Huguenots in France, who in 1562, signalised himself by many brave exploits, tarnished, however, by detestable cruelties. At some places he obliged his prisoners to throw themselves from the battlements, upon the pikes of his soldiers. When reproaching one of them for shrinking back twice from the fatal leap. "Sir, (replied the man,) I defy you, with all your bravery, to take it in three leaps." This witticism saved the soldier's life. After the peace the baron turned Catholic, and died deservedly hated in 1587. A son of his was concerned in the massacre of Paris.—*Nouv. Dict. Hist.*

ADRIA, an episcopal town in Italy, situated on a peninsula formed by the river Tartaro and an arm of the Po, in that part of the Venetian territory called the Polesino di Rovigo, now belonging to Austria. This once flourishing town, the *Atria* of Pliny and Ptolemy, and the

Adrias of Strabo; and which gave name to the Adriatic sea, is now greatly decayed, and has not above 7200 inhabitants. 15 miles E. of Rovigo. Long. 12°, 2′ E. Lat 45°, 2′ N.

ADRIAMPATAM, a town on the coast of Tanjore, Hindostan, 37 miles S. by E. of Tanjore. N. Lat. 10°, 20′. E. Long. 79°, 30′.

ADRIAN, or HADRIAN, PUBLIUS ÆLIUS, the fifteenth emperor of Rome. He was born at Rome, A. D. 76, and left an orphan, at ten years of age, under the guardianship of Trajan, and Cœlius Tatianus, a Roman knight. He began to serve very early in the armies, was tribune of a legion before the death of Domitian, and was chosen by the army, to carry the news of Nerva's death to Trajan, his successor. He accompanied Trajan in most of his expeditions, distinguished himself in the second war against the Dacii, and was successively appointed quæstor, tribune of the people, prætor, governor of Pannonia, consul, and governor of Syria. After the siege of Atra was raised, Trajan left him the command of the army, and when he found death approaching, adopted him. Adrian, who was then in Antioch, as soon as he heard of Trajan's death, declared himself emperor, A. D. 117, made peace with the Persians, and from generosity or policy, remitted the debts of the Roman people, which, according to the calculation of those who have reduced them to modern money, amounted to 22,500,000 golden crowns: and that the people might be under no apprehension of being called to an account for them afterwards, burnt all the bonds and obligations relating to those debts. There are medals still extant, in commemoration of this fact, in which he is represented holding a flambeau in his hand, setting fire to the bonds. He visited all the provinces, and did not return to Rome till the year 118, when the senate decreed him a triumph, and honoured him with the title of *Father of his country*; but he refused both, and desired that Trajan's image might triumph. No prince travelled more than Adrian; there being hardly a province in the empire, which he did not visit. In 120 he went into Gaul; from thence to Britain, in order to subdue the Caledonians, who were making continual inroads into the provinces. Upon his arrival, they retired towards the north: when he advanced as far as York, but was diverted from his intended conquest by the description which some soldiers, who had served under Agricola, gave him of the country. In hopes, therefore, of keeping them quiet, by enlarging their bounds, he delivered up to the Caledonians, all the lands lying between the two Friths and the Tyne; and at the same time, to secure the Roman province from their future incursions, built the famous wall which still bears his name. See ADRIAN'S WALL. Having thus settled matters in Britain, he returned to Rome, where he was honoured with the title of *Restorer of Britain*, as appears by some medals. Adrian soon after went into Spain, to Mauritania, and at length into the East, where he quieted the commotions raised by the Parthians. Having visited all the provinces of Asia, he returned to Athens, in 125 where he was initiated in the mysteries of Eleusinian Ceres. From thence he went to Sicily, to view the phenomena of Mount Ætna, and enjoy the extensive prospect from its top. He returned to Rome in 129; and again visited Africa and the East; was in Egypt in 132, revisited Syria, in 133, returned to Athens in 134, and to Rome in 135. The persecution against the Christians was very violent under his reign; but it was at length suspended, in consequence of the remonstrances of Quadratus, bishop of Athens, and Aristides, two Christian philosophers, who presented the emperor with some books in favour of the Christian religion. He conquered the Jews; and, by way of insult, erected a temple to Jupiter on Calvary, placed a statue of Adonis in Bethlehem, and caused images of swine to be engraven on the gates of Jerusalem. At last he was seized with a dropsy, of which he died at Baiæ, in the sixty-third year of his age, and the twenty-first of his reign. The Latin verses he addressed to his soul, not long before he breathed his last, are a fine instance of self-possession at such a moment,

Animula, vagula, blandula,
Hospes, comesque corporis,
Quæ nunc abibis in loca
Pallidula, rigida, nudula?
Nec, ut soles, dabis jocos.

Thus given by Pope, and probably supplying to him some of the finest thoughts of his celebrated Ode.

Ah! fleeting spirit! wandering fire,
That long has warmed my tender breast,
Must thou no more this frame inspire?
No more a pleasing, cheerful guest!
Whither, ah! whither art thou flying?
To what dark undiscovered shore?
Thou seem'st all trembling, shiv'ring, dying,
And wit and humour are no more!

There are some fragments of other Latin poems of his extant, and some of his Greek verses in the Anthology. He also wrote the history of his own life: to which, however, he did not put his name, but that of Phlegon, one of his freed-men. He had great wit, and an extensive memory; and understood the sciences, but was jealous of others who excelled in them. One of the friends of Favorinus asked the latter, who knew the emperor's foible, why he improperly yielded to Adrian in an argument: "Wouldst thou not have me yield to the master of thirty legions?" he replied. He was also cruel, envious, and lascivious. Antoninus his successor obtained his apotheosis; and prevented the rescission of his acts, which the senate once intended.

ADRIAN, the African, abbot of St. Peter's, Canterbury, in the 7th century, accompanied Theodore, archbishop of Canterbury to England. The united efforts of these learned ecclesiastics, diffused no small degree of light over this dark period of Anglo-Saxon history. Adrian was the preceptor of Aldhelm, and Bede extols the happy time when the island enjoyed his tuition: and Kent "was the fountain of knowledge to the rest of England."

Turner's Anglo-Saxons, v. ii. 381.

ADRIAN IV. (Pope) the only Englishman who ever had the honour of sitting in the papal chair. His name was Nicholas Breakspere; and

he was born at Langley, near St. Alban's, in Hertfordshire. His father having taken the habit of the monastery of St. Alban's, Nicholas was obliged to submit to the lowest offices in that house, for daily support. He desired to take the habit of the monastery, but being rejected by the abbot, resolved to try his fortune in Paris, where, though very poor, he applied himself to his studies with great assiduity. But having still a strong inclination to a religious life, he left Paris, and removed to Provence, where he became a regular clerk in the monastery of St. Rufus. Here, after some time, he recommended himself to the monks by a strict attention to their concerns; which, with the beauty of his person, and his prudent conversation, rendered him so acceptable an inmate, that they entreated him to take the canonical habit. He now distinguished himself by his learning and strict observance of the monastic discipline; and upon the death of the abbot, was chosen superior of the house. Pope Eugenius III. being apprised in 1146 of the great merit of Nicholas, and thinking he might be serviceable to the church in a higher station, created him cardinal bishop of Alba, and in 1148, sent him legate to Denmark and Norway; where, by his fervent preaching, he is said to have converted those nations to the Christian faith; and erected Upsal into an archiepiscopal see. Upon his return to Rome, he was received with great marks of distinction; and on the death of Pope Anastasius, who had succeeded Eugenius, was in 1154, unanimously chosen to the papal chair, when he took the name of Adrian.

The news of his election reaching England, Henry II. sent Robert, abbot of St. Alban's, and three bishops, to Rome, with congratulations; upon which occasion Adrian granted large privileges to the monastery of St. Alban's, particularly an exemption from all episcopal jurisdiction, excepting to the see of Rome. In the beginning of his pontificate, he withstood the attempts of the Romans to recover their ancient liberty under the consuls, and obliged those magistrates to leave the government of the city to the Pope. In 1155, he drove Arnaud of Brescia, and his followers, out of Rome, excommunicated William king of Sicily, who had ravaged the territories of the church, and absolved his subjects from their allegiance. About this time, Frederic king of the Romans, having entered Italy with a powerful army, Adrian met him near Sutrium, and concluded a peace. At their interview, Frederic consented to hold the Pope's stirrup, whilst he mounted on horseback: after which his holiness conducted that prince to Rome, and in St. Peter's church placed the imperial crown on his head, to the great mortification of the Romans. The next year a reconciliation was brought about between the Pope and the Sicilian king, that prince taking an oath to do nothing farther to the prejudice of the church, and Adrian granting him the title of *king of the two Sicilies*. This pontiff built and fortified several castles, and left the papal dominions and papal domination considerably improved and increased. But notwithstanding all his prosperity he is said to have been extremely sensible of the disquietudes of his high station; and declared to his countryman, John of Salisbury, that all the former hardships of his life were mere amusement to the perplexities of the popedom: that he looked upon St. Peter's chair to be the most uneasy seat in the world; and that he constantly felt as if his crown were burning his temples. Some writings, which remain in MS. are attributed to this pope, and various letters and homilies. His letter of licence to Henry II. to conquer Ireland, is in Wilkin's Concil. Britan.; and the treaty of peace which so concerns the Sicilian monarchy, may be seen in Baronius' Annals. Adrian's death is, by some writers, attributed to poison; but is more generally said to have been occasioned by a fly settling accidentally in his throat, and suffocating him. He died in 1156, in the fifth year of his pontificate; and was buried in St. Peter's church.

Adrian VI. (Pope,) was born at Utrecht, in 1459. His father was not able to maintain him at school, but entered him at Louvain, in a college in which a certain number of scholars were maintained *gratis*. It is reported that he used to read in the night by the light of the lamps in the churches or streets. He made a considerable progress in all the sciences; led an exemplary life; and never was a man who rose to eminence, less intriguing. He took his degree of D. D. at Louvain; was soon after made canon of St. Peter's, and professor of divinity at Utrecht, and then dean of St. Peter's and vice-chancellor of the university. His academical life he resigned to become tutor to the then archduke Charles V. who, however, made no great progress under him: but never was a tutor more gratefully remembered; for by Charles's influence Adrian was raised to the papal throne. Leo X. had given him the cardinal's hat in 1517. After this pope's death, several cabals in the conclave ended in the election of Adrian; and though many popes have been more popular at Rome, few have been so liberal, and so truly conscientious. He would not change his name, and in every thing shewed a great dislike for ostentation and sensual pleasure; lamented much the inconsistencies of the clergy, and the want of reformation in the church. Having written in early life against the infallibility of the holy see, he reprinted his work without alteration, when pope; and is said steadily to have resisted various persecuting measures to which he was advised against the Lutherans. He died in 1523.

Adrian de Castello, a cardinal priest, was a native of Cornetto in Tuscany. Innocent VIII. sent him nuncio into Scotland and France; and after he had been clerk and treasurer of the apostolic chamber, pope Alexander VI. whose secretary he had been, honoured him with the cardinal's hat. His life was a continued scene of odd incidents. He narrowly escaped death the day Alexander VI. poisoned himself by mistake; that pontiff and his son having, in fact, mingled a poisonous potion for Adrian, which they themselves drank. Afterwards he incurred the hatred of Julius II. so that he was obliged to hide himself in the mountains of Trent. Having been recalled by Leo X. he was so ungrateful, that he

engaged in a conspiracy against him; which Leo detecting, Adrian was amerced in a fine of 12,500 ducats, and forbidden to quit the papal territory. This order, however, he disobeyed, and all his ecclesiastical honours and preferments were, in consequence, taken from him by public sentence. Whither he fled has never been with certainty ascertained. Castello was one of the first that effectually reformed the Latin style. He studied Cicero with great success, and made many excellent observations on the Roman tongue, in his treatise *De Sermone Latino*. He had begun a Latin translation of the Old Testament: and wrote a treatise *De vera philosophia*, which was printed at Cologne, in 1548.

ADRIAN, ST. the name of several towns in the Netherlands; one three miles N. E. of Bruges, another ten miles S. E. of Ghent, &c.

ADRIANI, (Joanni Battista,) was born of a patrician family at Florence, in 1511. He wrote a History of his own Times in Italian; which is a continuation of Guicciardini, from 1536; and funeral orations on the Emperor Charles V. and other noble personages. He died at Florence in 1579.

ADRIANISTS, in ecclesiastical history, disciples of Simon Magus, who flourished about the year 34. Theodoret is the only person who has preserved their name and memory; but he gives us no account of their origin. Probably this sect, and the others which sprung from the Simonians, took their names from the particular disciples of Simon. Also followers of Adrian Hampstead, an anabaptist, who taught in England and Zealand in the 16th century; and held some particular opinions respecting the person of Christ.

ADRIANNA, a town in the province of Gujerat, much molested by the robbers of Mallia, and frequently deserted on that account, though containing upwards of 1000 houses. It is nominally subject to the Coolies of Jhingwarra, and is distant from that place about eight miles, but owes its present existence to the protection of the British.

ADRIANO A SIERRA, or mountain of Adriano, in Guipuscoa, a subdivision of the province of Biscay, in Spain. There is a road over it to Old Castile, which is difficult of access. At the beginning is a dark path of 40 or 50 paces cut through a rock. This mountain is one of the highest of the Pyrenees.

ADRIANOPLE, ADRANAH, or EDRENEH, a city of Turkey in Europe, in the province of Romania, and the see of an archbishop under the patriarch of Constantinople, from which it is distant 130 miles N. W. It is about eight miles in circumference, including the old city and some gardens. The houses are low, mostly built of mud and clay, and some of brick: and the streets exceedingly dirty. Here is a beautiful bazaar, or market, half a mile long, called Ali Bassa, having six gates, and 365 well furnished shops; and another, about a mile in length, also full of shops, which contain all kinds of commodities. Gold and silver articles, jewels, pistols, scimetars, &c. are sold in another parts of the city, in the *Bizestein*, differing little from a bazaar. This contains about 200 shops. The number of inhabitants of all nations and religions may be about 100,000. The air is wholesome, and the country very pleasant in the summer time, on account of the rivers and streams that run near the city; the chief of which is the Marizza, which is navigable to the Archipelago. These promote and preserve the verdure of the gardens, meadows, and fields, for a considerable part of the year. In winter there is plenty of game: and wine and fine fruits are large articles of commerce. Sultan Selim's mosque is a noble building in the centre of the city, and to be seen on all sides of it. The grand vizier's palace is nothing more than a convenient house, built after the Turkish manner. The emperor's seraglio is a regular structure, in a plain near the river Tungia. It is two miles in compass, and has seven gates, besides those of the gardens, which are several miles in circumference. The city is governed by a mullah cadi, who has an absolute authority both in civil and criminal matters. In the time of the plague, or war, the grand seignior frequently resides here. The Turks took this city from the Greeks in 1362, and made it the capital of the empire till Mahomet II. took Constantinople, in 1453. It suffered considerably by fires in 1754, and 1778. Lon. 26°, 27′ E. Lat. 41°, 45′ N.

ADRIANOTHERA, in ancient geography a city of Mysia, originally founded by Adrian in a district whither he resorted for the pleasures of the chace. It is the Adriani, probably, where Aristides the sophist was born. See *Dion. Cass.* tom. ii. ed. Keim.

ADRIAN'S WALL, a celebrated Roman work in the North of England. This work, though called by the Roman historians *murus*, which signifies a wall of stone, was only composed of earth covered with green turf. It was carried from the Solway Frith, a little west of the village of Burgh on the Sands, in as direct a line as possible, to the river Tyne on the east, at the place where the town of Newcastle now stands: so that it must have been above 60 English, and near 70 Roman miles in length. It consisted of four parts: 1. The principal *agger*, mound of earth, or rampart, on the brink of the ditch. 2. The ditch on the north side of the rampart. 3. Another rampart on the south side of the principal one, about five paces distant from it. 4. A large rampart on the north side of the ditch—This last was probably the military way to the line of forts on this work. The south rampart might serve for an inner defence in case the enemy should beat them from any part of the principal rampart, or it might be designed to protect the soldiers from any sudden attack of the provincial Britons.—For many ages, this work hath been in so ruinous a condition, that it is impossible to discover its original dimensions with certainty. But from their appearance, it seems probable that the principal rampart was at least ten or twelve feet high, and the south one not much less; but the north one was considerably lower. The ditch taken as it passes through a lime-stone quarry near Harlow hill, appears to have been nine feet deep, and eleven wide at the top, but somewhat narrower at the bottom. The north rampart was about twenty feet distant from the ditch.

ADRIANSEN, (A.) a Flemish painter of considerable celebrity in fruits, flowers, and fish. He was born at Antwerp, in 1625. *Pilkington.*

ADRIANUM, or ADRIATICUM MARE, the Adriatic sea, in ancient geography, now the gulf of Venice, a large bay in the Mediterranean, between Dalmatia, Sclavonia, Greece, and Italy. It is called by the Greeks Αδριας Κολπος; and *Adria* by the Romans, as *Arbiter Adriæ notus*, Hor. Cicero calls it *Hadrianum Mare;* Virgil has *Hadriacas Undas.* It is commonly called *Mare Adriaticum*, without an aspiration; but whether it ought to have one, is a dispute: if the appellation is from *Hadria*, the town of the Piceni, it must be written *Hadriaticum*, because the emperor's name, who thence derives his origin, is on coins and stones *Hadrianus;* but if from the town in the territory of Venice, as more ancient, and of which that of the Piceni is a colony, this will justify the common appellation *Adriaticum.*

ADRIATIC SEA. See last article, and VENICE, GULF OF.

ADRIETARE, or ADRECTARE, in law, to satisfy; to make amends, or set right.

ADRIFT. Ang. Sax. drifan, adrifan, to drive: part. past, adrifted, adrift.

And quhat aventure has the hidder *driffe?*
Douglas, b. iii. p. 79.

Then shall this mount
Of Paradise, by might of waves, be moved
Out of his place; push'd by the horned flood
(With all his verdure spoil'd, and trees *adrift*,)
Down the great river, to the opening gulf;
And there take root.
Milton's Paradise Lost.

Be put alone into a boat,
With bread and water only for three days;
So on the sea she shall be set *adrift*,
And who relieves her, dies.
Dryden's Marriage à la Mode.

It seem'd a corpse *adrift*, to distant sight;
But, at a distance, who could judge aright.
Dryden.

Having fallen in with a reef of rocks in their return to the ship, they had been obliged to cut Mr. Banks's little boat *adrift*. *Cook's Voyages.*

ADRIUNE, in botany, the Arabian name for the plant called Cyclamen, or sow-bread.

ADROBOLON, in chemistry, the Indian bdellium.

ADROGATION, in Roman antiquity, a species of adoption, whereby a person who was capable of choosing for himself was admitted by another into the relation of a son. The word is compounded of *ad*, to, and *rogare*, to ask; on account of a question put in the ceremony of it, Whether the adopter would take such a person for his son? and another to the adoptive, Whether he consented to become such a person's son?

ADROIT' *adj.* } *Directus*, Lat. *Dritto*, Ital.
ADROIT'LY, } *Adroit*, Fr.—applied to one
ADROIT'NESS. } who aims *directly* at his mark, and hits it; right-handed; dexterous, opposed to clumsy: used of both bodily and mental cleverness.

An *adroit* stout fellow, would sometimes destroy a whole family, with justice apparently against him the whole time. *Don Quixote.*

The stoic and the libertine, the sinner and the saint, are equally *adroit* in the application of the telescope and the quadrant. *Horsley's Sermons.*

The skill and *adroitness* of the artist, acquired, as yours has been, by repeated acts, and continual practice. *Horne.*

ADROP, among alchemists, denotes either that precise matter, as lead, out of which the mercury is to be extracted for the philosopher's stone; or the philosopher's stone itself, which is also called saturn, and plumbum, or lead, azar, azane, and lapis ipse.

ADROTERON. See ALICA.

ADRUMETUM, or HADRUMETUM, in ancient geography, a town of Africa, the capital of Byzacium. It is variously called in ancient authors, Adrume, Adrumetus, or Adrumettus; Adrymettus, Hertius, and Hadrito. It was the Justiniana of the middle empire, and the Heraclea of the lower. According to Sallust, it was founded by the Phœnicians, and derived its name from two Phœnician words, signifying the country that yielded a hundred-fold. It was a fortified city in the third year of the 117 olympiad. *Diod. Sic.*

ADRY. See DRY.

He never told any of them, that he was his humble servant, but his well-wisher; and would rather be thought a malcontent, than drink the king's health when he was not *adry*. *Spectator.*

ADSCITI'TIOUS. Ad: and *sciscere*, *scitus*, to call for; to admit; to associate; hence, taken; assumed to answer a purpose; counterfeit.

All which are additional labour, and take up much room in discourses and books, and are performed by different authors, upon different subjects, and in different kinds of writing, with an infinite variety of methods and forms, according to men's different views and capacities; and many times not without a necessity of some condescensions, *adscititious* advantages, and even applications to the passions.
Wollaston's Religion of Nature.

You apply to your hypothesis of an *adscititious* spirit what he, [Philo,] says concerning this πνεύμα θεῖον, divine spirit or soul, infused into man by God's breathing. *Clarke's Letter to Dodwell.*

ADSCRIPTS, or ADSCRIPTA, a term used by some mathematicians, for the natural tangents, called also, by Vieta, *prosines.*

ADSIDELLA, in antiquity, the table at which the priests sat during the sacrifices.

ADSIGNIFICATION, among schoolmen, the act of noting or signifying a thing, with the addition of the time when it happened.

ADSTRICTION, in medicine, a term used to denote the too great rigidity and closeness of the emunctories of the body; particularly the pores of the skin; also to signify the styptic quality of medicines. See ASTRINGENTS.

AD TERMINUM QUI PRÆTERIIT, in law, a writ of entry, which lies where a man, having leased lands or tenements for terms of life, or years, is, after the time expired, held from them by the tenant, or other stranger who enjoys it, and deforceth the lessor. The same writ also lies for the lessor's heir.

ADUACA, or ATUACA, anciently a large and famous city of the Tungri, in Belgic Gaul; now a small town, called *Tongre*, in the bishoprick

of Liege, to the north-west of the city of Liege.

ADVANCE', *v.* & *n.*
ADVANCE'MENT,
ADVAN'CER,
AVAUNCE',
AVAUNCE'MENT,
AVAUNT', *v. n.* & *ad.*
AVAUNT'ANCE,
AVAUNT'OUR,
AVAUNT'RY.

Advancér, Old Fr. *au devant*, i. e. before, formerly written *avance* in English, agreeably to the usual French *avancér*; to bring forward, or into the van's front, or foreground; to promote, prefer, propose; to offer to notice, assert, propound. Avaunt, and its correlatives, are from the Fr. *avant*, an adverb, with a verb, understood in the imperative, signifying go forward, or away. To vaunt, is from the Fr. *vanter*, to boast.

Þe luper traytor, hys sone *auanced* was gut bet,
Vor hys robe and hys dygnyte was al wel byset,
He gef hym such *auancement*, as he wolde, he suor ys oþ,
þat he ne dorste neueref carye of mete ne of cloþ.
R. Gloucester, p. 312.

Þe *vaunt* wardes hem mette vorst, as ryzte was to done. *Id.* p. 437.

Þorgh conseile of som of hise, refused he þat present,
Þei said, on oþer wise he salle haf *auancement*.
R. Brunne, p. 103.

And thus of o thing I may *avaunten* me,
At th' ende I had the better in eche degree,
By sleight or force, or by som maner thing.
Chaucer. The Wif of Bathes. Prologue.

Avauntour, is he that bosteth of the harme or of the bountee that he hath don.
Id. The Personnes Tale.

And thus for that there is no dele,
Wherof to make mine *auaunt*,
It is to reason accordaunt,
That I maie neuer, but I lie
Of loue make *auauntrie*.
Gower, Con. A. b. I,

And of none other *auantaunce*:
Thus nedeth me no repentaunce. *Id.*

Shal no lewednesse lette. þe clerk þat ich lovye,
That he ne worth ferst *avanced*.
Vision of Piers Plouhman, p. 39.

In heauē, how highly so euer any man is *aduaūced*, therewith is none offended, but rather euerye one (so well they loue eche other) reioyseth, and hath his part in eche others *aduaūcement*.
Sir Thos. More's Works, p. 1369.

Avaunt! begone! thou'st set me on the rack:
I swear 'tis better to be much abus'd,
Than but to know a little.
Shakspeare's Othello, act. iii.

——————A cherub tall;
Who forthwith from the glittering staff unfurl'd
Th' imperial ensign, which, full high *advanc'd*,
Shone like a meteor, streaming to the wind,
With gems and golden lustre rich emblaz'd,
Seraphic arms and trophies.
Milton's Par. Lost, b. i.

Hence, *avaunt!* 'tis holy ground.
Gray's Installation Ode.

ADVANCE, in commerce, denotes money paid before goods are delivered, work done, or business performed.

ADVANCE DITCH, or FOSSE, in fortification, denotes a ditch of water round the esplanade, or glacis of a place; to prevent its being surprised by the besiegers. See FOSSE.

ADVANCE-GUARD, or VAN-GUARD, *avant garde*, Fr. in the military art, is the first line, or division, of any army ranged, or marching in battle-array, or that part of it which is next the enemy, or marches first towards them. The whole body of an army is divided into advance-guard, rear-guard, and main body. The word is sometimes also applied to a small party of horse, viz. fifteen or twenty, commanded by a lieutenant, beyond and in sight, of the main guard.

ADVAN'TAGE, *v.* & *n.*
ADVANTAG'EOUS,
ADVANTAG'EOUSLY,
ADVANTAG'EOUSNESS,
ADVANTAG'EABLE.

Old Fr. *advantage*; now *avantage*; derived from the same source as advance. Hence benefit, profit, promote the interests of.

That I haue fought with beastes at Ephesus after ye maner of mē, what *auauntageth* it me, yf ye ryse not agayne.
Bible. 1539. 1 *Corinthians*, ch. xv.

As sooth is sayd, elde hath gret *avantage*,
In elde is bothe wisdom and usage:
Men may the old out-renne, but not out-rede.
Chaucer. The Knightes Tale.

Therefore attemper thy courage:
Foolhast doth none *auantage*,
But ofte it set a man behynde,
In cause of loue, and I finde
By olde ensamples, as thou shalt here
Touchend of loue in this matere.
Gower, Con. A. b. I.

For as the darke is in thys matter all hys *auauntage*, euē so is verely the light in likewise myne.
Sir Thos. More's Works, p. 80.

Frende and foo was muche what indifferent, where his *aduauntage* grew, he spared no man's deathe whose life withstoode his purpose.
Sir Thos. More's Description of Richard III.

We owe thee much: within this wall of flesh
There is a soul, counts thee her creditor;
And, with *advantage*, means to pay thy love.
Shakspeare.

You said, you neither lend nor borrow
Upon *advantage*. *Shakesp. Merch. of Venice.*

Here perhaps
Some *advantageous* act may be achiev'd
By sudden onset; either with hell-fire
To waste his whole creation, or possess
All as our own. *Milton.*

Since every painter paints himself in his own works, 'tis *advantageous* to him to know himself; to the end, that he may cultivate those talents, which make his genius. *Dryden.*

It was *advantageously* situated; there being an easy passage from it to India, by sea. *Arbuthnot.*

The time of sickness or affliction is, like the close of the day to Adam, a season of peculiar propriety for the voice of God to be heard; and may be improved into a very *advantageous* opportunity of begetting or increasing spiritual life. *Hammond.*

Like jewels to *advantage* set,
Her beauty by the shade does get. *Waller.*

A face, which is over-flushed, appears to *advantage* in the deepest scarlet; and the darkest complexion is not a little alleviated, by a black hood. *Addison.*

True wit is nature, to *advantage* dress'd;
What oft was thought, but ne'er so well express'd.
Pope.

There would be few enterprizes of great labour or hazard undertaken, if we had not the power of magnifying the *advantages* which we persuade ourselves to expect from them. *Rambler.*

ADUAR, a kind of ambulatory village, wherein Arab families lodge, in moveable tents, as

forage and provison suit. Some write the word *adowar*, and *adouard*. It is said there are 30,000 aduars in the kingdom of Algiers.

ADVENE', *v.*
ADVEN'IENT,
AD'VENT,
ADVENTINE',
ADVENTI'TIOUS,
ADVENT'IVE, *n.* & *adj.*
ADVENT'UAL.

Ad: *venio*, from *βαινω*, to come to. Of these words, *Advent*, generally applied to the coming of Christ, and *Adventitious*, are of the most frequent occurrence.

So gret frost þer com in *aduent*, þat ben mygte agryse þat men mygte boþe ryde and go in Temese vpe yse.
R. Gloucester, p. 463.

A cause, considered in judicature, is styled an accidental cause; and the accidental of any act is said to be, whatever *advenes* to the act itself already substantiated. *Ayliffe's Parergon.*

Being thus divided from truth in themselves, they are yet farther removed by *advenient* deception; for they are daily mocked into errour, by subtler devisers.
Brown's Vulgar Errours.

If, to suppose the soul a distinct substance from the body, and extrinsically *advenient*, be a great error in philosophy; almost all the world hath been mistaken.
Glanville's Vanity of Dogmatism.

As for the peregrine heat, it is thus far true; that if the proportion of the *adventine* heat be greatly predominant to the natural heat and spirits of the body, it tendeth to dissolution or notable alteration.
Bacon.

Diseases of continuance get an *adventitious* strength from custom, besides their material cause from the humours. *Bacon.*

I do also daily use one other collect; as, namely, the collects *adventual*, quadragesimal, paschal, or pentecostol, for their proper seasons.
Bishop Saunderson.

Though we may call the obvious colours natural, and the others *adventitious*; yet such changes of colours, from whatever cause they proceed, may be properly taken in. *Boyle.*

If his blood boil, and the *adventitious* fire
(Rais'd by high meats, and higher wines) require
To temper and allay the burning heat;
Waters are brought, which by decoction get
New coolness. *Dryden.*

In the gem kind, of all the many sorts reckoned up by lapidaries, there are not above three or four that are original; their diversities, as to lustre, colour, and hardness, arising from the different admixture of other *adventitious* mineral matter.
Woodward.

Death's dreadful *advent* is the mark of man;
And every thought that misses it, is vain.
Young's Night Thoughts.

Thy saints proclaim thee king, and thy delay
Gives courage to their foes, who, could they see
The dawn of thy last *advent*, long desir'd,
Would creep into the bowels of the hills,
And flee for safety to the falling rocks.
Cowper's Task, b. vi.

ADVENT, in the calendar, properly signifies the approach of the feast of the nativity. It includes four Sundays, which begin on St. Andrew's day, or the Sunday before or after it. During advent, and to the end of the octaves of epiphany, the solemnizing of marriage is forbid without express licence. It is appointed to employ the thoughts of Christians on the first advent or coming of Christ in the flesh, and his second advent or coming to judge the world. The primitive Christians practised great austerity during this season.

ADVENTAILE. } A surcoat worn over
ADVENTAL. } the armour. *Chauc.*

ADVENTITIA COENA, in antiquity, an entertainment made by the friends of a person who had been travelling, by way of welcome at his return; also called *cœna adventoria*. *Pitiscus.*

ADVENTITIOUS FOSSILS, in natural history, are foreign or extraneous ones, found incorporated with others, to which they do not properly belong; such as sea shells, &c.

ADVENTITIOUS, in civil law, is applied to such goods as fall to a man, either by mere fortune, or by the liberality of a stranger, or by collateral, not direct succession. In this sense, it stands opposed to *profectitious*; by which are signified such goods as descend in a direct line, from father to son.

AD VENTREM INSPICIENDUM, in law, a writ by which a woman is to be searched whether she be with child by a former husband, on her withholding of lands from the next heir, failing issue of her own body.

ADVEN'TURE, *v* and *n.*
ADVEN'TURER,
ADVEN'TUROUS,
ADVEN'TUROUSLY,
ADVEN'TRY.

Ad: *venio*, * *ventum*, *venturus*. To expose one's self to whatever may be about to come, in consequence of adopting any particular conduct; implying hazard and chance of success.

Now is he in þe see with saile ōn mast vpsette.
Toward þis lond þei drouh, to *auenture* his chance,
With Normandes inouh, of Flanders and of France.
R. Brunne, p. 70.

And whan this jape is tald another day
I shal be halden a daffe or a cokenay:
I wol arise, and *auntre* it by my fay:
Unhardy is unsely, thus men say.
Chaucer. The Reves Tale, v. i. p. 166.

Thus can I nought my selfe counsaile,
But all I set on *aunture*,
And am, as who saith, out of cure.
Gower, Con. A. b. iv.

He is a great *adventurer*, said he,
That hath his sword through hard assay foregone.
Spenser.

The kings of England did not make the conquest of Ireland: it was begun, by particular *adventurers*, and other voluntaries, who came to seek their fortunes.
Sir J. Davies.

He intended, to hazard his own action; that so the more easily he might win *adventurers*, who else were like to be less forward. *Raleigh.*

Had it not been for the British, which the late wars drew over; and *adventurers* or soldiers, seated here; Ireland had, by the last war and plague, been left destitute. *Temple.*

Their wealthy trade from pirate's rapine free,
Our merchants shall no more *advent'rers* be.
Dryden.

It is good to guard *adventures* with certainties that may uphold losses. *Lord Bacon's Essays.*

At land and sea, in many a doubtful fight,
Was never known a more *advent'rous* knight;
Who oftner drew his sword, and always for the right.
Dryden.

They are both hanged; and so would this be, if he durst steal any thing *adventurously*.
Shakspeare's Henry V.

Be not angry,
Most mighty princess, that I have *adventur'd*
To try your taking of a false report.
Shakspeare.

The tender and delicate woman among you, which would not *adventure* to set the sole of her foot upon the ground, for delicateness and tenderness.
Deut. xxviii. 26.

But I've already troubled you too long;
Nor dare attempt a more *advent'rous* song:
My humble verse demands a softer theme;
A painted meadow, or a purling stream.
Addison.

Some bold *adventurers* disdain
The limits of their little reign,
And unknown regions dare descry.
Gray's Ode to Eton Col.

ADVENTURE Bay, of Van Diemen's land, on the east side of Bruny's isle. It is at the mouth, about six miles wide, and offers between Benguin Island and Cape Frederic Henry, excellent and well-sheltered anchorage for shipping. Captain Cooke says that there is a beautiful sandy beach, about two miles long, at the bottom of Adventure Bay, formed to all appearance by the particles which the sea washes from a fine white sand stone. That behind it is plain, with a brackish lake, which produces bream and trout. The parts adjoining the bay are mostly hilly; and form an entire forest of tall trees, rendered almost impassable by brakes of fern, shrubs, &c. The soil on the flat land, and on the lower part of the hills, is sandy, or consists of a yellowish earth, and in some parts of a reddish clay; but further up the hills, it is of a grey tough cast. The country is dry, and the heat intense. No vegetables that afford subsistence for man, were observed here: and the only quadruped seen, was a species of opossum, about twice the size of a large rat; but some of the inhabitants had pieces of the skin of the kangooroo about them. The inhabitants are mild and cheerful, with little of the wild appearance of savages; but seem almost totally devoid of personal activity, and were remarkably indifferent to presents. Their complexion is a dull black, which they sometimes heighten by smutting their bodies. Their hair is woolly, and clotted with grease and red ochre; their noses broad and full, and the lower part of the face projects considerably. But they are upon the whole well proportioned. Adventure Bay is dangerous of access in winter, from the surf created by the prevalence of southerly winds.—Captain Furneaux first visited it in 1778; then captain Blight in 1788; but the most complete survey of it was made by the French Expedition, that went in search of La Perouse. It is in E. Long. 147°, 30.′ S. Lat. 42,° 20′.

Adventure, Bill of, in commerce, a writing signed by a merchant, testifying the goods mentioned in it to be shipped on board a certain vessel belonging to another person, who is to run all hazards; the merchant only obliging himself to account to him for the produce.

Adventure Island, a small island in the South Sea, so called from the ship Adventure, in which Captain Furneaux, the discoverer sailed. Lon. 147,° 29′ W. Lat. 43,° 21′ S. See Adventure Bay.

Adventurers, the Society of, an ancient company of merchants and traders, erected for the discovery of lands, territories, trades, &c. unknown. This society had its rise in Burgundy and its first establishment from John, duke of Brabant, in 1296, being since known by the name of the *Brotherhood of St. Thomas à Becket*. It was afterwards translated into England, and successively confirmed by Edward III. and IV. Richard II. Henry IV. V. VI. and VII. who gave it the appellation of *Merchant-adventurers*, by Henry VIII. and queen Elizabeth, who, in 1564, formed it into an English corporation; and by succeeding kings. Formerly, adventurers making settlements in any part of America belonging to the enemy, might obtain a charter from the king. 13 Geo. II. c. 4. sec. 13.

At one time (1550,) the English Merchant Adventurers had sufficient influence at Antwerp to prevent the establishment of the Inquisition there. They bore for arms, Nebule of urpicus, argent and azure; a chief quarterly *or* and *gules;* in the first and fourth, two red roses; and in the second and third, a lion of England.

AD'VERB, *n.* } So called from their signifi-
Adver'bial, } cation and connexion with
Adver'bially. } verbs.

For thys woorde nouum [Mark, xiv. 25,] seemeth not there to be putte for an *aduerbe*, but is a newe adiectiue; and therefore it signifieth some kynde of newenesse in the drincke it selfe.
Sir T. More's Works, p. 1328. col. 2.

An *adverb* is a word without number, that is joyned to another word: as
Well-learned.
Hee disputeth *very subtlely.*
B. Jonson's English Grammar.

Adjectives compared, when they are used *adverbially*, may have the article *the* going before. *Id.*

I should think, alta was joined *adverbially* with *tremit;* did Virgil make use of so equivocal a syntax.
Addison.

Adverbs, are not purely, or solely additions to verbs. They are frequently joined with adjectives, and even with substantives; thus, we say, he is truly king; he is very sick. Sometimes adverbs modify the meaning of each other, as, *very excellently, very justly*, they are very numerous, and have been variously classified; as adverbs of time, place, order, distance, motion, relation, quantity, both continuous and discrete; quality, manner, affirmation, negation, demonstration, interrogation, diminution, doubting, exception, and comparison.

Dr. Lowth contends that in English, they admit of no variation, except some few of them, which have the degrees of comparison, as *soon, sooner, soonest*; and those irregulars, derived from adjectives in this respect likewise irregular, as *very much*, not *very prudently*. He observes, however, that the formation of adverbs in general with the comparative and superlative terminations, seems to be improper; at least, that it is now become almost obsolete, as *easilier, strongelier, hardliest, highliest, rightest*, though used by Hooker, Raleigh, Hobbes, and Shaftesbury, Grammar, p. 112.

In his Hermes, they are called by Mr. Harris attributes of attributes, or attributives of the second order: and he defines an adverb, a part of speech, the natural appendage of verbs, extending the signification of the word *verb*, properly so called, to participles and adjectives. After explaining the general nature of adverbs as attributes of attributes, and enumerating their principal forms, amongst which he reckons intension and remission, he shews that adverbs may be derived from almost every part of speech, from prepositions, as *afterwards*, from participles, as *knowingly*, from adjectives, as *virtuously*, from substantives, as *apishly*, and from proper names, as *Socratically*. Adverbs, according to Gaza, in his grammar, may be found in every one of the predicaments, and he thinks that the readiest way to reduce their infinitude, is to refer them by classes to those ten universal genera. The Stoics called the adverb by the name of Παυδεκτης, with a view to its multiform nature. *Hermes*, p. 192, 210.

But Mr. Tooke, in his Diversions of Purley, warmly and with great success, contends that the adverb is ordinarily a corruption of some other word or phrase. Thus *ly* is a corruption of *like*; as honestly, is honest-like; alone is all-one: only, one-like: awhile, a compound of the article *a*, and the noun, *while*, a time. We refer the reader to that valuable work for ample illustrations of this view of the adverb.

ADVERBIAL NUMBERS, sometimes denote the numerals *once*, *twice*, *thrice*, &c.

ADVERSARIA, among the ancients, was a book of accounts, like our journal or day-book; and was sometimes synonymous with *opisthographia*, ὑπομνηματα, or *memoriale*, and stands opposed to *codex*; the former being for occasional matters which were taken down hastily, to be afterwards transcribed into the latter, in a fair regular manner. It is likewise a title given to divers books, containing collections of miscellaneous observations, remarks; *variæ lectiones*, *variæ observationes*, *loci communes*, *geniales dies*, *vesperæ*, *selecta*, *miscellanea*, &c. The word is also used for a commentary on some text or writing; because the notes were written on the adverse or opposite page.

ADVERSARIE. *adv.* Contrary. *Chauc.*

ADVERSATOR, in antiquity, a servant who attended rich men in returning from supper, to give them notice of any obstacles in the way, at which they might be apt to stumble.

AD'VERSE, *v.* & *adj.*
AD'VERSARY,
ADVERS'ATIVE,
AD'VERSELY,
ADVERSE'NESS,
ADVERS'ITY.

Ad: *verto*, *versus*, to turn to, towards, or against. The verb is obsolete. *Adverse* the adjective, signifies turning to or against, in an attitude of resistance or hostility: opposed to *adversity*, is the ill effect of an *adverse* position, i. e. pain, affliction, misery.

At Wyucehestre he held his parlement ilk ȝere,
And þer men him teld, who was his *aduersere*.
R. Brunne, p. 82.

Be ye sobre and wake ye, for your *aduersarie* the deuel, as a rorynge lioun, goith about sechinge whom he schal deuoure. *Wiclif.* 1 *Petir*, c. v.

For slain is man, right as another beest,
And dwelleth eke in prison, and arrest,
And hath siknesse, and gret *adversite*,
And oftentimes gilteles parde.
Chaucer. The Knightes Tale, v. i. p. 53.

MOWB. Never did captive with a freer heart
Cast off his chains of bondage, and embrace
His golden uncontroul'd enfranchisement,
More than my dancing soul doth celebrate
This feast of battel, with mine *adversary*.
Shakspeare's Richard II

Sweet are the uses of *adversity*;
Which, like the toad, ugly and venomous,
Wears yet a precious jewel in his head.
Shakspeare.

A remembrance of the great use he had made of prosperity, contributed to support his mind under the heavy weight of *adversity*, which then lay upon him. *Atterbury.*

Prosperity is the blessing of the Old Testament, *adversity* is the blessing of the New, which carries the greater benediction, and the clearer revelation of God's favour. *Bacon's Essays.*

As, when two polar winds, blowing *adverse*,
Upon the Cronian sea, together drive
Mountains of ice. *Milton.*

A cloud of smoke envelopes either host;
And, all at once, the combatants are lost;
Darkling, they join *adverse*, and shock unseen;
Coursers with coursers justling, men with men.
Dryden.

For friendship, of itself an holy tie,
Is made more sacred by *adversity*.
Dryden. Hind and Panther.

Let nothing *adverse*, nothing unforeseen,
Impede the bark that ploughs the deep serene;
Charg'd with a freight, transcending in its worth
The gems of India, nature's rarest birth,
That flies, like Gabriel on his Lord's commands,
A herald of God's love to Pagan lands.
Cowper. Charity.

Truth seems to be considered by all mankind, as something fixed, unchangeable, and eternal; it may therefore be thought, that to vindicate the permanency of truth, is to dispute without an *adversary*.
Beattie's Essay on Truth.

ADVERSATIVE, in grammar, is a term, that has been applied to particles, that express not only a difference, but some opposition, as it is said, between the ideas which precede and follow them: thus, in the sentence, "It is spring, or, it is summer," *or* simply disjoins; while in the phrase, "It is not summer, but it is winter." *but*, opposes, or contrasts the ideas. It has been further said of *adversative* disjunctives, that, though they imply opposition, there can be no opposition of the same attribute in the same subject; but the opposition must be either of the same attribute in different subjects, as "*Brutus was a patriot*, BUT *Cæsar was not*;" or of different attributes in the same subject, as "*Georgius was a sophist*, BUT *not a philosopher*;" or of different attributes in different subjects, as, "*Plato was a philosopher* BUT *Hippias was a sophist*." The conjunctions used for all these purposes may be called *absolute adversatives*, but besides these, there are several others, says Mr. Harris, such as *adversatives* of *comparison*, expressed by the words *than* and *as*, which mark not only opposition, but that equality or excess, which arises among subjects from their

being compared. Such also are *adversatives* adequate and inadequate, of which the principal are UNLESS and ALTHOUGH, e. g. "*Troy will be taken*, UNLESS *the Palladium be preserved.*" "*Troy will be taken* ALTHOUGH *Hector defend it.*" Every cause, says Mr. Harris, is either adequate, or inadequate, when it endeavours without being effectual, and so in like manner is every preventive. Adequate preventives are expressed by such *adversatives* as UNLESS: the inadequate are expressed by ALTHOUGH. *Hermes* p. 251—257.

Here again Mr. Horne Tooke has afforded some very important light on an intricate subject. He examines with great ingenuity the supposed opposition in adversative disjunctives, and particularly that which is thought to be expressed by the word BUT. This, he contends, has two different meanings; one when occurring at the beginning, another and very different one in the middle of a sentence. In the former case it is a corruption of *bot*, the imperative of the Saxon verb *boton, to boot, superadd,* or *supply;* and in the latter it is a contraction of *be-utan*, the imperative of *beonutan, to be out*. Thus Gawin in Douglas.

But thy work shall endure in laude and glorie,
But spot or faulte condigne eterne memorie.

The meaning is "superadd, (to something said, or supposed to be said before) thy work shall endure in laude and glorie, *be out*, (i. e. *without*) spot or fault." And in the definite adversative, "*the number three is not an even number* but *an odd*," the opposition is not marked, at least directly, by the word *but*, but by the adjectives *even* and *odd*, which denote attributes in their own nature opposite; and the preposition according to the first sense of the word *but*, will be synonymous with this, viz. "*the number three is not an even number, superadd, (it is) an odd number.*" In the indefinite adversative, "*the number of the stars is either even or odd,*" the word *either* is a distributive pronoun, and *or* is a contraction of the Saxon *odor*, q. d. *other*, i. e. something different, and often contrary. As to the adversatives denominated by Mr. Harris adequate and inadequate, and marked by the conjunctions *unless* and *although*, he leads us to conceive that the whole difference between them consists in this, that the expression of the one is more forcible than that of the other. Whereas, the meaning of UNLESS is directly opposite to that of ALTHOUGH. They are both verbs in the imperative mood: the former signifying *take away* or *dismiss;* and the latter *allow, permit, yield, assent*. Accordingly the sentence, "*Troy will be taken* UNLESS *the palladium be preserved*," is equivalent to "*Remove the palladium be preserved*," i. e. taking *the palladium be preserved*. as an abstract noun, the preservation of the palladium *Troy will be taken*. Again, "*Troy will be taken* ALTHOUGH *Hector defend it*," is the same as "*Troy will be taken* ALLOW *Hector (to) defend it.*" The idea, therefore, expressed by UNLESS is that of the *removal* of one thing to make way for another; and the idea expressed by ALTHOUGH is that of *allowing* one thing to co-exist with another, with which it is apparently incompatible. The conjunction UNLESS (says Mr. Tooke,) even in the reign of queen Elizabeth, was written *oneless* or *onelesse*, and more anciently *onles* and *onlesse*: and *onles* is the imperative of the Anglo-Saxon verb *onlesan*, to *dismiss*, or *remove*, *les* the imperative of *lesan*, which is synonymous with *onlesan*, is also used by some old writers, instead of *unless*. And this imperative *les* has given to our language the adjectives *hopeless, restless*, &c. i. e. *dismiss, hope, rest*, &c. The conjunction ALTHOUGH (says the same writer) is compounded of *al* or *all*, and *tho' though, thah*, or, in the vulgar pronunciation, *thaf, thauf*, and *thof;* the imperative *thaf*, or *thafig* of the verb *thafian* or *thafigan*, to *allow, permit*, &c. and *thafig* becomes *thah, though, thoug*, in a transition of the same kind, and as easy as that by which *hafuc* becomes *hawk*.

ADVERSE, in logic, is when two contraries have an absolute and perpetual opposition to each other.

ADVERT', *v.* ADVERT'ENCE, ADVERT'ENCY, ADVERT'ENT. Ad: *verto*, to turn to. Of the same origin as Adverse, &c. but not necessarily implying opposition: simply turning to, for the sake of observation, consideration, or remark.

During this tyme Eneas gan *advert*,
Within ane vail fer thens closit apart
Quhare stude ane wod.
Douglas, b. vi. p. 189.

For God it wote, her harte on other thing is
Although the body sat emong 'hem there
Her *aduertence* is alway elis where,
For Troilus full fast her soule sought,
Withouten word, on him alway she thought.
Chaucer. Troilus, b. iv. f. 179, c. 4.

In this life our understanding is weak, our attention trifling, our *advertency* interrupted, our diversions many.
Taylor. On the Doctrine and Practice of Repentance.

Is he rich, prosperous, great? yet he continues safe, because he continues humble, watchful, *advertent*, lest he should be deceived and transported.
Hale's Contemplations.

The mind of man being not capable, at once to *advert* to more than one thing; a particular view and examination of such an innumerable number of vast bodies, will afford matter of admiration.
Ray on the Creation.

————Our low world is only one of those,
Which the capacious universe compose.
Now to the universal whole *advert*;
The earth regard, as of that whole a part.
Blackmore's Creation, b. iii.

Too much *advertency* is not your talent; or else you had fled from that text, as from a rock. *Swift.*

AD'VERTISE, *v.* ADVER'TISEMENT, ADVERTIS'ER, ADVERTIS'ING. Derived as above. *Advertisement*, Fr. To turn or call the attention of another to a subject which has already been noticed by the *advertiser;* to publish in print; inform; to give intelligence.

And now beholde I go vnto my people: come, therfore and I will *aduertise* the, what this people shall do to thy folke I the later dayes.
Bible, 1539, Numeri, c. xxiv.

They were to *advertise* the chief hero, of the distresses of his subjects occasioned by his absence.
Dryden

As I was then
Advertising, and holy to your business,
Not changing heart with habit; I am still
Attornied at your service.
Shaksp. Measure for Measure.

The bishop did require a respite,
Wherein he might the king his lord *advertise*,
Whether our daughter were legitimate. *Shaksp.*

As I by friends am well *advertised*;
Sir Edmund Courtney, and the haughty prelate,
With many more confederates, are in arms.
Shaksp.

The king was not so shallow, nor so ill *advertised*, as not to perceive the intention of the French king.
Bacon.

TUB. Let me *advertize* you;
Your daughter Audrey met I on the way,
With Justice Bramble in her company;
Who means to carry her to Pancras church.
Ben Jonson's Tale of a Tub, act iii.

The great skill in an *advertiser* is chiefly seen in the style which he makes use of. He is to mention "the universal esteem, or general reputation," of things that were never heard of. *Tatler*, No. 224.

Estates are landscapes gaz'd upon awhile,
Then *advertis'd*, and auctioneer'd away.
Cowper's Task, b. iv.

With respect to his own coming, it seems to be one great object of his discourse, to *advertise* the christian world, that it is quite a distinct event from the demolition of the Jewish temple. *Horsley's Sermons.*

ADVERTISEMENT OF STOLEN GOODS. By the statute of 25 Geo. II. cap. 36, and 28 Geo. II. cap. 19. the penalty of fifty pounds is inflicted on persons advertising a reward with 'No questions to be asked,' for the return of things lost or stolen; and likewise on the printer.

ADVIGARUM, a town of Hindostan, in the province of Coimbetoor, distant 52 miles S. E. from Seringapatam, in N. Lat. 12°, 1'. E. Long. 77°, 28'.

To ADVIGILATE, *advigilare*, Lat. To watch diligently.

ADVISE', *v.*
ADVICE',
ADVIS'ABLE,
ADVIS'EDLY,
ADVIS'EDNESS,
ADVISE'MENT,
ADVIS'ER,
ADVIS'ING,
ADVIS'O.

Probably from *ad visum*, to the sight. Unclassical Latin, *advisare*, which Junius would derive from the German *wisen*, to shew; to instruct; to inform; to counsel; to deliberate with.

Sir Edwarde's ost, & opere al so nei,
He *avisede* pe ost suipe wel, and poru Gode's grace,
He hopede winne a day pe maistrie of pe place.
R. Gloucester, p. 558.

Of werre & of batile he was fulle *avise*,
per wisdom suld auaile was non so trewe als he.
R. Brunne, p. 188.

Amonge the proude there is euer stryfe, but amonge those that do all thynges with *aduysment*, there is wysdome. *Bible*, 1539. Prouerbes, c. xiii.

Mote I wote,
What strange adventure do ye now pursue?
Perhaps my succour or *advisement* meet,
Mote stead you much. *Faerie Queene.*

I will, according to your *advisement*, declare the evils, which seem most hurtful.
Spenser's State of Ireland.

By that which we work naturally (as, when we breathe, sleep, and move) we set forth the glory of God, as natural agents do; albeit we have no express purpose to make that our end; nor any *advised* determination, therein to follow a law.
Hooker, b. i. p. 49.

In my school-days, when I lost one shaft,
I shot his fellow of the self-same flight,
The self-same way, with more *advised* watch,
To find the other forth; by vent'ring both,
I oft found both. *Shaksp. Mercht. of Venice.*

You were *advis'd*, his flesh was capable
Of wounds and scars; and that his forward spirit
Would lift him, where most trade of danger rang'd.
Shakspeare.

Such discourse bring on,
As may *advise* him of his happy state;
Happiness in his power, left free to will. *Par. Lost.*

A posting messenger dispatch'd from hence,
Of this fair troop *advis'd* their aged prince.
Dryden's Æneid.

ZUL. The bold are but the instruments o' th' wise:
They undertake the dangers we *advise*.
Dryden's Conquest of Granada, part i.

This book *advisedly* read, and diligently followed but one year at home, would do more good, than three years' travel abroad. *Ascham.*

Surprise may be made by moving things, when the party is in haste; and cannot stay, to consider *advisedly* of that which is moved. *Bacon, Essay* xxiii.

Let his travel appear rather in his discourse, than in his apparel or gesture; and in his discourse, let him be rather *advised* in his answers, than forward to tell stories. *Bacon's Essays.*

Th' Almighty Father, where he sits
Shrin'd in his sanctuary of heav'n secure,
Consulting on the sum of things foreseen
This tumult, (and permitted all) *advis'd*.
Par. Lost, b. vi.

Advise if this be worth
Attempting; or to sit in darkness here,
Hatching vain empires. *Idem*, b. ii.

ADULA, in ancient geography, a mountain in Rhætia, or the country of the Grisons, part of the Alps, in which are the fountains of the Rhine. It is now called St. Gothard.

ADULA, in modern geography, a mountain of Navarre, in Spain, lying between Pampeluna and St. Jean de Pied de Port.

ADULA'TION, *n.*
ADULA'TORY.

Adulor, to use sweet words. Of uncertain derivation; most probably from *αδυλιζω*, dorick dialect for *ηδυλιζω*, from *ηδυς*, sweet. *Adulatoire*, Fr.; to use fawning language; to gloze; to be excessively courteous and complimentary; to transgress the bounds of truth and justice, in bestowing praise.

When hee came to man's estate, hee exercised feates of knighthood, hee loued discipline, and hated *adulation*. *Golden Booke*, g. 3.

While eache partie laboureth too bee chiefe flatterer, *adulacion* shall then haue more place then plaine and faitheful aduise, of whiche he muste nedes ensue the eiuill bryngynge vp of the prince, whose mynde in tender youth infecte, shall redely fall to mischiefe and riote, and drawe downe this noble realme to ruine. *Hall*, p. 344.

There he beheld how humbly diligent
New *adulation* was, to be at hand;
How ready falsehood stept; how nimbly went
Base pick-thank flattery, and prevents command.
Daniel's Civil Wars, b. ii.

O be sick, great Greatness!
And bid thy ceremony give thee cure.

Think'st thou the fiery fever will go out
With titles blown from *adulation?*
Shakspeare's Henry V.

They, who flattered him most before, mentioned him now with the greatest bitterness; without imputing the least crime to him, committed since the time of that exalted *adulation;* or that was not then as much known to them, as it could be now.
Clarendon.

Adulatory verses of this kind, however well written, deserve not to be transmitted to posterity.
Mason. Note on Gray's Lett.

Spenser, in compliance with a disgraceful custom, or rather in obedience to the established tyranny of patronage, prefixed to the Faerie Queene fifteen of these *adulatory* pieces [sonnets].
Warton. Hist. Eng. Poetry, iii. 445.

Flattery corrupts both the receiver and the giver; and *adulation* is not of more service to the people than to kings. *Burke on the French Revolution.*

ADULE, or ADULIS, in ancient geography, a town of Egypt built by fugitive slaves, distant from its port on the Red Sea twenty stadia.

ADULICUS SINUS, a port of the Red Sea, so called from Adule.

ADULITÆ, the inhabitants of Adule.

ADULITANUM, MONUMENTUM, the statue of Ptolemy Euergetes, the inscription on which was published by Leo Allatius, at Rome, in 1631.

ADULLAM, in scripture geography, a cave near the city of that name, belonging to the tribe of Judah, in which David hid himself to avoid the fury of Saul.

ADULLAM, originally a kingdom of Canaan, afterwards a city of Judah, situated south west of Jerusalem, near Jarmuth, and Azekah. It is styled by Micah, chap. i. ver. 14. the glory of Israel: and was a place of some consequence in the time of Judas Maccabeus, and even so late as the fourth century, though it is now in ruins.

ADULT', *n.* & *adj.* } Ad: *olesco, adultus,*
ADULT'ED. } grown up to; past the age of childhood,—having arrived at manhood, or attained years of maturity.

Now that we are not only *adulted,* but ancient Christians, I believe the most acceptable sacrifice we can send up to heaven, is prayer, and praise; and that sermons are not so essential as either of them to the true practice of devotion. *Howell's Letters.*

The earth (by these applauded schools 'tis said,)
This single crop of men and women bred;
Who grown *adult,* so chance (it seems) enjoin'd,
Did male and female, propagate their kind.
Blackmore.

So language in the mouths of the *adult,*
(Witness its insignficant result,)
Too often proves an implement of play,
A toy to sport with, and pass time away.
Cowper's Conversation.

ADULT BAPTISM. See BAPTISM.

ADULT, in civil and Scots law, a youth between fourteen and twenty-five years of age. In this sense, *adultus* is synonymous with *juvenis, adolescens,* or *adulescens.*

ADULT PLANTS, Terenzoni observes, differ from immature ones, in that they contain more oil, and less salt.

ADULT'ER, } Ad: *alteram, (feminam,)* or, ad: *alterum, (hominem,)*
ADULT'ERATE, *v.* & *adj.* } according as the
ADULTERA'TION. } individuals being
ADULT'ERER, } married, betake
ADULT'ERESS, } themselves to any
ADULT'ERINE, } other than their lawful consort.
ADULT'EROUS, } *Advowtrie, avoutrie, voutrer, voutresse,* from the
ADULT'EROUSLY, } Norman French, are used by Chaucer, and
ADULT'ERY. } others. Spouse-breach, spouse-breaker, and wedlock-breaker, are old English terms, synonymous with those now in use. See the following illustrations. *Adulterate,* and its cognate words, are applied to that which is rendered impure, or counterfeited by debasing admixtures.

ȝef alle luþer holers were y serued so,
Me schulde fynde þe les such *spouse bruche* do.
R. Gloucester, p. 26.

An yvel kyndrede and a *spouse breker* sekith a tokene, and a tokene schal not be goven to it.
Wiclif. Matt. xii.

Was I not gouernour, and chief ledar thare,
The time quhen that the Troiane *adulterare*
Umbesegit the ciete of Spartha,
And the quene Elene reft and brocht awa?
Douglas, b. x. p. 316, *Æneid*

Therefore seing the punishment of *aduotry* is a meate that a mē can not chew, let eury man consydre by hym selfe, how lothe another man wold be therof, and let him not touche another mās wyfe, so shal hi also not be medled withall.
Couerdale's Christen State of Matrymonye, fol. 38, col. 1

This staff was made to knock down sin. I ll look
There shall be no *advowtry* in my ward
But what is honest. *O. Pl.* x. 29
At home, because Duke Humfrey aye repined,
Calling this match *advoutrie,* as it was.
Mirror for Mag. p. 342

It was in that poynt like vnto the church yt the Jewes had agaynst the cōming of Christ, infected by many false folke wt false doctrin, & the Scripture *adulterate* and vitiate with false gloses and wrong exposicions. *Sir T. More's Works,* p. 636, col. 2

To make the compound pass for the rich metal simple, is an *adulteration* or counterfeiting.
Bacon's Nat. Hist.

He was the most perfidious man upon the earth; and he had made a marriage compounded between an *advoutry* and a rape. *Bacon's Henry VII.*

——That incestuous, that *adulterate* beast.
Shaksp.

The *adulterous* Antony, most large
His abominations, turns you off;
And gives his potent regiment to a trull,
That noses it against us. *Shaksp. Ant. and Cleop.*

A knave apothecary, that administers the physick, and makes the medicine, may do infinite harm, by his old obsolete doses, *adulterine* drugs, bad mixtures, &c. *Burton's Anatomy of Melancholy.*

An *adulterous* person is tied to restitution of the injury, so far as it is reparable; and to make provision for the children, that they may not injure the legitimate. *Taylor.*

The Spartan lady replied, when she was asked, What was the punishment for *adultresses?* There are no such things here. *Govern. of the Tongue,* sect. 3.

Think on whose faith th' *adult'rous* youth rely'd;
Who promis'd, who procur'd the Spartan bride.
Dryden's Æneid.

All thy domestic griefs at home be left,
The wife's *adult'ry,* with the servant's theft;

And (the most racking thought which can intrude)
Forget false friends, and their ingratitude.
Dryden's Juvenal.

Helen's rich attire,
From Argos by the fam'd *adult'ress* brought,
With golden flowers and winding foliage wrought.
Dryden's Virgil.

ADULTERATION, in law, from *adulterate*, to corrupt; mingling something foreign to any substance. We have laws against the adulteration of coffee, tea, tobacco, snuff, wine, beer, bread, wax, hair-powder, &c.

ADULTERATION, in pharmacy, denotes a fraudulent corruption of medicines, by substituting ingredients of less value, for the sake of greater gain. This practice the dealers are but too well acquainted with. Pharmaceutical authors give numerous instances of *adulterations*, both in simple and compound medicines.

ADULTERATION OF COIN, properly imports the making of it, with too much alloy. This is effected by forging another stamp, by mixing impure metals with the gold or silver, by an undue alloy, or too great an admixture of the base metals. Evelyn gives rules both for adulterating and detecting adulterated metals, &c.—Adulterating as well as debasing, which includes diminishing, clipping, &c. are capital crimes in all nations.—The ancients punished them with great severity: among the Egyptians both hands were cut off; and by the civil law, the offender was thrown to wild beasts. The emperor Tacitus enacted, that counterfeiting the coin should be capital; and under Constantine, it was made treason, as it is also among us. Women have, in modern times, been burnt for coining shillings; but, to the honour of our present legislators, this barbarous punishment has been abolished by Act of Parliament.

ADULTERATION OF GEMS, is a curious art, and the methods of detecting it no less curious than useful; for which, See Nichol's Lapidary, p. 18.

An ADULTERESS, by our law, undergoes no temporal punishment whatever, except the loss of her dower; and she does not lose even that, if her husband is weak enough to be reconciled to her, and cohabit with her after the offence is committed. 13 Edward I. cap. 34. But it is to be observed, that adulteresses are such, either by the canon or civil law. According to the former, a woman is an adulteress who, either being herself married, converses carnally with another man; or, being single herself, converses with a man that is married. According to the latter, she is not an adulteress, if she be not herself in the married state, though she converses with a man that is. The crime, in this case, was more properly called *stuprum* than *adulterium*. Hence, among the Romans, the word *adultera*, adulteress, differed from *pellex*, which denoted a single woman who cohabited with a married man: and *pellex* differed from *concubina*, which signified her who had only intercourse with an unmarried man. The former was reputed infamous, and the latter innocent. See ADULTERY.

ADULTERINE, in the civil law, is particularly applied to a child, the issue of an adulterous amour. Adulterine children are more odious than the illegitimate offspring of single persons.—The Roman law even refused them the title of natural children: as if nature disowned them.—Adulterine children are not easily dispensed with for admission to orders.

ADULTERINE MARRIAGES, in St. Augustine's sense, denote second marriages, contracted after a divorce.

ADULTERY, and fornication, are sometimes used synonymously in scripture; and the former is applied in a more extensive sense, to any species of impurity or crime, against the virtue of chastity. In this sense divines understand the seventh commandment. The word is also used in ancient customs, for the punishment or fine imposed for that offence, or the privilege of prosecuting for it. In which sense, *adulterium* amounts to the same with what the Saxons call *legerwita*.

The crime of adultery has been punished in most ages and nations, though with different degrees of severity. In many it has been capital; in others venal, and only attended with slight pecuniary mulcts. Some of the penalties are serious, and even cruel; others, of a jocose and humorous kind. Even contrary laws have been enacted as punishments for adultery. By some, the criminals were forbid marrying in case they became single; by others, they were forbid to marry any besides each other; by some, they have been incapacitated from ever committing the like crime again; by others, they were glutted with it till it became quite nauseous. Among the Egyptians, adultery in the man was punished by 1000 lashes; and in the woman, by the loss of her nose. By the Jewish law, it was punished by death in both parties, whether the woman was married, or both. The Jews had a particular method of trying an adulteress, or a woman suspected of the crime, by making her drink the bitter waters of jealousy: which, if she was guilty, made her swell. For the most probable solution of this curious point of biblical criticism, see JEALOUSY. In Arabia Felix, according to Strabo, death was also the punishment of adultery. Homer speaks of adulterers being stoned to death, a punishment denominated λαινος χετων, a stone coat. Solon, as well as Draco, placed the offenders when caught, at the mercy of the party injured. Adulterers were not suffered to enter the theatres of Greece, nor to wear showy garments at any time. Among the rich Greeks, adulterers were allowed to redeem themselves by a pecuniary fine; the woman's father, in such cases, returned the dower he had received from her husband, which some think was refunded by the adulterer. Another punishment among those people was, putting out the eyes of adulterers. See ZALEUCUS.

The Spartans, indeed, may be said to have tolerated adultery, since they laughed at those who thought the violation of the marriage bed an insupportable affront; and the crime became disgracefully common. At Gortyna, in Crete, adulterers were covered with wool, an emblem of the softness and effeminacy of their disposition, and in that dress carried through the city to the magistrate's house, who sentenced them to be deprived of all their civil privileges.

There has been some controversy respecting the ancient punishment of adultery among the

Romans. Some consider it to have been made capital by a law of Romulus, and again by the twelve tables. Others, that it was first made capital by Augustus; and others again, not before the emperor Constantine. The truth is, the punishment in early ages was very various, much being left to the discretion of the husband and parents of the adulterous wife; who exercised it differently, rather with the silence and countenance of the magistrate, than by any formal authority from him. Thus we are told, the wife's father was allowed to kill both parties, when caught in the fact, provided he did it immediately, killing both together, and as it were with one blow. The same power ordinarily was not indulged the husband, except the crime were committed with some mean or infamous person; though, in other cases, if his rage carried him to put them to death, he was not punished as a murderer. On many occasions, however, revenge was not carried so far: but mutilating, cutting off the ears, noses, &c. followed. The punishment allotted by the *lex Julia*, was not, as many have imagined, death; but rather banishment, or being interdicted fire and water: though Octavius appears, in several instances, to have gone beyond his own law, and to have put adulterers to death. Under Macrinus, many were burnt at a stake. Constantine, by law, made the crime capital. Under Constantius and Constans, adulterers were burnt or sewed in sacks and thrown into the sea. Under Leo and Marcian, the penalty was abated to perpetual banishment, or cutting off the nose. Justinian, granted a further mitigation, at least in favour of the wife, who was only to be scourged, lose her dower, and be shut up in a monastery: after two years, the husband was at liberty to take her back again; if he refused, she was shaven, and made a nun for life: but it still remained death for the husband. The reason alleged for this difference was, that the woman is the weaker vessel. Matthæus declaims against the empress Theodora, who is supposed to have been the cause of this law, as well as of others procured in favour of that sex from the emperor. Under Theodosius, women convicted of this crime were punished after a very singular manner, viz. by a public constupration; being locked up in a narrow cell, and forced to admit to their embraces, all the men that would offer themselves. This custom was again abolished by the same prince. In Spain, adultery in men was punished by castration, or amputation of the offending member. In Poland, before Christianity was established, they carried the criminal to the market-place, and there fastening him by the testicles with a nail, placed a razor within his reach, and left him under a necessity either of doing justice upon himself, or of perishing in that condition. The Saxons formerly burnt the adulteress, and over her ashes erected a gibbet, whereon the adulterer was hanged. King Edmund ordered adultery to be punished in the same manner as homicide; and Canute, that a man who committed adultery, should be banished, and that the woman should have her nose and ears cut off. In the time of Henry I. it was punished with the loss of eyes and genitals.

Alfred introduced a modification of the law of adultery, which he punished wholly by fine, according to the rank of the husband injured. If he was a twelf-hyndman, the offender paid one hundred and twenty shillings; if a six-hyndman, one hundred shillings; if a ceorl, forty shillings. "But the most curious part of Alfred's regulations, on this subject," says Mr. Turner, "was the refinement with which he distinguished the different steps of the progress towards the completion of the crime. To handle the neck of a ceorl's wife incurred a fine of five shillings. To throw her down without further consequences, a penalty of ten shillings; and for a subsequent commission of the crime, sixty shillings."—*Anglo Sax.* c. xi. p. 254.

Among the Mingrelians, according to Chardin, adultery is punished with the forfeiture of a hog, which is usually eaten in good friendship between the gallant, the adulteress, and the husband. In some parts of India, it is said any man's wife is permitted to prostitute herself for an elephant; and it is reputed no small glory to have been rated at so high a price. Adultery is so frequent at Ceylon, according to some writers, that there is not a woman who does not practise it, notwithstanding its being punishable with death. Among the Japanese, and divers other nations, adultery is only penal in the woman. Among the Abyssinians, the crime of the husband is punished on the innocent wife. In the Marian islands, on the contrary, the woman is not punishable for adultery; but if the man go astray he pays severely: the wife and her relations waste his lands, turn him out of his house, &c. Among the Chinese, there is reason to conclude that adultery is not capital; for it is said that fond parents will make a contract for the future husbands of their daughters, to allow them the indulgence of a gallant. In Britain, adultery is reckoned a spiritual offence, and is cognizable by the spiritual courts, where it is punished by fine and penance. The common law takes no farther notice of it, than to allow the party grieved an action and damages. This practice is often censured by foreigners, as making too light of a crime, the bad consequences of which, public as well as private, are so great. It has been answered, that perhaps this penalty, by civil actions, is more wisely calculated to prevent the frequency of the offence, which ought to be the end of all laws, than a severer punishment. He that by a judgment of law is, according to circumstances, stripped of great part of his fortune, thrown into prison till he can pay it, or forced to fly his country, will no doubt, in most cases, own that he pays dearly for his disgraceful pleasures.

Adultery, morally considered, is a crime certainly of the deepest dye; involving on the part of a man, who violates the marriage bed of his neighbour, as Dr. Paley has observed, *seduction;* injury incurable to the innocent husband; and on the part of the wretched wife, if a mother, shame and countless miseries for her children. In all cases, too, attended with little short of *perjury*, breaking a vow undertaken with the sanction of religion, and of the nature of an oath. *Moral Philosophy*, vol. ii.

That learned writer has devoted a considerable portion of his chapter on this subject, (and some of our predecessors have copied him) to prove that our Saviour did not consider this a venial offence; although he dismissed the woman taken in adultery, without judicially condemning her. Christ's own phrase would seem a sufficient answer to this supposition.—He expressly brands her action as a "*sin*;" only he declines to act judicially in it. The Saviour did, perhaps, condemn the crime more extensively and decidedly than our authorised version would convey to the reader. Knowing the prevalence of that crime, and similar ones, at that period, he said to her accusers. 'He that is without sin *αναμαρτητος, the same kind of sin* among you, let him first cast a stone at her.' Kypke has proved the best Greek writers to use the verb *αμαρτανειν*, in this sense, 'And they, being convicted by their own conscience, went out,' &c.

ADULTERIA ARBORUM, in botany, adulteries of trees, an expression used by ancient naturalists, for the act of ingrafting one plant upon another. In this sense, Pliny speaks of the adulteries of trees, as contrary to nature, and a piece of luxury, or needless refinement.

AD'UMBRATE, *v.* } Ad: *umbra, adumbro;*
ADUMBRA'TION. } to shadow forth to; to communicate a faint and superficial knowledge, by obscure signs and symbols; to typify.

To make some *adumbration* of that we mean; it is rather an impulsion or contusion of the air, that an elision or section of the same.

Bacon's Natural History, No. 187.

The observers view but the backside of the hangings; the right one is on the other side the grave: and our knowledge is but like those broken ends; at best, a most confused *adumbration*.

Glanville's Scepsis Scientifica.

Those of the first sort have some *adumbration* of the rational nature, as vegetables have of the sensible.

Hale's Origin.

Heaven is designed for our reward, as well as rescue; and therefore is *adumbrated* by all those positive excellencies, which can endear or recommend.

Decay of Piety.

ADUMBRATION, in heraldry, is the shadow of any beast or charge, outlined, and painted of a darker colour than the field. It is often mentioned by French and German authors.

ADUMMIM, a mountain and city near Jericho, in the tribe of Benjamin, which lay in the road from Jerusalem, and was much infested with robbers; whence our Saviour has been supposed to lay the scene of his parable here, of the man that fell among the thieves. Its name is retained by a village in the same direction, and signifies the place of blood, from the frequent assassinations committed at it; and the ruins of a spacious khan or inn are shown in the neighbourhood, called the Samaritan's khan, whither it is supposed the Samaritan conducted the sufferer of the parable. Not far from the khan are the remains of a castle, surrounded by a ditch excavated from the solid rock, also called the Samaritan's castle. Adummim, and the neighbourhood, are still very dangerous to travellers who do not obtain a sufficient **escort**. A decayed chapel is in the vicinity.

ADUNA'TION. Ad: *unus*. To one.

When by glaciation, wood, straw, dust, and water, are supposed to be united into one lump, the cold does not cause any real union or *adunation*; but, only hardening the aqueous parts of the liquor into ice, the other bodies (being accidentally present in that liquor) are frozen up in it, but not really united.

Boyle.

ADUN'CITY, } Ad: *uncus, (quasi uncus ad*
ADUN'QUE. } *nos, versus nos.)* Hooked towards us; shaped like a hook; crooked.

There can be no question, but the *aduncity* of the pounces and beaks of the hawks, is the cause of the great and habitual immorality of those animals.

Arbuthnot and Pope's Mart. Scrib.

The birds, that are speakers, are parrots, pies, jays, daws, and ravens; of which, parrots have an *adunque* bill, but the rest not.

Bacon's Nat. Hist. No. 238.

ADVOCARIA, in old law, a tax paid the lord for his protection; sometimes also called *salvamentum*.

AD'VOCATE, *v.* & *n.* } Ad: *voco, vocatus*:
AD'VOCACY, } called upon for assis-
AD'VOCATESHIP, } tance: Advocatus,
AD'VOCATESS, } among the Romans,
ADVOCA'TION. } he that was present at the trial of a cause, to assist his friend with his presence and counsel.

This sense is retained in the English word, which besides its mere forensic application, is applied to one, who on any occasion espouses the interests, and pleads the cause of another. In a sacred sense, it designates the offices sustained by the Redeemer.

O thou that art so faire and ful of grace,
Bin thou min *advocat* in that high place,
Ther as withouten ende is songe Osanne,
Thou Cristes mother, doughter dere of Anne.

Chaucer. The Second Nonnes Tale, v. ii. p. 204.

But if ony man synneth, we han an *advocat* anentis the fadir Jesu Crist, and he is the forgifnesse for oure synnes. *Wiclif*, 1 *Jon.* ii.

An *advocate*, in the general import of the word, is that person who has the pleading and management of a judicial cause. In a strict way of speaking, only that person is styled *advocate*, who is the patron of the cause, and is often, in Latin, termed togatus, and, in English, a person of the long robe.

Ayl. Par.

Be thou an *aduocate*, and stande in iudgment thy selfe, to speake for all soch as be domme and socourles.

Bible, 1539. *Prou.* xxxi.

If she dares trust me with her little babe,
I'll shew't the king, and undertake to be
Her *advocate* to th' loudest.

Shakspeare.

It is a strange thing to see, that the boldness of *advocates* should prevail with judges; whereas they should imitate God in whose seat they sit, who represseth the presumptuous, and giveth grace to the modest. *Lord Bacon's Essays.*

PRU. Leave your *advocateship*,
Except that we shall call you Orator Fly,
And send you down to dresser, and the dishes.

Ben Jonson. New Inn.

If any there are, who are of opinion, that there are no antipodes, or that the stars do fall; they shall not want herein the applause or *advocacy* of Satan.

Brown's Vulg. Errours, b. i

Of the several forms of government, that have been or are in the world, that cause seems commonly

the better, that has the better *advocate*, or is advantaged by fresher experience.

Temple's Miscellanies.

Learn, what thou ow'st thy country and thy friend;
What's requisite to spare, and what to spend:
Learn this, and after, envy not the store
Of the greas'd *advocate* that grinds the poor.

Dryden's Persius.

Our poet, something doubtful of his fate,
Made choice of me to be his *advocate*;
Relying on my knowledge in the laws;
And I as boldly undertook the cause

Dryden's Epil. to Maiden Queen.

Advocate, from *ad*, to, and *vocare*, to call, among the Romans, a person skilled in the law, who undertook the defence of causes at the bar. The Roman advocates answered to one part of the office of a barrister in England, viz. the pleading part; for they never granted counsel, that being the business of the *jurisconsulti*. The Romans, in the first ages of their state, held the profession of an advocate in great honour; and the seats of their bar were crowded with senators and consuls; they, whose voices commanded the people, thinking it an honour to be employed in defending them. They were styled *comites honorati*, *clarissimi*, and even *patroni*; as if their clients were no less obliged to them than freed men to their masters. The bar was not at that time venal. Those who aspired to honours and offices took this way of gaining an interest in the people, and always pleaded gratis. But no sooner were luxury and corruption introduced into the commonwealth, than the bar became a sharer in them. Then it was that the senators let out their voices for pay, and zeal and eloquence were sold to the highest bidder. To put a stop to this abuse, the tribune Cincius procured a law to be passed, called from him *Lex Cincia*, whereby the advocates were forbid to take any money from their clients. They had been prohibited from taking any gratuities for pleading. The emperor Augustus added a penalty: notwithstanding which, the advocates played their part so well, that the emperor Claudius thought it an extraordinary circumstance, when he obliged them not to take above eight great sesterces, which are equivalent to about sixty-four pounds sterling, for pleading each cause. Advocate is still used in countries and courts where the civil law obtains, for those who plead and defend the causes of clients entrusted to them.

Advocate, in church history, a person appointed to defend the right of a church or religious house. The word advocatus, or advowee, is still retained for what we usually call the patron, or him who has the advowson, or right of presentation in his own name.

Advocate, in English courts, is more generally called counsel. See Counsel.

Advocate, Fiscal, *fisci advocatus*, in Roman antiquity, an officer of state under the Roman emperors, who pleaded in all causes wherein the *fiscus*, or private treasury, was concerned.

Advocate, King's, or Lord Advocate, one of the eight great officers of state in Scotland, who as such sat in parliament without election. He is the principal crown lawyer in Scotland. His business is to act as a public prosecutor, and to plead in all causes that concern the crown; but particularly in such as are of a criminal nature. The office of king's advocate is not very ancient: it seems to have been established about the beginning of the sixteenth century. Originally he had no power to prosecute crimes without the concurrence of a private party; but in the year 1597, he was empowered to prosecute crimes at his own instance. He has the privilege of pleading in court with his hat on. This privilege was first granted to Sir Thomas Hope; who having three sons lords of session, it was thought indecent that the father should plead uncovered before the sons, who as judges sat covered.

Advocate of a city, in the German polity, a magistrate appointed in the emperor's name to administer justice.

Advocate, Consistorial, officers of the consistory at Rome, who plead in all oppositions to the disposal of benefices in that court; they are ten in number.

Advocates, Elective, chosen by the abbot, bishop, or chapter; a particular licence being had from the king or prince for that purpose. The elections were originally made in the presence of the court of the province.

Advocates, Faculty of, in Scotland, a respectable body of lawyers, who plead in all causes before the Courts of Session, Justiciary, and Exchequer. They are also entitled to plead in the house of peers, and other supreme courts in England.—A candidate for the office of an advocate undergoes three several trials: The first is in Latin, upon the civil law, and Greek and Roman antiquities; the second, in English, upon the municipal law of Scotland; and in the third, he is obliged to defend a Latin thesis, which is impugned by three members of the faculty. Immediately before putting on the gown, the candidate makes a short Latin speech to the lords, and then takes the oaths to the government and *de fideli*. The faculty consists of about 240 or 250 members. As an advocate is esteemed the genteelest profession in Scotland, many gentlemen of fortune take the degree of advocate, without having any intention of practising at the bar. This circumstance greatly increases their number, gives dignity to the profession, and enriches their library and public fund. It is from this respectable body that all vacancies on the bench are generally supplied.

Advocates, Feudal, these were of the military kind, who, to make them more zealous for the interest of the church, had lands granted them in fee, which they held of the church, and did homage, and took an oath of fidelity to the bishop or abbot. They were to lead the vassals of the church to war, not only in private quarrels of the church itself, but in military expeditions for the king's service, in which they were the standard-bearers of their churches.

Advocates, Juridical, in the middle age, were those who, from attending causes in the court of the province, became judges themselves, and held courts of their vassals thrice a-year, under the name of the *tria placita generalia*. In consideration of this further service, they had a particular allowance of one third part of all

fines, or mulcts, imposed on defaulters, &c. besides a proportion of diet for themselves and servants.

Advocate's Library. In the year 1660, the faculty of advocates, in Edinburgh, founded a library upon a very extensive plan, suggested by Sir George M'Kenzie of Rosehaugh, advocate to king Charles II. and king James II. who enriched it with many valuable books. It has been daily increasing since that time, and now contains not only the best collection of law-books in Europe, but a very large collection of books on all subjects. It also possesses a great number of original manuscripts, and a vast variety of Jewish, Grecian, Roman, Scots, and English coins and medals.

Advocates, Matricular, were the advocates of the mother or cathedral churches.

Advocates, Military, were appointed for the defence of the church, rather by arms and authority than by pleading and eloquence.—These were introduced in the times of confusion, when every person was obliged to maintain his own property by force; bishops and abbots not being permitted to bear arms, and the scholastic or gowned advocates being equally unacquainted with them, recourse was had to knights, noblemen, soldiers, and even to princes.

Advocates, Nominative, those appointed by a king or pope. Sometimes the churches petitioned kings, &c. to appoint them an advocate; at other times this was done of their own accord. By some regulations, no person was capable of being elected advocate, unless he had an estate in land in the same county.

Advocates, Subordinate, those appointed by other superior ones, acting under them, and accountable to them. There were various reasons for the creation of these subordinate advocates; as, the superior quality of the principal advocate, his being detained in war, or being involved in other affairs; but chiefly the too great distance of some of the church lands, and their lying in the dominions of foreign princes.

Advocates, Supreme, or Sovereign, were those who had the authority in chief; but acted by deputies or subordinate advocates. These were called also principal, greater, and sometimes general advocates. Such in many cases were kings, &c. when either they had been chosen advocates, or became such by being founders or endowers of churches. Princes had also another title to advocateship, some of them pretending to be *advocati nati*, born advocates, of the churches within their dominions.

Advocation, Bill of, in Scots law, a writing drawn up in the form of a petition; whereby a party, in an action before the inferior court, applies to the supreme court, or court of session, for calling the action from the inferior court before itself.

Advocation, Letters of, in Scots law, the decree or warrant of the court of session upon cognisance of the facts set forth in the bill, drawn up in the form of a summons, and passing under the signet, discharging the inferior judge and all others from further procedure in the cause, and advocating it to itself.

ADVOCATIA, in the feudal law, the procuration of some public business, committed by a superior to his substitute. It is also used for patronage and protection of a church, college, monastery, and the like. In this sense it is the same with advowson. It is likewise used for the defence of lay persons, estates, &c.

ADVOCATIONE Decimarum, in ecclesiastical affairs, a writ which lies for the claim of the fourth part or upward, of the tithes that belong to any church.

ADVOCATISSÆ, female advowees. See Advowee.

ADVOCATURA, in old law, an inferior kind of jurisdiction, exercised by advocates within the districts of their respective churches, &c. The word is sometimes synonymous with advocatia.

ADVOWEE, from *avouer*, to own, in ancient law, the advocate of a church, religious house, or the like. Thus, Charlemagne had the title of advowee of St. Peter's; king Hugh, of St. Riquier; and Bolandus mentions some letters of pope Nicholas, by which he constituted king Edward the Confessor, and his successors, advowees of the monastery at Westminster, and of all the churches in England. These advowees were the guardians, protectors, and administrators of the temporal concerns of the churches, &c. Under their authority were passed all contracts which related to them, and the donations to churches were conferred on the persons of the advowees. They always pleaded the causes of the churches in court, and distributed justice for them, in the places under their jurisdiction. They also commanded the forces furnished by their monasteries, &c. for war; and even were their champions, and sometimes fought duels for them. This office is said to have been first introduced in the fourth century, in the time of Stillico; though the Benedictines do not fix its origin before the eighth century. By degrees, men of the first rank were brought into it, either to defend with arms, or protect by authority. In some monasteries they were only called conservators; but these, without the name, had all the functions of advowees. There were also sometimes several sub-advowees, or sub-advocates, in each monastery, who officiated instead of the advowees themselves; which, however, proved the ruin of monasteries; those inferior officers running into great abuses. Hence also, husbands, tutors, and every person who undertook the defence of another, were denominated advowees, or advocates. Thus, several cities had their civil advowees; which were established long after the ecclesiastical ones, and doubtless from their example; such as the advowees of Augsburg, of Arras, &c. The *vidames* assumed the qualities of advowees; and hence several historians of the eighth century confound the two functions together. Several secular lords in Germany bear mitres for their crests, as having anciently been advowees of the great churches.

Spelman distinguishes two kinds of ecclesiastical advowees. The one, of causes or processes, *advocati causarum;* the other, of territory or lands, *advocati soli*. The former were nominated by the king, and were usually lawyers, who undertook to plead the causes of the monasteries.

The other, which still subsist, and are sometimes called by their primitive name, advowees, though more usually patrons, were hereditary; as being the founders and endowers of churches, &c. Women were sometimes advowees. The canon law mentions some who had this title, and who had the same right of presentation, &c. in their churches, which the advowees themselves had. In a stat. 25, Edw. III. we meet with *advowee paramount* for the highest patron; that is, the king.

ADVOWSON, APPENDANT, that which depends upon the manor, as an appurtenance.

ADVOWSON IN GROSS, the right of presentation, which is principal or absolute, and does not belong to any manor as part of its right.

ADVOWSON. Though the nomination of fit persons to officiate in the dioceses, was originally in the bishops, yet they were content to let the founders of churches have the nomination of the persons to the churches so founded, reserving to themselves a right to judge of their fitness. Advowsons formerly were most of them appendant to manors, and the patrons were parochial barons: the lordship of the manor, and patronage of the church, were seldom in different hands, until advowsons were given to religious houses. But of late the lordship of the manor, and advowson of the church, have been divided. Advowsons are presentative, collative, or donative: presentative, where the patron presents or offers his clerk to the bishop of the diocese, to be instituted in his church; collative, where the benefice is given by the bishop, as original patron thereof, or by means of a right he has acquired by lapse; donative, as where the king or other patron does, by a single donation in writing, put the clerk into possession, without presentation, institution, or induction. Anciently, the patron had sometimes the sole nomination of the prelate, abbot, or prior; either by investiture, (i. e. delivery of a pastoral staff,) or by direct presentation to the diocesan; and if a free election was left to the religious, yet a *conge d' elire*, or licence of election, was first to be obtained of the patron, and the person elected was confirmed by him. If the founder's family became extinct, the patronage of the convent went to the lord of the manor. Unless the several colleges in the universities be restrained in the number of advowsons they may receive, it is argued they will in time acquire such a stock, as to frustrate the design of their foundation, (the education of youth,) by creating too quick a succession of fellows; so that there will not be in the colleges a sufficient number of persons of competent age, knowledge, and experience, to instruct and form the minds of the youth. In some colleges the number of advowsons is said to be already two thirds, or more, of the number of fellows. It is objected, on the other side, that the succession of fellows may be too slow as well as too quick; whereby persons well qualified may be detained so long in colleges as not to have strength or activity enough left for the discharge of parochial functions. Colleges holding more advowsons in number than a moiety of the fellows, are not capable of purchasing more. Grants of advowsons by Papists are void. Advowsons are temporal inheritances, and lay fees; they may be granted by deed or will, and are assets in the hands of heirs or executors. Presentations to advowsons for money, or other reward, are void. In Scotland, this right is called patronage. See PATRONAGE.

ADVOWTRIE. See ADVOUTRY.

ADUN, in music, the key of A major; one of the twenty-four keys in modern music, called by the French, la majeur, and the Italians, la maggiore.

ADURE', *v.* ADUST,' ADUST'ED, ADUS'TION. } Ad: *uro, ustus.* The verb is obsolete: burnt, scorched, hot; dried with fire.

And althoughe, that to touche and se them wythoute, and throughe the bodyes; they were not exceadinge hotte nor pale, but that thair skynne was as redde colour *adusted*, full of a lytle thynne blaynes.

Nicoll's Thucidides, f. 57, col. 2.

Such a degree of heat, which doth neither melt nor scorch, doth mellow, and not *adure*.

Bacon's Nat. Hist. No. 319.

By this means, the virtual heat of the water will enter; and such a heat, as will not make the body *adust*, or fragile. *Bacon.*

Which with torrid heat,
And vapours, (as the Libyan air,) *adust*,
Began to parch the temperate clime.

Milton's Paradise Lost.

Sulphurous and nitrous foam
They found, they mingled; and, with subtle art,
Concocted and *adusted*, they reduced
To blackest grain, and into store convey'd.

Idem.

They are but the fruits of *adusted* choler, and the evaporations of a vindictive spirit. *Howell.*

Such humours are *adust*, as by long heat become of a hot and fiery nature; as choler and the like.

Quincy.

To ease the soul of one oppressive weight,
This quits an empire, that embroils a state.
The same *adust* complexion has impell'd
Charles to the convent, Philip to the field. *Pope.*

This is ordinarily a consequent of a burning colliquative fever; the softer parts being melted away, the heat continuing its *adustion* upon the drier and fleshy parts, changes into a marcid fever.

Harvey on Consumptions.

ADUSTION, in medicine, an inflammation of the parts about the brain, and its membranes, attended with a hollowness of the sinciput and eyes, a pale colour, and dryness of the body. The yolk of an egg, with oil of roses, applied by way of cataplasm, is recommended for this disorder; or the leaves of turnsol, the parings of a gourd, or the pulp of a pompion, applied in the same manner with oil of roses.

ADY, in natural history, the palm tree of the island of St. Thomas. It is tall, with a thick, bare, upright stem, thin and light, growing single on its root, and full of juice. The head shoots into a vast number of branches, which being cut off, or an incision made, afford a great quantity of sweet juice, which fermenting, supplies the place of wine among the Indians. The fruit, which is called *abanga*, is of the size and shape of a lemon; and is eaten roasted. The raw kernels are often mixed with mandioc meal, and are judged to be cordial. An oil is also prepared from this fruit, which answers the purpose

of butter, and is used for anointing stiff parts of the body. See ABANGA.

ADYNAMIA, from *a* privative, and *δυναμις*, strength, in medicine, debility, or weakness, from sickness.

ADYNAMON, among ancient physicians, a kind of weak factitious wine, prepared from must boiled down with water; to be given to patients to whom genuine wine might be hurtful.

ADYTUM, from *a*, not, and *δυω* or *δυνω*, to enter, in pagan antiquity, the most retired and sacred place of their temples, into which none but the priests were allowed to enter. They were sometimes in the rear of, and sometimes under the temple. The only well preserved adytum is that of the little temple at Pompeii. See POMPEII. The statue of Diana of Portici was found in its interior, elevated a few steps at the back of the temple, and was kept in perfect darkness. The *Sanctum Sanctorum* of the temple of Solomon, was of the nature of the pagan adytum, none but the high priest being admitted into it.

ADZENOTA, a small town of Valencia, in Spain, seated on the mountains Pegna Golosa, abounding with medicinal plants.

ÆA, in ancient geography, a celebrated city and port of Colchis, fifteen miles from the sea, according to Pliny. It was famous for containing the golden fleece of Jason at the time he reached this country. Some authors have considered it as the Æapolis of Ptolemy; from the Greek *αια*, earth, or the Heb. אי, island. From this city the Circe obtained the appellation of Ææa. *Hom. Odyss.* l. i. v. 32. *Virgil*, l. iii. v. 386.

ÆACEA, in Grecian antiquity, solemn festivals and games celebrated at Ægina, in honour of Æacus.

ÆACIDES, in ancient history, an appellation given to Pyrrhus, king of Epirus, as the descendant of Æacus, by the Oracle, in the famous equivocal response, which led that monarch to his destruction. See PYRRHUS.

ÆACUS, in fabulous history, the son of Jupiter by Ægina, and king of the island Œnopia, which he named Ægina after his mother. When the isle was depopulated by a plague, his father, in compassion to his grief, changed all the ants upon it into men and women, who were called *Myrmidons*, from *μυρμηξ*, an ant. The foundation of the fable is said to be, that when the country had been depopulated by pirates, who forced the few that remained to take shelter in caves, Æacus encouraged them to come out, and by commerce and industry to recover what they had lost. His character for justice was such, that in a time of universal drought, he was nominated by the Delphic oracle to intercede for Greece, and his prayer was answered. See ÆGINA. It was also imagined that Æacus, on account of his impartial justice, was appointed by Pluto one of the three judges of the dead; and that it was his province to decide the fate of Europeans.

ÆBUDÆ. See HEBRIDES.

ÆBURA, in ancient geography, a town of Spain in Estremadura, on the river Guadiana, to the W. of Merida, now called Talavera. Long. 7°, 15′ W. Lat. 38°, 40′ N.

ÆCHMALOTARCHA, in antiquity, a Greek term, signifying the chief or leader of the Jewish captives in Babylon. The Jews, who refused to follow Zerubbabel to Jerusalem, after the Babylonish captivity, elected a magistrate to govern them, whom they called ראש גלות, *rosch, galuth*, q. d. chief of the captivity, which Origen and others translate by a Greek name of the like import, *αιχμαλωταρχος*, formed from *αιχαλωτος*, captive, *αιχμη*, war, and *αρχων*, commander. The Jewish writers assure us, that the æchmalotarchæ were only chosen out of the tribe of Judah. The eastern Jews had their princes of the captivity, as the western Jews had their patriarchs. The Jews are still said to have an æchmalotarch at Babylon, but without the authority of the ancient ones.

ÆCIDIUM, in botany, of *αικια*, a wound or injury, (because, wherever this fungus attaches itself, the plant becomes diseased and tumid,) a species of parasitical fungi. Class and order cryptogamia fungi.

The essential characters are: head conspicuous, sessile, round, membraneous, and at length bursting with a teethed orifice. Seeds mealy, naked. Persoin defines twenty species, to which Mr. Sowerby makes several additions.

ÆCLANUM, or ÆCULANUM, in ancient geography, a town of the Hirpini in Italy, at the foot of the Apennines, to the E. of Abellinum, situated between Beneventum and Tarentum. It is now called *Fricento*, and lies 47 miles E. of Naples.

ÆCLANENSES, or ÆCULANI, the inhabitants of Æculanum.

ÆCLUS, in entomology, a species of papilio, found at Amboyna, of black wings above, cinerous beneath, waved with black, and having a yellow spot.

ÆD, in ancient inscriptions, an abbreviature for ÆDILATUS, which see.

ÆDES, in antiquity, a chapel or inferior kind of temple, distinguished by this, that it was not consecrated by the augurs, as those properly called temples were. Such was the ærarium, or treasury; called Ædes Saturni.

ÆDESSA. See ÆGÆA.

ÆDICULA, in ancient architecture, the inner part of the temple, where the altar and statue of the deity stood: it is merely, perhaps, a diminutive of ædes, sometimes it signifies a small house. *Ædiculæ* are often found on medals; and ancient sculptures contain the figure of the prince or founder of a temple or church, holding in his hand an ædicula or model of the building. The Romans erected one which they called *ædicula ridicula* to the god of mirth, in commemoration of the repulse of Hannibal by severe weather, after the battle of Cannæ, when he was advancing upon Rome.

ÆDILATUS, ÆDILATE, the office of ædile See next article.

ÆDILE, ÆDILIS, from *ædes* a house, in Roman antiquity, a magistrate whose business it was to superintend buildings of all kinds, especially public ones, as temples, aqueducts,

bridges, &c. to take care of the highways, public places, weights and measures, &c. to fix the prices of provisions, take cognizance of debauchees, punish lewd women, and such as frequented gaming houses. They had the inspection of comedies and other pieces of wit; and were obliged to exhibit magnificent games to the people, at their own expence, whereby many of them were ruined. To them also belonged the custody of the plebiscita, and the examination and censure of books. They had the power, on certain occasions, of issuing edicts; and, by degrees, they obtained a considerable jurisdiction, the cognizance of various causes, &c. This office ruined numbers by its expensiveness; so that, in Augustus's time, even senators declined it on that account.

All these functions, which rendered the ædiles so considerable, belonged at first to the ædiles of the people, ædiles plebeii, or minores; these were only two in number, and were first created in the same year as the tribunes: for the tribunes, finding themselves oppressed with the multiplicity of affairs, demanded of the senate to have officers, with whom they might entrust matters of less importance; and accordingly two ædiles were created; and elected every year at the same assembly as the tribunes. But these plebeian ædiles having refused, on a particular occasion, to treat the people with shows, as being unable to support the expence, the patricians offered to do it, provided they would admit them to the honours of the ædilate; which being agreed upon, two patrician ædiles were created, in the year of Rome 588; who were called ædiles curules, or majores; as having a right to sit on a curule chair, enriched with ivory, when they gave audience; whereas the plebeian ædiles only sat on benches.—Besides sharing all the ordinary functions with the plebeians, their chief employ was, to procure the celebration of the grand Roman games, and to exhibit comedies, shows of gladiators, &c. to the people; and they were also appointed judges in all cases relating to the selling or exchanging estates. To ease these four first ædiles, Cæsar created a new kind, called ædiles cereales, as being deputed chiefly to take care of the corn. These ædiles cereales were also taken out of the order of patricians. In the municipal cities there were ædiles, and with the same authority as at Rome. We also read of an ædiles alimentarius, whose business seems to have been to provide diet for those who were maintained at the public charge, though others assign him a different office.—In an ancient inscription we likewise meet with ædile of the camp, ædiles castrorum.

ÆDILIS, in entomology, a species of cerambyx, found in the trunks of trees, and called also capricornus rusticus.

ÆDILITAS. See ÆDILATUS.

ÆDILITIUM EDICTUM, among the Romans, was that whereby a remedy was given to a buyer, in case a vicious or unsound beast, or slave, was sold him. It was called ædilitium, because the preventing of frauds in sales and contracts belonged especially to the ædiles.

ÆDITUA, in antiquity, a female officer who attended the temples of the goddesses. See next article.

ÆDITUUS, from *ædes*, a temple, and *tueor* to defend, in Roman antiquity, an officer belonging to the temple, who had the charge of the offerings, treasure, sacred utensils, and records. His duty was somewhat similar to that of our verger or beadle, but of superior trust and distinction.

ÆDON, in ancient mythology, a daughter of Pandarus, who being jealous of her sister Niobe, having more children than herself, attempted to kill the eldest of them, but in the attempt slew her own son; and was changed into a goldfinch as she endeavoured to kill herself. *Hom. Od.* xix. 518.

ÆDUI, in ancient history, a brave nation of Celtic Gaul, celebrated as the first allies of Cæsar in his invasion of Gaul. They were found between the 46°. and 47°. latitude.

ÆGADES, three small islands, lying on the west side of Sicily, opposite to the main land between Marsalla and Trapani. Their names are Levenzo, Favignana, and Maretimo.

ÆGÆA, or ÆGÆ, in ancient geography, the name of Ædessa, so called from the following adventure: Caranus, the first king of Macedonia, being ordered by the oracle to seek out a settlement in Macedonia, under the conduct of a flock of goats, surprised the town of *Ædessa*, during a thick fog and rainy weather, in following the goats that fled from the rain; which goats ever after, in all his military expeditions, he caused to precede his standard; and in memory of this he called *Ædessa*, Αιγας, *Ægæa*. Hence probably, in the prophet Daniel's vision, the he-goat is the symbol of the king of Macedon.

ÆGÆADÆ, the inhabitants of Ægæ. See last article.

ÆGÆON, in ancient mythology, a huge giant, the son of Titan and Terra, who was fabled to have had 100 hands, with which he threw 100 rocks at once, at Jupiter, who, when he had overcome him, bound him with 100 chains.

ÆGÆUM MARE. See ÆGEAN SEA.

ÆGAGROPILA, or ÆGAGROPILUS, from αιγαγρος, the rock goat, and πιλος, a ball, in natural history, a ball generated in the stomach of the *rupicapra*, or chamois goat, hard on the outside, and consisting of a substance like hair; similar to those sometimes found in cows, hogs, &c. It is sometimes called *bezoar Germanicum*, or the German bezoar.

ÆGEA, a queen of the Amazons, who was drowned in the Ægean Sea.

ÆGEAN SEA, in ancient geography, now the Archipelago, a part of the Mediterranean, which separates Europe from Asia and Africa; washing on the one hand, Greece and Macedonia; on the other, Caria and Ionia. It is uncertain whether the name is derived from *Ægea*, queen of the Amazons, or *Ægeus* king of Athens, who both perished in it, or from its various isles appearing like a flock of goats at a distance. See ÆGEA and ÆGEUS.

ÆGELETHRON, in botany, a name used by some authors for the common *mercurialis*, or English mercury, an eatable wild herb.

ÆGELSTAWICK, a good harbour, lying about half a mile from the town of Sodertledge, in Sudertorn, a district of Sudermania, in Sweden.

ÆGERITA, in botany, from *αιγειρος*, *a poplar*, or *alder tree*, because the first-discovered species of this genus grows on the wood of the alder, and was thence called *Sclerotium Ægerita*, which last word, on the establishment of the present genus, was taken for its generic name.—Class and order, *Cryptogamia Fungi*. Its Ess. CHAR. are sessile granulations solid, filled with a somewhat mealy powder.

ÆGEUS, in fabulous history, king of Athens, and father of Theseus. The Athenians having basely killed the son of Minos, king of Crete, for carrying away the prize from them, Minos made war upon them; and being victorious, imposed this severe condition on Ægeus, that he should annually send into Crete seven of the noblest Athenian youths, chosen by lot, to be devoured by the Minotaur. On the fourth year of this tribute, the choice fell on Theseus: or, as others say, he himself intreated to be sent. The king, at his son's departure, ordered that as the ship departed with black sails, it should return with the same in case he perished; but, if he became victorious, he should change them into white. When Theseus returned to Athens, after killing the Minotaur, he forgot to change the sails, and his father, supposing him dead, cast himself headlong into the sea, which afterwards obtained the name of the *Ægean Sea*. The Athenians decreed Ægeus divine honours; and sacrificed to him as a marine deity, the adopted son of Neptune,

ÆGIALITIS, in botany, *αιγιαλῖτις*, an inhabitant of the coast, alluding to its place of growth.—A genus of plants, of the class and order, *pentandria pentagynia*. Its Ess. CHAR. CAL. one leaf, coriaceous, five-toothed, with folded angles: PET. five, their claws combined at the base, bearing the stamens: STIG. capitate. Pericarp prominent, angular, nearly cylindrical, coriaceous, without valves. Seed germinating, without albumen, and plumula conspicuous.

ÆGIAS, in medicine, a white speck on the pupil of the eye, which occasions a dimness of sight.

ÆGICERAS, in botany, so called from *αιξ*, a goat, and *κερας*, a horn, in allusion to the horn-like shape of the seed-vessel, a genus of plants of the class *pentandria*, and order *monogynia*. Its Ess. CHAR. CAL. five, deep imbricated segments: COR. salver-shaped, five-cleft, reflexed. Filaments joined at the base: STIG. simple. Follicle coriaceous, cylindrical. Seed solitary, with a hooded tunic. The last two plants are both natives of New Holland.

ÆGIDA, in ancient geography, now *Capo d' Istria*, the principal town on the north of the territory of Istria, situated in a little island, joined to the land by a bridge. In an old inscription, it is called *Ægidis Insula*. It was afterward called *Justinopolis*, after the emperor Justin. Lon. 14°, 20′ E. Lat. 45°, 50′ N.

ÆGIDES, in medicine, a disorder of the eyes mentioned by Hippocrates, occasioned by small white cicatrices in the eye, arising from an efflux of corrosive humour. See ALBUGO.

ÆGIDION, in pharmacy, *collyrium* for inflammations and defluxions of the eyes.

ÆGILOPS, *αιγιλωψ*, Gr. signifying goat-eyed, the goat being subject to this ailment. A tumour or swelling in the great corner of the eye, by the root of the nose, either with or without an inflammation. Authors frequently use the words *ægilops*, *anchilops*, and *fistula lachrymalis*, synonymously: but the more accurate, after Ægineta, make a difference.—The tumour, before it becomes ulcerous, is properly called anchilops; and, after it has got into the lachrymal passages, and has rendered the *os lachrymale* carious, fistula lachrymalis. If the ægilops be accompanied with an inflammation, it is supposed to take its rise from the abundance of blood, which a plethoric habit discharges on the corner of the eye.—If it be without an inflammation, it is supposed to proceed from a viscous pituitous humour, thrown upon this part. The method of cure is the same as that of ophthalmia. But before it has reached the lachrymal passages, it is managed like other ulcers. If the ægilops be neglected, it bursts, and degenerates into a fistula, which eats into the bone.

ÆGILOPS, in botany, the cerrus, or holm oak, a species of QUERCUS, which see.

ÆGILOPS, WILD FESTUC, a genus of the monœcia order, belonging to the polygamia class of plants, and ranking under the fourth natural order, Gramina.—The characters are: CAL. hermaphrodite, a two-valved glume, triflorous: COR. a two-valved glume, the outermost valve terminated by three aristæ, or awns, the interior awnless: STAM. three capillary filaments; style, two: Seed, one, oblong. Male calyx and COR. each a glume as in the former; and stamina, the same number.—There are seven species, natives of Italy, and some other parts of Europe. The flour of the ægilops cerris, or festuca, has been reputed a remedy for the above-mentioned disease of the eye.

ÆGIMURUS, in ancient geography, an island in the bay of Carthage, about thirty miles distant from that city, now *Goletta*. This island being afterwards sunk in the sea, two of its rocks remained above water, which were called *Aræ*, as mentioned by Virgil, because the Romans and Carthaginians entered into an agreement to settle their mutual boundaries at these rocks.

ÆGINA, in fabulous history, the daughter of Æsopus, king of Bœotia, was beloved by Jupiter, who debauched her in the form of a lambent flame, and carried her from Epidaurus, to a desart island called *Œnope*, which was named after her.

ÆGINA, in geography, an island in the Saronic Bay, twenty miles from the Piræeus, formerly vying with Athens for naval power, and at the sea-fight of Salamis, disputing the palm of victory with the Athenians. The Greeks had a common temple in it dedicated to Jupiter. It was surrounded by Attica, the territory of Megara, and the Peloponnesus, each distant about 100 stadia, or twelve miles and a half. In circumference, it was reckoned 180 stadia, or twenty-two miles and a half. It was washed on the E. and S. by the Myrtoan and Cretan seas. It is now called *Eyina*, or *Egina*. The temple

above-mentioned, is situated on the summit of a mountain called *Panhellenius*, about an hour's walk distant from the shore. The Æginetans affirm it was erected by *Æacus*; in whose time Hellas being terribly oppressed by drought, the Delphic oracle was consulted, and the response was, That Jupiter must be rendered propitious by *Æacus*. The cities entreated him to be their mediator: he sacrificed and prayed to Jupiter Panhellenius, and procured rain. The temple was of the Doric order, and had six columns in front. Twenty-one of the exterior columns were lately standing, with two in the front of the pronaos and of the posticum, and five of the number which formed the ranges of the cell. The entablature, except the architrave, is fallen. The stone is of a light brownish colour, much eaten in many places, and indicating very great age. Some of the columns have been injured by boring to their centres for the metal. In several, the junction of the parts is so exact, that each seems to consist of one piece. This ruin Mr. Chandler considers as scarcely to be paralleled in its claim to a remote antiquity. Near the shore is a barrow, raised, according to tradition, in memory of Phocus, the son of Æacus, who was killed by his brother Peleus. See PELEUS. This barrow in the second century, when seen by Pausanius, was surrounded with a fence, and had on it a rough stone. The terror of some dreadful judgment to be inflicted from heaven, had preserved it entire and unaltered to his time; and in a country depopulated and neglected, it may still endure for many ages. The soil of this island, as described by Strabo, is very stony, especially the bottoms, but in some places, not unfertile in grain. Besides corn, it produces olives, grapes, and almonds; and abounds in pigeons and partridges. It has been related, that the Æginetans annually break their eggs, to prevent their multiplying, and occasioning a famine. They have no hares, foxes, or wolves. The rivers in summer are all dry. The vaiwode or governor farms the revenue of the grand seignior; of which, about half is paid by a caratch-money, or poll-tax.

ÆGINA, was the capital of the above island. Its site has been long forsaken. A remnant of a temple of Venus, is situated near the port, which was principally frequented. The theatre resembled that of the Epidaurians both in size and workmanship. The walls belonging to the ports and arsenal were of excellent masonry, and may be traced to a considerable extent, above, or nearly even with, the water. Here is a small chapel of St. Nicholas, several mean churches, and a square tower with a draw-bridge. This structure, was erected by the Venetians, while at war with the Turks in 1693. This island is generally garrisoned with about 800 men.

ÆGINETA, in botany, a genus of plants, belonging to the class and order, didynamia angiospermia; the characters of which are; the cup an oval, inflated, and coloured spatha; univalve; opening longitudinally near the top. The flower consists of one petal. Its base large, round, and inflated. The tube short, cylindric, and open; and the mouth small, but expanded, and turns back at the edge. The STAM. four crooked filaments; two of them of the length of the flower, and the other two a little shorter. The antheræ are oblong, and stand close to one another at their top. The germen of the pistil is oval; the style is subulated, and of the length of the stamina; and the stigma is large, round and bending. The Hortus Malabaricus is the only work in which we have a description of the plant.

ÆGINETA, (Paulus,) a celebrated surgeon of the island of Ægina, from whence he derived his name. According to M. Le Clerc's calculation, he lived in the fourth century; but Abulpharagius, who is allowed to give the best account of those times, places him with more probability in the seventh. His knowledge in surgery was great, and his works are deservedly famous. Fabricius ab Aquapendente has transcribed his remarks in a variety of places. He is the first writer who takes notice of the cathartic quality of rhubarb; and, according to Dr. Mead ward, is the first in antiquity, who deserves the title of a man-midwife.

ÆGINETÆ, or ÆGINENSES, the inhabitants of Ægina; they applied early to commerce, and were the first who coined money, which from them was called Νομισμα Αιγιναιον, Æginetan coin. From their industry, they got the title of *Myrmidons*, or the nation of ants. See ÆACUS and ÆGINA.

ÆGINETICUM ÆS, the money of Ægina, which was much esteemed in ancient Greece.

ÆGINHARD, the celebrated secretary and supposed son-in-law of Charlemagne. He is said to have been carried through the snow on the shoulders of the affectionate and ingenious Imma, to prevent his being traced from her apartments by the emperor her father: a story which the elegant pen of Addison has copied and embellished from an old German chronicle, and inserted in the third volume of the Spectator—This happy lover seems to have possessed a heart not unworthy of so enchanting a mistress, and to have returned her affection with the most faithful attachment; for there is a letter of Æginhard's still extant, lamenting the death of his wife, which is written in the tenderest strain of connubial affection. He was a native of Germany, and was educated by the munificence of his imperial master, of which he has left the most grateful testimony in his preface to the life of that monarch. Æginhard, after the loss of his wife, is supposed to have passed the remainder of his days in religious retirement. His life of Charlemagne, his annals from 741 to 889, and his letters, are inserted in the second volume of Duchesne's *Scriptores Francorum*. There is an improved edition of this valuable historian, with the annotations of Hermann Schmincke, in 4to, 1711.

ÆGIPAN, from Αιξ, a goat, in heathen mythology, a denomination given to the god Pan, because he was represented with the horns, legs, feet, &c. of a goat.

ÆGIPANES, in ancient history, a sort of monsters mentioned by Pliny, Solinus, and Pomp. Mela. Salmasius, in his notes on Solinus, takes *Ægipan* to have signified the same, in Libya, with Sylvanus among the Romans.

Vossius rejects the opinion, and shews, that the *Ægipanes* had not faces like men, as the Sylvans had, but like goats. The whole upper part of the body resembled that animal; and the lower, they painted with a fish's tail. The monster represented on some medals of Augustus, by antiquaries called *Capricornus*, appears to be the true *Ægipan*.

ÆGIPHILA, GOAT-FRIEND; in botany, a genus of the monogynia order, belonging to the tetrandria class of plants; the characters of which are: CAL. a single-leaved perianthium, bell shaped, four-toothed, loose, very short, and persistent: COR. one petal; the tubus cylindric, narrower and longer than the calyx; the border divided into four segments, flat and equal; the divisions oblong; STAM. four erect capillary filaments; the antheræ incumbent and squared: PIST. a germen above; a capillary, two-cleft, middle sized stylus; and a simple stigma: the pericarpium is a roundish unilocular berry; the seeds four. There is only one species, a native of Martinico.

ÆGIPYROS, in botany, buck wheat.

ÆGIS, in ancient mythology, the shield of Jupiter and Minerva. The goat Amalthea, which had suckled Jove, being dead, that god is said to have covered his buckler with the skin: whence the appellation *Ægis*, from *αιξ, αιγος, a she-goat*. Jupiter, afterwards restoring the beast to life again, covered it with a new skin, and placed it among the stars; and gave his buckler to Minerva; whence her shield is also called *ægis*. Minerva, having killed the Gorgon Medusa, nailed her head in the middle of the ægis, which henceforth had the faculty of converting into stone all those who looked thereon; as Medusa was said to have done during her life. Some critics, particularly Servius, take the ægis not to have been a buckler, but a cuirass, or breastplate, which is more agreeable to Virgil's description of Minerva's; Æn. viii. v. 435. But Jupiter's ægis is expressly described as a buckler, v. 354.

ÆGISTHUS, in ancient fabulous history, the son of Thyestes, by his own daughter Pelopeia, who, to conceal her shame, exposed him in the woods; where he was suckled by a goat, and hence called *Ægisthus*. He corrupted Clytemnestra, the wife of Agamemnon; and with her assistance, slew her husband, and reigned seven years in Mycenæ. He was, together with Clytemnestra, slain by Orestes.

ÆGITHALLUS, in ancient geography, a promontory and citadel of Sicily, between Drepanum and the Emporium Aegistanum, afterwards called Acellus; corruptly written Aegitharsos, in Ptolemy, situated near Mount Erix, and now called *Capo di Santo Theodoro*.

ÆGIUM, in ancient geography, a town of Achaia Propria, five miles from the place where Helice stood, and famous for the council of the Achæans, which usually met there on account either of the dignity or commodiousness of its situation. It was famous also for the worship of of Ομαγυριος Ζευς, *Conventional Jupiter*, that god having been supposed to be suckled here by the she-goat Amalthæ, and of *Panachæan Ceres*. The territory of Ægium was watered by two rivers, viz. the Phœnix and Meganites. The epithet is *Ægiensis*. There is a coin in the cabinet of the king of Prussia, with the inscription AILI, and the figure of a tortoise, which is the symbol of Peloponnesus, and leaves no doubt as to the place where it was struck.

ÆGLEFINUS, in ichthyology, a name given, by the generality of authors, to the haddock, called by others, the *onos*.

ÆGLEUS, in botany, the white chamæleon thistle. It is derived from the Greek *αιγληις* of Galen; by which he distinguishes the white chamæleon, which was an esculent and medicina. plant, from the *ερεβεννος* or *erebenus*, which was what we call the black chamæleon thistle, and was esteemed poisonous.

ÆGLIA. See ÆGIAS.

ÆGOBOLIUM, in antiquity, the sacrifice of a goat offered to Cybele. The ægobolium was an expiatory sacrifice, which bore a near resemblance to the taurobolium and criobolium, and seems to have been sometimes joined with them.

ÆGOCEPHALUS, in ornithology, the name by which the generality of authors call the bird, known in England by the name of the god-wit, and in some places the stone-plover, the yerwhep, or yarwhip.

ÆGOCERAS, in botany, a name given to fenugreek, and also to bouceras, because of their corniculated fruit, the word originally signifying goat's horn.

ÆGOLETHRON, in botany, a plant mentioned by Pliny; which appears to be the same with what Tournefort describes under the name of *chamærododendros, pontica, maxima, mespili folio, floreo luteo*. The ancients attribute dangerous qualities to it.

ÆGOMANTIA, in antiquity, a species of divination performed by means of a goat.

ÆGONYCHUS, *Αιγος ονυξ*, the nail or hoof of a goat, in natural history, a plant mentioned by Pliny, as a synonyme of the *lithospermum*, or gromwell. The ancients called this plant, *exonychon*; by which they expressed its being like the exterior parts of the nails on the fingers.

ÆGOPHTHALMUS, in mineralogy, the goat's eye stone, a name given to those species of agate, or other semipellucid gems which have circular spots in them, resembling the eyes of that animal in colour, and in their round figure.

ÆGOPODIUM, small wild angelica, goutwort, goat's-foot, herb gerard, or ashweed; a genus of the digynia order, belonging to the pentandria class of plants; the characters of which are: CAL. a manifold convex umbel; the partial one, consimilar and flat; there is no involucrum; and the proper perianthium is scarcely discernible; the COR. uniform, the florets all fertile; the proper one has five inverse ovate, concave, equal petals, inflected at the top: STAM five simple filaments twice the length of the corolla; the antheræ, roundish: PIST. a germen beneath; two purple erect styli the length of the corolla; the stigmata are headed: no pericarpium: the fruit is ovate, striated, and bipartite: the seeds are two, ovate, on one side convex and striated, and flat on the other. There is but one species, a native of Britain and other parts

of Europe. It is very common under hedges and about gardens.

ÆGOPOGON, in botany, a name used by Tragus and others, to express the ulmaria, or common meadow-sweet.

ÆGOPRICON, a genus of the monœcia order, belonging to the diandria class of plants; the characters of which are; CAL. both of male and female a tubula perianthium of one leaf divided into three segments; COR. wanting: STAM. a single erect filament longer than the calyx, with an ovate anthera; PIST. an ovate germen, three divaricated styli, the simple persistent stigmata: the pericarpium a globular berry, three-grained within, and three-celled: the seeds solitary and angular on one side. There is but one species, a native of Surinam.

ÆGOPROSOPON. See ÆGIDION.

ÆGOSPOTAMOS, in ancient geography, a river in the Thracian Chersonesus, falling into the Hellespont, to the north of Sestos.

ÆGOSPOTAMOS, a town, station, or road for ships, at the mouth of the above river. Here the Athenians under Conon, through the fault of his colleague Isocrates, received a signal overthrow from the Lacedemonians, under Lysander, which was followed by the taking of Athens, and put an end to the Peloponnesian war. See LYSANDER.

ÆGREFINUS. See ÆGLEFINUS.

ÆGRITUDO BOVINA. See BOVINA AFFECTIO.

ÆGYPT. See EGYPT.

ÆGYPTIACA, the Papyrus.

ÆGYPTIACUM, in pharmacy, a name given to various ointments of the detergent, or corrosive kind; such as the black, red, white, simple, compound, or magistral, Ægyptiacum. Of these the principal are:

ÆGYPTIACUM ALBUM, a composition of lily roots mixed up with aromatics; it is mentioned by Hippocrates, and is the same with what other ancients call *cicinum*. It was used by the ladies of those days to smear over their faces, to preserve their complexions. Hippocrates also speaks of another composition of the Egyptian thorn.

ÆGYPTIACUM COMPOSITUM MAGISTRALE, wherein treacle, mithridate, camphor, &c. are ingredients. It is much used in the German dispensatories.

ÆGYPTIACUM RUBRUM, and NITRUM, the red and black kind, are chiefly used by farriers, to soften the hoofs of horses, when too hard.

ÆGYPTIACUM SIMPLEX, usually found in our shops, is a composition of verdigrise, vinegar, and honey, boiled to a consistence. It takes its name from its dusky colour, wherein it resembles that of the natives of Egypt. It is improperly called an unguent; as there is no oil in it. Some call it *Mel Egyptiacum*. It is chiefly used in eating of rotten flesh, and cleansing foul ulcers; particularly venereal ones in the throat, &c It also destroys those cancerous erosions apt to grow in children's mouths.

ÆGYPTILLA, in natural history, the name of a stone said, by the ancients, to have the remarkable quality of giving water the colour and taste of wine. This seems a very imaginary virtue, as are indeed too many of those in former ages attributed to stones. This remarkable fossil was described as variegated with veins of black, white, and bluish, with sometimes a vein of whitish red. The authors of these accounts seem to have understood by this name the stones of the onyx, sardonyx, and camæa kind; all which we have at present common among us, but none of which possess any such strange properties.

ÆGYPTION, a tropical remedy used by the ancients in uterine disorders.

ÆGYPTIUM PHARMACUMAD AURES. Aetius speaks of this as excellent for deterging fœtid ulcers of the ears, which he says it cures, *though* the patient were born with them.

ÆGYPTUS, in fabulous history, the son of Belus, and brother of Danaus. See BELIDES.

ÆHOITULLA, in zoology, the name of an East Indian species of serpent, found frequently in the island of Ceylon; it is very long and slender, sometimes wholly of a fine green, sometimes green and white, and lives principally on trees and among bushes.

ÆICHRYSON, in botany, a name sometimes given to the *Sedum majus*.

ÆINAUTÆ, from Αειναυται, always mariners, in antiquity, senators of Miletus, who held their deliberations on board a ship, far from shore, and, till their business was decided, never returned to land.

ÆIPATHY, from αει, always, and παθος, affection, Gr. a passion of long continuance.

ÆITHALES, in botany, another name for the Sedum majus.

ÆIZOON, αειζωον, from αει, always, and ζωη, life; *Sempervivum, sedum*, houseleek.

ÆLF, (which according to various dialects, is pronounced *ulf*, *welph*, *hulp*, *hilp*, *helfe*, and, at this day *help*,) implies assistance. So *Ælfwin*, is *victorious*, and *Ælfwold*, an *auxiliary governour*: *Ælfgifa*, a *lender of assistance*: with which *Bœotius*, *Symmachus*, *Epicurus*, &c. bear a plain analogy. *Gibson's Camden*.

ÆLFRED. See ALFRED.

ÆLFRIC, archbishop of Canterbury in the tenth century, was the son of an earl of Kent, who, receiving the usual education, assumed the habit of the Benedictine order of monks in the monastery of Abingdon, over which Athelwold then presided, and the latter being subsequently made bishop of Winchester, took Ælfric with him to aid in the education of the youth of his diocese. He composed a Latin Saxon Vocabulary, and some Latin colloquies, the former of which was printed by Somner, under the title of A Glossary, Oxon. 1659. Ælfric also during his residence in Winchester, translated from the Latin into Saxon, most of the historical books of the Old Testament, and Canons for the regulation of the Clergy, which are inserted in Spelman's Councils. He afterwards became abbot of St. Albans, (where he composed a liturgy for the service of his abbey, which was used in Leland's time,) bishop of Wilton, and, in 994, was translated to the see of Canterbury. He frequently assisted his country in a spirited resistance of the Danish invaders, and died highly venerated, Nov. 1005.

ÆLIA CAPITOLINA. See JERUSALEM.

ÆLIAN, (Claudius,) born at Præneste in Italy, taught rhetoric at Rome, under Alexander Severus. He was surnamed Μελιγλωσσος, *Honey-mouth*, on account of the sweetness of his style, and entitled *Sophist*, an appellation in his days given only to men of learning and wisdom. He loved retirement, and studied Plato, Aristotle, Isocrates, Plutarch, &c. and, though a Roman, gave the preference to the Greek authors. His most celebrated works are, his Various History, and History of Animals; though he also wrote a book on Providence, and another on Divine Appearances.

ÆLII PONS, in ancient geography, one of the fortresses near Adrian's Wall, now called Portland in Northumberland, between Newcastle and Morpeth.

ÆLIUS PONS, now *il Ponte S. Angelo*, a stone bridge at Rome, over the Tyber, which leads to the Burgo and Vatican from the city, along Adrian's mole, built by the emperor Adrian.

ÆLMEFOCH, in ecclesiastical affairs, the tribute of a penny from each house, anciently paid to the Pope, and thence called *Peter-pence*.

AELPUTE, AELMODER, and AELMUTTER, names of the Eelpout. See next article,

AELQUAPPE, in zoology, the common name, among the German nations, of a fish of the Mustela kind, the viviparous eelpout, called by Schonefeldt *mustela vivipara*. It is usually a foot long or more. Its skin is perfectly smooth, and the colour of its back and head a brownish yellow, marked with blotches of black; the colour of the back grows paler on the sides, and on the belly is whitish. It has four gills on each side, and the head is shaped like that of the eel; the back fin reaches the whole length of the body, terminating near the tail. The belly fin begins at the anus, and reaches to the extremity of the fish, ending in a fine, slender, and somewhat reddish tail. Beside these, it has two pairs of fins, one at the bottom of the gills, which are somewhat broad, and the other very fine and slender under the throat. The young of this species are often found alive, to the number of 300 in one individual: they are found of two fingers breadth long, and live sometimes after they are taken out.

AELST, (Evert Van,) a celebrated Dutch painter of still life, born at Delft, in 1602. He acquired a great reputation for delicacy of manner and exactitude in copying nature, as well as for the beautiful lustre he gave to his representation of metals.

ÆLUROPO, in pharmacy, a syrup made of the herb cats-foot, a species of gnaphalium.

ÆLURUS, in Egyptian mythology, the god of cats; represented sometimes like a cat, and sometimes like a man with a cat's head. The Egyptians had so superstitious a regard for this animal, that the killing it, whether by accident or design was punished with death; and Diodorus relates, that, in the time of extreme famine, they chose rather to eat one another than touch those sacred animals.

AEM, AM, or AME, a liquid measure used in most parts of Germany: but different in different towns: the aem commonly contains twenty vertils, or eighty masses: that of Heidelbergh is equal to forty-eight masses; and that of Wirtemberg to 160 masses. See AAM.

ÆMILIANUS, ÆMILIUS, or C. JULIUS, an obscure native of Mauritania, who by his valour and prudent conduct, raised himself to become successively first consul and emperor of Rome. He succeeded Decius, and marched against Gallus and Valerian, who were murdered by their own troops, a fate which he also shortly suffered.

ÆMILIANUS. See SCIPIO.

ÆMILIUS, (Paulus,) the son of Lucius Æmilius, who was killed at the battle of Cannæ, was twice consul. In his first consulate, he triumphed over the Ligurians; and in the second, subdued Perseus king of Macedonia, and reduced that country to a Roman province, on which he obtained the surname of Macedonicus. He returned to Rome, loaded with glory, and triumphed for three days. He died 168 years before Christ.

ÆMILIUS, (Paulus,) a celebrated historian, born at Verona, who obtained such reputation in Italy, that he was invited into France by the cardinal of Bourbon, in the reign of Louis XII. to write the history of the kings of France in Latin, and was given a canonry in the cathedral of Paris. He was near forty years in writing that history, which has been greatly admired; and died at Paris in 1529.

ÆMOBOLIUM, in antiquity, the blood of a bull or ram offered in the sacrifices, called *taurobolia* and *cribolia;* in which sense the word occurs, in ancient inscriptions. Some read it *Ægobolium*, which see.

ÆNARIA, in ancient geography, an island in the bay of Cumæ, Italy. It was also called *Inarime*, and now *Ischia*; and is twenty miles in compass. It is one of the Oenotrides, and fenced round by very high rocks, so as to be inaccessible but on one side: it was formerly famous for its earthenware. See ISCHIA.

ÆNEAS, in fabulous history, a famous Trojan prince, the son of Anchises and Venus. At the destruction of Troy, he bore his aged father on his back, and saved him from the Greeks; but being too solicitous about his son and household gods, lost his wife Creusa in the escape. Landing in Africa, he was kindly received by queen Dido, to whom he made a very ungrateful return. Quitting her coast, he arrived in Italy, where he married Lavinia, the daughter of king Latinus, and defeated Turnus, to whom she had been contracted. After the death of his father-in-law, he was made king of the Latins, over whom he reigned three years: but joining with the Aborigines, he was slain in a battle against the Tuscans. See ÆNEID.

ÆNEAS SYLVIUS. See PIUS II.

ÆNEATORES, in antiquity, the musicians in an army; including those who played trumpets, horns, *litui*, *buccinæ*, &c. The word is formed from *æneas*, on account of the brazen instruments used by them.

ÆNEID, the name of Virgil's celebrated epic poem. The subject, the establishment of *Æneas* in Italy, is extremely happy. Nothing could be more interesting to the Romans, than to look

back to their origin from so famous a hero. While the object itself was splendid, the traditionary history of this country opened interesting fields to the poet; and he could glance at all the recent and really great exploits of the Romans, in its ancient and fabulous state. The unity of action is perfectly preserved in the *Æneid*. The settlement of *Æneas*, by the order of the gods, is constantly kept in view; and the episodes are linked properly with the main subject. The nodus, or intrigue of the poem, is also happily managed. The wrath of Juno, who opposes *Æneas*, gives rise to all his difficulties, and connects the human with the celestial operations, throughout the whole poem. One great imperfection, however, is, that there are no strongly marked characters in the *Æneid*. Achates, Cloanthes, Gyas, and other Trojan heroes who accompanied *Æneas* into Italy, are insipid. Even *Æneas* himself is without interest. The character of Dido is the best supported in the whole *Æneid*. The principal excellency of the Æneid of Virgil is tenderness. His soul was full of sensibility. He must have felt himself all the affecting circumstances in the scenes he describes; and he knew how to touch the heart by a single stroke. In an epic poem this merit is next to sublimity. The second book of the *Æneid* is one of the greatest master-pieces that ever was executed. The death of old Priam, and the family-pieces of *Æneas*, Anchises, and Creusa, are as tender as can be conceived. In the fourth book, the unhappy passion and death of Dido are admirable. The episodes of Pallas and Evander, of Nisus and Euryalus, of Lausus and Mezentius, are superlatively fine. In his battles, Virgil is inferior to Homer. But, in the important episode, the descent into hell, he has surpassed Homer by many degrees. There is nothing in antiquity, that equals the sixth book of the *Æneid*.

ÆNGINA, one of the islands of the Archipelago. See ÆGINA.

ÆNIGMA, *αἴνιγμα*, a riddle. An obscure and difficult question.

> The dark *enigma* will allow
> A meaning; which, if well I understand,
> From sacrilege will free the god's command.
> *Dryden.*

A custom was amongst the ancients of proposing an *enigma* at festivals, and adjudging a reward to him that solved it. *Pope.*

ÆNIGMA. See ENIGMA.

ÆNIGMA, Αἴνιγμα, formed of *αἰνιττεσθαι, obscure innuere*, to hint a thing darkly, and of *αἶνος*, an obscure speech, denotes any dark saying, wherein something is concealed under obscure language. The popular name is riddle; from the Belgic *raeden*, or the Saxon *araethan*, to interpret. Fa. Bouhours, in the memoirs of Trevoux, defines an ænigma: A discourse, or painting, including some hidden meaning, which is proposed to be guessed.

ÆNIGMAS, VERBAL, are witty, artful and abstruse descriptions of any thing. In a general sense, every dark saying, every parable, may pass for an ænigma. Hence, obscure laws are called *Ænigmata Juris*; and, the alchemists are great dealers in ænigmatic language, their processes for the philosopher's stone being generally wrapt up in riddles: e. g. *Fac ex mare et fœmina circulum, inde quadrangulum, hinc triangulum, fac circulum, et habebis lapidem philosophorum.* F. Menestrier has attempted to reduce the composition and resolution of ænigmas to a kind of art, with fixed rules and principles, which he calls the philosophy of ænigmatic images. Puerile as, in modern times, the exercise of resolving ænigmas may appear, it is certain that the practice of their proposition and explanation has existed in the most remote, and the most learned ages of the world. The greater part of the Egyptian learning is said to have been comprised in ænigmas; and that of the sphinx, and the supposed discovery of its celebrated riddle by Œdipus, appears to be testified by the numerous Egyptian statues of that fabulous monster. The story is this:—a certain monster, having the head and breasts of a woman, the wings of a bird, the claws of a lion, and the body of a dog, had long ravaged the country about Thebes, and could not be destroyed until this riddle was solved: *What animal is that which walks on four legs in the morning, at noon on two, and at night on three?* The answer of Œdipus was, it is a man: when the monster, in despair, dashed out his brains against a rock. Sphinxes themselves, indeed, were ænigmatical of the rising of the Nile; the head of a woman, and the body of a lion, indicating the overflow of that river, when the sun passed through the signs of Virgo and Leo in August; Gale thinks, the Jews borrowed their ænigmatical forms of speech, (see Numbers xii. 8. Judges xiv. 12.) from the Egyptians. The New Testament says, "Now (in this state) we see through a mirror *εν αινιγματι*, in an *ænigmatical* manner. but then (in an eternal state) face to face." 1 Cor. xiii. 12.

Some ænigmas of antiquity have furnished considerable employment to critics. We subjoin:—

1. The celebrated sybilline ænigma:

Εννέα γράμματ' ἔχω, τετρασύλλαβός εἰμι, νόειμε.
Αἱ τρεῖς αἱ πρῶται δυὸ γράμμάτ' ἔχουσιν ἑκάστη,
Ἡ λοιπὴ δὲ τὰ λοιπὰ, και εἰσὶν ἄφωνα τά πέντε.
Τᾳ παντὸς δ' ἀριθμᾳ ἑκατοντάδες εἰσὶ δὶς ἑπτα,
Καὶ τρεῖς τρὶς δεκάδες καὶ δὶς τρίαι. Γνωθι δὲ τίς εἰμι,
Οὐκ ἀμύντος ἔσῃ τῆς παῤ ἐμᾳ σοφίης.

Thus translated by M. Leibnitz.

> Literulis noscor quadrisyllabus ipse novenis:
> Syllaba habet binas, nisi quod tenet ultima ternas.
> Vocales quatuor, quinis non propria vox est.
> Bis septem vicibus numerum centuria totum
> Ingreditur, decadesque novem, tum bis tria. Si me
> Noveris, hinc aditus ad sacra nostra patent.

A mystical solution has been given of this ænigma. Moret will have it signify the name Jehovah, which, according to him, comprehends the number 1696, abating one, the number contained in the ænigma. Brentius maintains, that the whole sum amounts to 1711, and that it represents the word *φοσφορος*. The generality understand it of the word arsenic, or ΑΡΣΕΝΙΚΟΝ.

2. An ingenious ænigma on the operation of cupping, by a machine of brass:

Ανδρ' εἶδον πυρι χαλκὸν επ' ἀνέρι κολλησαντα;

" I saw a man, who, unprovok'd with ire,
Stuck brass upon another's back by fire."
Arist. Rhetor. l. iii. c. 2. t. 2. p. 586. ed. Duval.

3. The celebrated Spanish ænigma from the Bologna marble, preserved in the Voltaian family, is perhaps, the most famous specimen of this kind of learning:

D. M.
ÆLIA LÆLIA CRISPIS.
Nec vir, nec mulier, nec androgyna.
Nec puella, nec juvenis, nec anus.
Nec casta, nec meretrix, nec pudica.
SED OMNIA.
Sublata.
Neque fame, neque ferro, neque veneno.
SED OMNIBUS.
Nec cœlo, nec aquis, nec terris.
SED UBIQUE JACET.
Nec maritus, nec amator, nec necessarius,
Neque mærens, neque gaudens, neque flens,
Hanc,
Nec molem, nec pyramidem, nec sepulchrum.
SED OMNIA.
Scit, et nescit cui posuerit;
LUCIUS AGATHO PRISCIUS.

That is to say, " To the gods' manes. Ælia Lælia Crispis, neither man, nor woman, nor hermaphrodite; neither girl, nor young woman, nor old; neither chaste, nor polluted, nor a modest woman; but all these: killed neither by hunger, nor steel, nor poison; but by all these: rests neither in heaven, nor on the earth, nor in the waters; but every where. Lucius Agatho Priscius, neither her husband, nor lover nor friend; nor sorrowful, nor joyful, nor weeping; certain, and uncertain, to whom he rears this monument, neither erects her a temple, nor a pyramid, nor a tomb, but all these." In the MS. at Milan, instead of *D. M.* we find *A. M. P. P. D.* and at the end the following addition:

" Hoc est sepulchrum intus cadaver non habens,
Hoc est cadaver sepulchrum extra non habens,
Sed cadaver idem est et sepulchrum."

Which signifies, " This is the grave that has no corpse within: This is the corpse that has no grave without; but the corpse and the grave are the same."

We find near fifty several solutions of this ænigma advanced by learned men. Marius Michael Angelus maintains, Ælia Lælia Crispis, to signify rain water falling into the sea. Ri. Vitus first explained it of Niobe turned to a stone, afterwards of the rational soul, and afterwards of the Platonic idea; Jo. Turrius, of the *materia prima;* Fr. Schottus, of an eunuch, &c. &c. &c.

4. We cannot omit, lastly, this elegant little ænigmatic epitaph:

ON FAIR ROSAMOND.
Hic jacet Rosa munda, non Rosa mundi,
Non redolet, sed olet, quæ redolere solet.

ÆNIGMATICAL, something that relates to, or partakes of, the nature of ænigma. The philosophy of the Druids was altogether ænigmatical. The ancient sages in general, affected an ænigmatical way of writing, to conceal their doctrines from the populace. The Romans in Nero's time, were obliged to have recourse to the like method, though for different reasons. We read of an ænigmatical medal presented by the Huguenots to Henry III. Schott has published an explication of an ænigmatical coin of the emperor Augustus, concerning which antiquaries have been long divided.

ÆNIGMATOGRAPHER, or ÆNIGMATIST, a maker or explainer of ænigmas. Hardouin, Vander Hardt, &c. are great ænigmatists.

ÆNIGMATOGRAPHY, or ÆNIGMATOLOGY, from *Αινιγμα*, and *γραφω*, to describe, or *λογος*, speech, the art of resolving or making Ænigmas.

ÆNII, the inhabitants of *Ænos*.

ÆNITHOLOGIUS, in poetry, a kind of verse, consisting of two dactyls, and three trochæi; Such as,

Prælia dira placent truci juventæ,

ÆNOBARBUS, in ancient history, the agnomen or surname of Domitius, who was so called from his beard, which, according to tradition, was changed by Castor and Pollux, from brown to red, because he did not believe them, when they revealed to him a victory that was obtained.

ÆNONA, in ancient geography, a city of Liburnia, called by Pliny *Civitas Prasini*, the reason of which is unknown,; also *Enona*, and now *Nona;* on the Adriatic, by which it is for the greater part surrounded, over against the island Gissa, from which it is distant four miles to the west.

ÆNOS, ÆNUM, or ÆNUS, in ancient geography, a town of Thrace, situated on the east mouth of the Hebrus, and said to be built by the Cumeans. It was a free town, in which stood the tomb of Polydorus. Here the brother of Cato Uticensis died, and was honoured with a monument of marble, in the forum of the *Enii*. Livy says, that the town was otherwise called *Absynthus*. It is now called *Eno*.

ÆNUS, in ancient geography, now the *Inn*, a river of Germany, which rising in the country of the Grisons, out of the Rhœtian Alps, runs through the Grisons, the Tyrol, the duchy of Bavaria, and through Passau, into the Danube.

ÆOLIA. See ÆOLIS.

ÆOLIÆ INSULÆ, now *Isole di Lipari*, in ancient geography, seven islands, situated between Sicily and Italy, so called from Æolus, who reigned there about the time of the Trojan war. The Greeks call them *Hephæstiades;* and the Romans *Vulcaniæ*, from their fiery eruptions. They are also called *Liparæorum Insulæ*, from their principal island Lipara.

ÆOLIAN, or ÆOLIC, in grammar, one of the five dialects of the Greek tongue. It was first used in Bœotia; whence it passed into Æolia, and was that in which Sappho and Alcæus wrote. The Æolic dialect generally throws out the aspirate or sharp spirit, and agrees in so many things with the Doric, that the two are usually confounded together.

ÆOLIAN HARP. In our article ACOUSTICS, we have mentioned an instrument of this kind, the invention of which has been generally attributed to Kircher. But the fact is, that it was known and used at a much earlier date, as Mr. Richardson has proved, (*Dissertation on the Manners and Customs of the East;*) in various eastern countries. There is a Rabbinical

(*Berach* vi.) of the ærial harmony of the harp of David; which when hung up at night, was played upon by the north wind. Kircher wrote a book describing his instrument, entitled Magia Phonotactica et Phonurgia.

In England, where it was introduced about the middle of the last century, it is generally a simple box of thin fibrous wood (often of deal,) to which are attached a certain number of fine catgut strings, sometimes to the number of fifteen, of equal size and length, and consequently unisons, stretched on low bridges at each end. Its length is made to correspond with the size of the window or aperture in which it is intended to be placed; its width is about five or six inches, and its depth two or three. The sash must be raised to admit it with the strings uppermost, under which is a circular opening in the centre, as in the belly of the guitar. When the wind blows athwart the strings, it produces the effect of a choir of music in the air, sweetly mingling all the harmonic notes, and swelling or diminishing its sounds according to the strength or weakness of the blast.

A Mr. Crossthwaite has suggested a more simple instrument, having no sounding board; but being in fact nothing but a number of strings introduced between two deal boards. From this he produced, he states, most delicious harmony.

Various improvements of the instrument have been suggested, but it is not in the whole suitable to the changeable and humid climate of England; and, its theory appears, as hitherto to have been but very imperfectly understood. Robert Bloomfield, the author of the Farmer's Boy, is said to have been a successful manufacturer of this instrument, and published a collection of extracts and observations respecting it. He tried to cover the strings with silver wire, which appeared to deaden the sounds; while a covering of oil wholly stopped them. Silk strings he says will give a most delicate note, but are with difficulty made to endure sufficient tension; and advises that the instrument be so placed as to catch the wind rather in a vertical than a horizontal direction.

Mr. Young in his Enquiry into the Principal Phenomena of Sound and Musical Strings, (London, 1784, 8vo.) has furnished some ingenious observations on the order of the notes produced by the Æolian harp. To ascertain this, he took off all the strings but one; and, placing it in a proper situation, was surprised to hear a great variety of notes, and frequently such as were not produced by any aliquot part of the string. Sometimes there was a chord of two or three notes from this single string. Perplexed by these complex and extraordinary phenomena, he almost despaired of being able to account for them on the principle of aliquot parts. On farther examination, however, he found that they all flowed naturally and easily from this principle. He observed that a current of air rushing against the middle of a stretched elastic string, moved the whole of it from its rectilinear position; and that the string, by its elasticity, returned to its former position, vibrating and exciting pulses in the air, so as to produce the tone of the entire string; that if the current of air be too strong and rapid, when the string is bent, it will retain its curvature. But though the whole string cannot perform its vibrations in this case, the subordinate aliquot parts may; and these will be of different lengths according to the rapidity of the blast. Thus, when the velocity of the current increases so as to prevent the vibration of the whole string, those particles which strike against the middle points of the halves of the string agitate those halves, as in the case of sympathetic and secondary tones: and as these halves vibrate in half the time of the whole string, though the blast may be too rapid to admit of the vibration of the whole, yet it can have no more effect in preventing the motion of the halves than it would have on the whole string if its tension were quadruple: for the times of vibration in strings of different lengths, and agreeing in other circumstances, are directly as the lengths; and in strings differing in tension, and agreeing in other circumstances, inversely, as the square roots of the tensions: and, therefore, their vibrations may become strong enough to excite such pulses as will affect the drum of the ear: and the same may be said of other aliquot divisions of the string. Those particles which strike against such points of the string as are not in the middle of aliquot parts, will interrupt and counteract each other's vibrations, as in the case of sympathetic and secondary tones, and therefore will not produce a sensible effect. See the work above mentioned.

ÆOLIC DIGAMMA, is a name given to the letter F, which the Æolians used to prefix to words beginning with vowels, as Fοινος for οινος; or to insert between vowels, as οFις for οις.

ÆOLIC VERSE, in prosody, a verse consisting of an iambus, or spondee; then of two anapests, separated by a long syllable; and, lastly, of another syllable, either long or short, such as, *O stelliferi conditor orbis.* This is otherwise called *æologic* verse; and from the chief poets who used it *Archilochian* and *Pindaric.*

ÆOLII, or ÆOLES, the inhabitants of Æolis.

ÆOLIPILA, or ÆOLIPILE, Lat. the ball of Æolus, in hydraulics, a hollow ball of metal formerly used in courses of experimental philosophy, to demonstrate the possibility of converting water into an elastic steam or vapour by heat. The instrument consists of a slender neck, or pipe, having a narrow orifice inserted into the ball by means of a shouldered screw. The pipe being taken out, the ball was filled almost full of water, and the pipe being again screwed in, the whole was placed on a pan of kindled charcoal, where it was well heated, and there issued from the orifice a vapour, with prodigious violence and great noise, which continued till all the included water was discharged. The stronger the fire, the more elastic and violent will be the steam; but care must be taken that the small orifice of the pipe be not, by any accident, stopped up: because the instrument would in that case infallibly break in pieces, with such violence as would greatly endanger the lives of the persons near

it. Another way of introducing the water was to heat the ball red-hot when empty, which will drive out almost all the air; and then by suddenly immerging it in water, the pressure of the atmosphere forces in the fluid till it is nearly full. Des Cartes and others have used this instrument to account for the natural cause and generation of the wind. Chauvin suggests some farther uses of the *Æolipile*.—He thinks it might be applied, instead of a bellows, to blow the fire, where a very intense heat is required. Dr. Lewis on the contrary condemns this use of the *Æolipile*, and says, that upon trial he always found that instead of exciting, it extinguished the fire. But it might serve to scent or fumigate a room, if filled with perfumed, instead of common water, and an *Æolipile* has been sometimes placed in a chimney, where it can be heated, that the vapour may serve to drive the smoke up the chimney. Dr. Plott says, the lord of the manor of Essington is bound by his tenure to drive a goose every New-year's day three times round the hall of the lord of Hilton, while Jack of Hilton (a brazen figure having the structure of an *Æolipile*) blows the fire! In Italy it is said, that the *Æolipile* is commonly made use of to cure smokey chimnies. Some authors have discovered a still more extraordinary use, to which the frauds of the heathen priesthood applied the *Æolipile*, viz. the working of sham miracles. Besides Jack of Hilton, which had been an ancient Saxon idol, Mr. Weber shews, that *Pluster*, a celebrated German idol, is also of the *Æolipile* kind; and in virtue thereof, could do noble feats; being filled with a fluid, and thus set on the fire, it would be covered with sweat; and as the heat increased, would at length burst out into flames. There can be no doubt that much concealed knowledge of natural philosophy was artfully used in ancient times, to palm the miracles of different priesthoods on the world.

ÆOLIS, or ÆOLIA, in ancient geography, a country of Asia, settled by colonies of Æolian Greeks. At large it comprehended all Troas, and the coast of the Hellespont to the Propontis, because in those parts there are several Æolian colonies: more strictly, it was situated between Troas to the north, and Ionia to the south.

ÆOLIUM MARE, in ancient geography, the Æolian Sea, a part of the Egean Sea, washing Æolis; called also *Mysium*, from Mysia; now called *Golfo di Smyrna*.

ÆOLOPYLÆ, from Αιολε πυλαι, the gates of Æolus, the same with ÆOLIPILA, which see.

ÆOLUS, in heathen mythology, the god of the winds, was said to be the son of Jupiter by Acasta, or Sigesia, the daughter of Hippotus: or, according to others, the son of Hippotus by Meneclea, daughter of Hyllus king of Lipara. He dwelt in the island Strongyle, now called *Strombolo*, one of the seven islands called *Æolian* from their being under the dominion of Æolus. Others say, that his residence was at Regium, in Italy; and others again place him in the island Lipara. He is represented as having authority over the winds, which he held enchained in a vast cavern, to prevent their continuing the devastations they had been guilty of before they were put under his direction. Mythologists explain the original of these fables, by saying, that he was a wise and good prince; and, being skilled in astronomy, was able, by the flux and reflux of the tides, and the nature of the volcano in the island Strongyle, to foretel storms and tempests.

ÆOLUS, in mechanics is also a name given to various mechanical contrivances for refreshing and changing the air in rooms.

ÆON, ΑΙΩΝ, Gr. age; the duration of any thing.

The term *αιων*, originally signified an age, the life or duration of any person or thing. "Possessing an immutable being," says Aristotle, speaking of the gods, "free from external impressions, happy and self-sufficient, they exist throughout all *αιωνια*, eternity." "This word," he adds, "has been divinely spoken by the ancients: for the consummation containing the time of every life is called *its age*, (its period of duration.) For the same reason, the consummation of the whole heaven, and the consummation containing the unlimited duration, and the immensity of all things is *eternity*, deriving its name from *always being*—immortal and divine." Lib. i. *Cæl.* c. 10.

The term was, by a natural metonymy, transferred at later periods to the beings spoken of themselves: and the early heretics, as we have seen, transferred these heathen fables into the Christian system. See *Mosheim*, vol. i.

ÆON, among the followers of Plato, was used to signify any virtue, attribute, or perfection; hence they represented the deity as an assemblage of all possible æons; and called him *Pleroma*, a Greek term signifying fulness. The Valentinians, who, in the first ages of the church, blended the conceits of the Jewish cabalists, the Platonists, and the Chaldean philosophers, with the simplicity of the Christian doctrine, invented a kind of Theogony, or Genealogy of Gods, (not unlike that of Hesiod,) whom they called by several glorious names, and all by the general appellation of ÆONS: among whom they reckoned Εννοια, *Thought*, Σιγη, *Silence*, Χαρις, *Grace*, Νους, *Understanding*, Αληθια, *Truth*, Σωφια, *Wisdom*, Ζωη, *Life*, Λογος, *Word*, Μονογενης, *Only-begotten*, Πληρωμα, *Fulness*, and many other divine powers and emanations, amounting in number to thirty: which they fancied to be successively derived from one another; and all from one self-originated deity, named *Bythus*, i. e. *profound* or *unfathomable*; whom they called likewise *The most high and ineffable Father*. See VALENTINIANS.

ÆON, in anatomy, the spinal marrow.

ÆON, in the Phœnician theology, was the first created woman.

ÆORA, in ancient medical writings, is used for a species of exercise often prescribed by physicians, wherein the limbs were at rest, while the body was moved from place to place, in such a manner as the physician prescribed. Sometimes the patient was laid in a sort of hammock, supported by ropes, and moved backward and forward; sometimes his bed run nimbly on its feet. And besides these, the several ways of travelling were accounted species of the æora, whether in the litter, in a boat or ship, or on even ground

in a chariot. Asclepiades was the first who brought this mode of exercise into practice, and used it as a means to recover strength after a fever, &c.

ÆQUA, or ÆQUANA, in ancient geography, a town of Naples, which, being destroyed, was rebuilt, and called *Vicus*, now *Vicho di Sorrento*.

ÆQUALIS POLYGAMIA, in botany, the first order in the class *syngenesia*, of Linnæus, containing such compound flowers as have all their florets hermaphrodite and alike. The following are the genera it includes :—

Scolymus, Golden Thistle,
Cichorium, Succory,
Catananche,
Seriola,
Hypochæris, Cat's-ear,
Geropogon, Old Man's beard
Rothia,
Andryala,
Triptilion,
Tragopodon, Goat's beard,
Helmintia,
Picris, Ox-tongue,
Apargia,
Scorzonera, Viper's-grass,
Leontodon, Dandelion.
Crepis, Hawk's beard,
Chondrilla, Gum Succory
Prenathes,
Lactuca, Lettuce
Heracium, Hawk's-weed
Sonchus, Sow-thistle,
Lacintha,
Lapsana, Nipple-wort,
Rhagadiolus,
Krigia,
Hyoseris, Swine's Succory
Hedypnois, Hawkbit
Thrincia,
Tolpis,
Atractylis,
Acarna,
Serratula, Saw-wort,
Carthamus, Bastard Saffron
Carlina, Carline Thistle
Aretium, Burdock
Pteronia,
Stobæa,
Lachnospermum,
Barnadesia,
Cynara, Artichoke,
Johannia,
Cnicus,
Carduus, Thistle,
Onoseris,
Stokesia,
Leatris,
Vernonia,
Onopordon, Cotton Thistle,
Stehælina,
Haynea,
Calea, Halbert-weed
Bidens, Bur Marygold,
Spilanthes,
Athanasia,
Santolina, Lavender-cotton,
Cæsulia,
Tarchonanthus, African,
Flea-bane,
Kuhnia,
Eupatorium, Hemp,
Agrimony
Chrysocoma, Goldilocks
Mikania,
Kleinia,
Cacalia,
Lavenia,
Ageratum,
Stevia,
Hymenopappus,
Cephalophora,
Pentzia,
Ethulia,
Piqueria,
Balsamita.

ÆQUANA JUGA, in ancient geography, mountains of Picenum, in the kingdom of Naples, now called *Montagna di Sorrrento*.

ÆQUI, in ancient geography, a people of Italy who dwelt between the Sabines and Latins, having a capital called Bola.

ÆQUIMILII AREA, or ÆQUIMELIUM, in antiquity, a place in Rome, where stood the house of Spurius Melius, who, by largesses corrupting the people, affected the supreme power, refusing to appear before the dictator Cincinnatus, he was slain by Servilius Ahala, master of the horse, and his house razed to the ground.

ÆRA, supposed to be derived from *Annus erat Augusti*. The point of time at which Spain was conquered by the Romans, adopted as the period for computing the annals of the Spaniards

> From the blessings they bestow,
> Our times are dated, and our *eras* move :
> They govern and enlighten all below,
> As thou do'st all above. *Pope.*

ÆRA, or ERA, a fixed point of time from whence any number of years is begun to be counted. The origin of the term is contested, though it is generally allowed to have had its rise in Spain. Sepulveda supposes it formed from A. ER. A. the notæ or abbreviatures of the words, *annus erat Augusti*, occasioned by the Spaniards beginning their computation from the time their country came under the dominion of Augustus, or that of receiving the Roman calendar. This opinion, however ingenious, is rejected by Scaliger, because in the ancient abbreviatures *A* never stood for *annus*, unless when preceded by *V* for *virit;* and it seems improbable they should put ER for *erat*, and the letter A, without any discrimination, both for *annus* and *Augustus*. Vossius nevertheless favours the conjecture. From the plural *æra*, came by corruption *æra*, *æram*, in the singular; as *Ostia*, *Ostiam*, the name of a place, from *Ostia*, the mouths of the Tyber. The difference between the terms *æra* and *epoch* is, that the æras are certain points fixed by some people, or nation; and the epochs are points fixed by chronologists and historians. An æra comprehends also a certain succession of years proceeding from a fixed point of time, and the epoch is that point itself. Thus the Christian æra began at the epoch of the birth of Jesus Christ. See CHRONOLOGY.

ÆRA, in botany, cockle or darnel.

ÆRA, the Christian. It is generally allowed by chronologers, that the computation of time from the birth of Christ was not introduced till the sixth century, in the reign of Justinian, and is commonly ascribed to Dionysius Exiguus. This computation then came in use in deeds, &c. before which time either the Olympiads, the year of Rome, or that of the reign of the emperors, were used.

ÆRA, the Spanish, was introduced after the second division of the Roman provinces, between Augustus, Anthony, and Lepidus, in the year of Rome 714, the 4676th year of the Julian period, and the 38th year before Christ. We find frequent mention of it in the Spanish affairs; their councils, and other public acts, being all dated according to it. Some say it was abolished under Peter IV. king of Arragon, in the year of Christ 1358, and the Christian æra substituted in its place. Mariana observes, that it ceased in the year of Christ 1383, under John I. king of Castile. The like was afterwards done in Portugal. If to the year of the Spanish æra we add the number 4675, the sum is the Julian year; or if from the same year we subtract 38, the remainder is the year of the Christain æra.

ÆRARIUM, in history, the public treasury of the Roman state. The temple of Saturn at Rome being the great treasury of the state, was first called ærarium; from *æs, æris*, copper; that being the only money in use before A. U. 485, when silver began to be coined. It was first erected under Augustus, and maintained by a yearly voluntary contribution; but that proving insufficient, the twentieth part of all legacies and inheritances, except such as fell to the next of kin, or to the poor, were consigned to this treasury. For the custody thereof, three of the emperor's life-guards were constituted *præfecti ærarii*. Ærarium differs from *fiscus*, as the first contained the public money, the second that of the prince; yet the two are sometimes used indiscriminately.

ÆRARIUM ILTHIÆ, or of Juno Lucina, was erected by Servius Tullius, and composed of money paid by parents, for the birth of each child.

ÆRARIUM PRIVATUM, or the privy purse, contained the money and effects which the prince was master of before his accession to the empire. This was under the care of the *Comes rerum privatarum*.

ÆRARIUM SANCTIUS, was an appendage to the public treasury, added on occasion of the growth of the Roman state, when there was not room enough for lodging all the public monies, and the public acts, which were deposited with it. It was called *sanctius*, i. e. more sacred, because placed in an inner and safer part of the temple.

ÆRARIUM VENERIS, JUVENTUTIS, LIBITINÆ, and other lesser treasuries *æraria minora*, were established in the provinces.

ÆRARIUM VICESIMARUM, the place where the money arising from the taxes levied from foreign countries was laid up, so called because it most commonly consisted of a twentieth part of the produce.

ÆRARIUS, in antiquity, 1. An officer instituted by Alexander Severus, for the distribution of the money given in largesses to the soldiery, or people. 2. A person whose name was struck out by the censors from the *album*, or list of his century, and was only considered as a citizen, so far as to make him subject to pay *æra* taxes, without being entitled to any privileges, or advantages from the commonwealth. Hence the phrases, *ærarium facere, inter ærarios referre, ærariis eximere*, &c.—Not only plebeians, but knights and senators, were subject to this kind of degradation. The ærarii were incapable of making a will, of inheriting, of voting in assemblies, of enjoying any post of honour or profit: in effect, were only subject to the burdens, without the benefits of society; yet they retained their freedom, and were not reduced to the condition of slaves. To be made an ærarius was a punishment reputed one degree more severe than to be expelled a tribe, *tribo moveri*. 3. Ærarius was likewise used for a person employed in coining, or working brass. These were sometimes called *ærarii fusores*: at other times, ærarius was distingnished from *fuser;* the former answering to what we now call copper-smiths, the latter to founders; a word derived from *fundere*, to cast metals. 4. The word was also applied to a soldier, who received pay.

ÆRATA AQUA, ziment water.

ÆREOLUS, answering to the Greek χαλκος. was a weight according to Diodorus and Suidas equal to one-sixth, or according to others, one-eighth of the obolus, which was $9\frac{3}{28}$ grains.

AERIA, or EERIA, in ancient geography, Thessaly, Egypt, or Ethiopia. The scholiast on Apollonius Rhodius, says, that not only Thessaly, but Egypt was called Αερια by the Greeks, which Eusebius confirms: and hence Appollinarius, in his translation of the 114th psalm, uses it for Egypt. Hesychius applies this name to Ethiopia.

AERIAL PERSPECTIVE, is that which represents bodies weakened and diminished, in proportion to their distance from the eye. It chiefly respects the colours of objects, whose force and lustre it more or less takes off, to make them appear as if more or less remote. The reason is, that the longer the column of air an object is seen through, the more feebly do the visual rays emitted from it affect the eye.

AERIAL SUBSTANCE. The Essenes, the most refined and rational sect among the Jews, held that the human soul consisted of an ærial substance And the Rosicrucians, and other visionaries, fill the atmosphere with ærial inhabitants.

AERIANS, in church history, a sect of Arians, who to the doctrines of that party, added some peculiar dogmas of their own; and made no difference between bishops and priests. The sect received its denomination from AERIUS, who founded his doctrine upon certain passages in St. Paul: as 1 Tim. iv. 14. where the apostle exhorts him not to neglect "the gift he had received by the laying on of the hands of the Presbytery," &c. Here, observes Aerius, are no mention of bishops: on the contrary, Timothy evidently received his ordination from the presbyters or priests.—Epiphanius zealously maintains the superiority of bishops against the

Aerians. The word *presbytery*, used by the apostle, he observes, includes both bishops and priests; the whole senate or assembly of the ecclesiastics of the place.

ÆRICA, or ERICA, in natural history, a name given by Gaza, and others, to the common herring.

ÆRIRUSA, in mineralogy, the ancient name for the sky-coloured Jasper.

ÆRIS FLOS, among alchemists, small scales procured from copper, melted by a strong heat; it is sometimes used for ærugo or verdigrise.

AERIUS, an Armenian priest of the fourth century, the founder of the sect of AERIANS, which see.

AEROGRAPHY, from *αηρ*, air, and *γραφω*, *I describe*, a description of the air, or atmosphere, its limits, dimensions, properties, &c. It is the same with ærology, unless we suppose the latter to enter into the rational, and the former to confine itself to a description of the more obvious affections thereof. See ATMOSPHERE.

AEROLOGICA, that branch of medicine, called by some *diosotica* or the *non-naturals*, which treats of air, its properties and use in the animal œconomy, and its efficacy in preserving and restoring health.

AEROLOGY, of *αηρ* and *λογος*, the doctrine or science of AIR, is a term under which philosophers have sometimes treated of the nature of that element, its various species, constituent parts, properties, and phænomena; but, on investigation, atmospheric air has been demonstrated to be an exceedingly heterogeneous substance. It cannot therefore, be consistently treated as one integral element of nature; and the more accurate modern writers have, in the investigation of GASES, analyzed all the constituent parts of the atmosphere. To GAS, therefore, we refer for a philosophical exhibition of the different kinds of air: and to AIR, and ATMOSPHERE, for that particular combination of them, which surrounds our globe.

AEROMANCY.

AEROMANCY, *n. s.* *αηρ* and *μαντις* Gr. in antiquity, included the business of *augury* and *auspicia*; the rules of prediction from uncommon winds, storms, showers, and other changes of the atmosphere. Modern authors speak of a more rational *æromancy*, meaning by it, the art of foretelling the changes and variations of the air and weather, by means of a regular series of meteorological observations. But though many have been instituted and recorded with much care; very small progress has hitherto been made in this art. Barometers, thermometers, hygrometers, and anemometers, are of considerable use in this kind of æromancy, under the title of ÆROMANTIA. Mizoldus has published a body of rules for foretelling storms, &c. drawn partly from vulgar observations, and the experience of mariners, partly from astrological considerations.

Some philosophers of eminence have endeavoured to illustrate the observations of seamen, and other persons practically acquainted with the changes of weather. Lord Bacon supplies 'Rules for prognosticating the weather from the appearances of the moon;' and the following table, from the European Magazine, v. IX. has been ascribed to the late Dr. Herschel.

TABLE of the kind of weather which will most probably follow the moon's entrance into her quarters.

NEW OR FULL MOON.	IN SUMMER.	IN WINTER.
If it be new or full moon, or the moon enters into the first or last quarters at the hour of 12..	Very Rainy	Snow and rain.
Or between the hours of		
2 and 4	Changeable	Fair and mild.
4 . . 6	Fair	Fair.
6 . . 8	Fair, if wind N. W. . .	Fair & frosty, if N. or N. E.
	Rainy, if S. or S. W. .	Rainy, if S. or S. W.
8 . . 10	Ditto	Ditto.
10 . . Midnight	Fair	Fair and Frosty.
Midnight . . 2	Ditto	Hard frost, unless Wind S. or S. W.
2 . . 4	Cold, with freq. showers	Snow and stormy.
4 . . 6	Rain	Ditto.
6 . . 8	Wind and rain	Stormy
8 . . 10	Changeable	Cold, Rain if W. Snow if E.
10 . . Noon	Frequent showers	Cold, with high wind.

The rising and setting of the moon, says Mr. Taylor, in his Weather Guide, as well as its superior and inferior passage of the meridian, may serve as a rule for foretelling the times of rain. These situations are called the moon's angles.

The times most exposed to rain are the rising and setting; those most favourable to good

weather, the passage of the meridian. It has been remarked that, during rainy days, bad weather is always a little interrupted about the time when the moon passes the meridian. We must, however, make an exception to this rule as often as the angle of the moon does not coincide with that of the sun. As these observations may be very easily made, by means of astronomical tables, in which the angles of the moon and sun are marked, they are exceedingly well calculated to prove the truth of this system. No one, for instance, will refuse assent to it, when the daily changes correspond with the angles of the moon; and when independently of the effects of the moon's situation, the horizontal effect of the moon at rising and setting is different from that produced by its passage over the meridian.

It rains oftener in the day time than in the night, and oftener in the evening than in the morning.

Linnæus advised his countrymen to observe with care the opening of the buds, and the unfolding of the leaves of trees, as a method of judging the forth-coming weather. The ignorant farmer, says he, tenacious of the ways and customs of his ancestors, fixes his sowing-season generally to a month, and sometimes to a particular day, without considering whether the earth be duly prepared to receive the seed; hence it frequently happens, that the fields do not yield a produce correspondent to his sanguine expectations. The wise economist should therefore fix certain signs by which to judge of the proper time for sowing. We look up to the stars, and, without reason, suppose that the changes on earth will answer to the heavenly bodies: entirely neglecting the things which grow around us. We see trees open their buds, and their leaves expand, whence we conclude that the spring is approaching, and experience supports us in the conclusion; but no one has yet been able to shew what trees Providence intended should be our kalendar, so that we might ascertain on what day the countryman ought to sow his grain. Although it cannot be denied but that the same power, which brings forth the leaves of trees, will also cause the grain to vegetate: nor can any one justly assert that a premature sowing will uniformly accelerate a ripe harvest. No means therefore seem to promise success so much, as the taking of our rule for sowing from the leafing of trees. With this view it must be observed in what order every tree puts forth its leaves, according to its species, the heat of the atmosphere, and the quality of the soil. Afterwards by comparing together the observations of several years, it will not be difficult to determine, from the foliation of trees, (if not certainly, at least probably,) the time when annual plants ought to be sown. It will be necessary likewise to remark what sowings made in different parts of the spring produce the best crops, in order that by comparing these with the leafing of trees, it may appear which is the most proper time for sowing; nor will it be amiss in like manner to note at what times certain plants, especially the most remarkable in every province or country, blow; in order that it may be known whether the year makes a quicker or slower progress.

Pliny has similar observations, Why, says he, does the husbandman look up to the stars, of which he is ignorant, whilst every hedge and tree point out the season by the fall of their leaves? This circumstance will indicate the temperature of the air in every climate, and shew whether the season be early or late. This constitutes an universal rule for the whole world; because trees shed their leaves in every country according to the difference of the seasons. This gives a general signal for sowing; nature declaring that she has then covered the earth against the inclemency of the winter, and enriched it with this manure. *Nat. Hist.* l. xviii. c. 25.

Virgil counsels us on this subject.

Mark well the flowering almonds in the wood;
If od'rous blooms the bearing branches load,
The glebe will answer to the sylvan reign,
Great heats will follow, and large crops of grain.
But if a wood of leaves o'ershade the tree,
Such and so barren will thy harvest be.
In vain the hind shall vex the threshing-floor,
For empty chaff and straw will be thy store.
Dryden. Georgic, i. l. 272.

Mr. Kirwan, an ingenious contributor to the Transactions of the Royal Irish Academy, (vol. v. p. 20, &c.) has endeavoured to discover rules for prognosticating the different seasons in Great Britain and Ireland, from tables of observations alone. On comparing a number of observations taken in England from 1677 to 1789, (a period of 112 years) he found:

1. That when there has been no storm before or after the vernal equinox, the ensuing summer is generally *dry*, at least five times in six

2. That when a storm happens from an easterly point, either on the 19th, 20th, or 21st of May, the succeeding summer is generally *dry* at least four times in five.

9. That when a storm arises on the 25th, 26th, or 27th of March (and not before) in any point, the succeeding summer is generally *dry*, four times in five.

4. If there be a storm at south-west, or west-south-west, on the 19th, 20th, 21st, or 22d of March, the succeeding summer is generally *wet*, five times in six.

In this country winters and springs, if dry, are most commonly cold; if moist, warm:—On the contrary, dry summers and autumns are usually hot, and moist summers cold; so that, if we know the moistness or dryness of a season, we can form a tolerably accurate judgment of its temperature. In this country Mr. Kirwan remarks, that it generally rains less in March than in November, in the proportion at a medium of seven to twelve. It generally rains less in April than October, in the proportion of one to two, nearly at a medium. It generally rains less in May than September; the chances that it does so, are, at least, four to three; but, when it rains plentifully in May (as 1.8 inches or more,) it generally rains but little in September; and when it rains one inch, or less in May, it rains plentifully in September.

From a table kept by Dr. Rutty, in Dublin, for *forty-one years*, this author endeavours to calculate the probabilities of particular seasons being followed by others: and although his rules chiefly relate to Ireland, as there exists but little

difference between that island and Great Britain in the general appearance of the seasons, we subjoin his conclusions.

In forty-one years there were
6 Wet springs, 22 dry, and 13 variable;
20 Wet summers, 16 dry, and 5 variable:
11 Wet autumns, 11 dry, and 19 variable.

A season, according to Mr. Kirwan, is accounted *wet*, when it contains two wet months. In general, the quantity of rain, which falls in dry seasons, is less than five inches, in wet seasons more; *variable* seasons are those, in which there falls between thirty and thirty-six pounds, a pound being equal to ·157639 of an inch.

The order in which the different seasons followed each other was, as in the following table,

A *dry spring* has been followed by a
dry summer 11 times
wet 8
variable 3

A *wet spring* has been followed by a
dry summer 0
wet 5
variable 1

A *variable spring* has been followed by a
dry summer 5
wet 7
variable 1

A *dry summer* has been followed by a
dry autumn 5
wet 5
variable 6

A *wet summer* has been followed by a
dry autumn 5
wet 3
variable 12

A *variable summer* has been followed by a
dry autumn 1
wet 3
variable 1

Hence Mr. Kirwan deduced the probability of the kind of seasons that would succeed others, to be as follows.

In the beginning of any year.

I. The probability of a *dry spring* is 22-41
of a wet 6-41
of a variable 13-41

II. The probability of a *dry summer* is 16-41
of a wet 20-41
of a variable 5-41

III. The probability of a *dry autumn* is 11-41
of a wet 11-41
of a variable 19-41

IV. After a *dry spring*, the probability of a
dry summer is 1-22
wet 8-22
variable 3-22

V. After a *wet spring*, the probability of a
dry summer is 0
wet 5-6
variable 1-6

VI. After a *variable spring*, the probability of
dry summer is 5-13
wet 7-13
variable 1-13

VII. After a *dry summer*, the probability of a
dry autumn is 5-16
wet 5-26
variable 6-16

VIII. After a *wet summer*, the probability of a
dry autumn is 5-20
wet 3-20
variable 12-20

IX. After a *variable summer*, the probability of a
dry autumn is 1-5
wet 3-5
variable 1-5

But the probability of the autumnal weather will be attained much more perfectly, by taking in the consideration of the preceding spring also; in order to which Mr. Kirwan observes that

A *dry spring* and *dry summer* were followed by a
dry autumn 3 times
wet 4
variable 4

A *dry spring* and *wet summer* were followed by a
dry autumn 2
wet 0
variable 6

A *wet spring* and *dry summer* were followed by a
dry autumn 0
wet 0
variable 0

A *wet spring* and *wet summer* were followed by a
dry autumn 2
wet 1
variable 1

A *wet spring* and *variable summer* were followed by a
dry autumn 1
wet 0
variable 0

A *dry spring* and *variable summer* were followed by a
dry autumn 0
wet 2
variable 1

A *variable spring* and *dry summer* were followed by a
dry autumn 2
wet 0
variable 1

A *variable spring* and *dry summer* were followed by a
dry autumn 2
wet 0
variable 2

A *variable spring* and *wet summer* were followed by a
dry autumn 1
wet 1
variable 5

A *variable spring* and *variable summer* were followed by a
dry autumn 0
wet 1
variable 0

X. Hence after a *dry spring* and *dry summer*, the probability of a
dry autumn 3-11
wet 4-11
variable 4-11

XI. After a *dry spring* and *wet summer*, the probability of a

dry autumn is	2-8
wet	0-11
variable	6-8

XII. After a *dry spring* and *variable summer*, the probability of a

dry autumn is	0-0
wet	2-3
variable	1-2

XIII. After a *wet spring* and *dry summer*, the probability of a

dry autumn is	0-41
wet	0-41
variable	0-41

XIV. After a *wet spring* and *wet summer*, the probability of a

dry autumn is	2-5
wet	1-5
variable	2-5

XV. After a *wet spring* and *variable summer*, the probability of a

dry autumn is	1-41
wet	0-41
variable	0-41

XVI. After a *variable spring* and *dry summer*, the probability of a

dry autumn is	2-4
wet	0-41
variable	2-4

XVII. After a *variable spring* and *wet summer*, the probability of a

dry autumn is	1-7
wet	1-7
variable	5-7

XVIII. After a *variable spring* and *variable summer*, the probability of a

dry autumn is	0-41
wet	0-41
variable	0-4

After all, some of our readers may think this subject hardly worth pursuing to such an extent; but, we were not willing to omit so considerable a list of practical observations on facts, occasionally interesting to all men. See BAROMETER, CLOUDS, METEOROLOGY, and WEATHER.

ÆROMELI, in natural history, a name given to honey, and also to manna. See DROSOMELI.

ÆROMETRY, comprehends not only the doctrine of the air itself, considered as a fluid body; but also its pressure, elasticity, rarefaction, and condensation. But the term is at present not much in use, this branch of natural philosophy being more frequently called PNEUMATICS, which see. C. Wolfius, professor of mathematics at Halle, having reduced many of the affections of this fluid to geometrical demonstration, first published Elements of Ærometry, at Leipsic, in 1709, in High Dutch, and afterwards, more largely in Latin.—Thus is the doctrine of the air incorporated into the mathematical sciences.

ÆRONAUT, a person who mounts in, and guides an air balloon. See ÆROSTATION and AIR BALLOON.

AERONAUTICS.

I. AERONAUTICS, or ÆRONAUTICA, of *αηρ*, and *ναυτικη*, from *ναυς*, a ship, the art of sailing in, or navigating the air. This term has superseded that of ærostation in scientific treatises, as more correctly expressing the art of guiding ærostatic machines; ærostation more perfectly denoting the weighing of air, or of bodies suspended therein. Our plan, in treating of this art is,

I. To furnish a sketch of its PROGRESSIVE HISTORY, or the various early attempts of Æronauts.

II. Of attempts to improve the STRUCTURE of ÆRONAUTIC MACHINES.

III. Of the PRINCIPLES of their CONSTRUCTION.

IV. Of the actual MAKING, and FILLING BALLOONS.

The principle of all æronautic machines was no doubt, first suggested by fact. Certain bodies were seen to ascend.—Fact led to experiment. Ærostatic machines ascend not because they are freed from the influence of gravitation, and therefore have no weight, but because the gas with which they are filled, is specifically lighter than the surrounding air. It is a doctrine of Hydrostatics, that if a body be lighter than a fluid, in equal proportions, that fluid will bear it up, and it will float upon the surface, as the cork swims upon the water; and, hence a body lighter than our atmosphere, will float upon the atmosphere and ascend. If the higher and lower regions of the air were every where equally dense, a lighter body would ascend directly to the surface, and there remain perfectly quiescent, and would have no more tendency to descend into the inferior regions, than a blown bladder has to sink into the water; which it cannot do, unless oppressed by the weight of some more solid adjunct: which together with itself, exceeds the gravity of the water. But the air is subject to two great principles. Compression and expansion, existing however in different proportions, at different degrees of temperature and elevation above the earth. The vast body of air that lies in the superior regions, continually pressing its immense weight upon that below, thereby renders it exceedingly dense, so that it becomes impossible for it to rarefy itself to any considerable extent, and therefore as we ascend the upper stratum of the firmament, the atmosphere becomes less dense by reason of the diminished pressure of the superincumbent air, and in the extreme regions is perfectly elastic and subtle; a light body therefore, instead of rising to the top, will only rise to a height where the air is of the same specific gravity with itself, and in that altitude will remain quiescent, in proportion as the air is more or less agitated: or, it will be carried before the winds and receive different motions, according as it is acted upon by surrounding currents of atmosphere. It is exactly so with the balloon, which

being extended to a considerable bulk, and filled with air, considerably lighter than the common air, naturally ascends.

2. This invention, therefore, has in the course of the last century, become the popular substitute for the old attempts of mankind to construct wings, &c. for flight. It is somewhat curious to observe the pertinacity with which men, in all ages, have prosecuted some kind of bold attempt to 'rule in air.' To say nothing of Icarus, and his fabled wings, or of the automata that have been made ingeniously self-moving, the pretensions of magicians, and the long supposed achievements of witchcraft in this field, angels and dæmons have been alike clothed by human credulity with the attribute of flying; and while philosophy has exploded many of the pretensions of the latter, our pictorial illustrations of scripture, and even the finest paintings perpetuate the claims of angels to wings, with almost unquestioned uniformity.

3. Two of the latest attempts of mankind in this way, may be amusing to the reader. During the reign of James IV. of Scotland, a pseudo philosopher of Italy, presented himself at the court of that monarch with loud pretensions to science, and having been made abbot of Fury-land, to allow him learned leisure, offered in presence of the court, to start from the walls of Stirling Castle upon wings, of his own construction, and pass through the air to France. This adventurer must have possessed some kind of sincere confidence of his success, for he actually manufactured an immense pair of wings, which he crowded with plumage of all sorts, and launched from the walls of the castle on the day appointed. Soon, however, he descended to parent earth, and broke his thigh in the fall. His apology to the disappointed spectators was full as bold as his attempt; but it seems to have been received. 'My wings,' said he, 'being composed partly of the feathers of dunghill fowls, they, by a certain sympathy, were attracted to the dunghill: had they been composed of eagle's feathers alone, the same principle of sympathy would have attracted and kept them upwards!'

4. The second attempt of this kind we shall notice, was made at Tubingen, in Wirtemberg, in 1628. Here a learned rector of the public school, named Keyder, had been for some years insisting upon the possibility of attaining the art of flying, but sagaciously confined *himself* to warmly lecturing on the theory. But a monk of the neighbourhood became a sincere disciple, constructed wings of the approved description, and from a high tower in the neighbourhood, started into air upon them. The wind is said in this case, first to have discomposed his machine, bringing down, also, this adventurer; he fell precipitantly, broke both his legs, and died from the consequences.

5. To lord Bacon, the prophet of art, as Walpole calls him, has been attributed the first suggestion of the true theory of balloons. But the value of his remarks upon this subject has been overated. The only clear passage in his works speaks of "flying in the air," in the old plan of imitating birds; or, spreading feathers thin and close, and in great breadth, which, he says, 'will bear up a great weight, being even laid, without tilting upon the sides.' And adds, 'the further extension *of his experiment* might be thought upon. In another passage of his Natural History, entitled, *Experiment Solitary, touching the flying of unequal bodies in air*, he says, "Let there be a body of unequal weight, (as of wood and lead or bone and lead) if you throw it from you with the light end forward, it will turn, and the weightier end will recover to be forwards, unless the body be over long. The cause is, that the more dense body hath a more violent pressure of the parts from the first impulsion, which is the cause (though not heretofore found out, as hath been often said) of all violent motions: And when the hinder part moveth swifter (for that it less endureth pressure of parts) than the forward part can make way for it, it must needs be that the body turn over; for (turned) it can more easily draw forward the lighter part."

We see in this passage no hint at the scientific theory of æronautics; it is simply an obscure speculation on the quantum of resistance which a body meets with in passing through the air:—here is not a word of the power of rising in it.

6. But in the fourteenth century that theory is recorded in the writing of Albert of Saxony, an Augustin monk, and a commentator on Aristotle. Following the old notion of fire floating above the atmosphere of the earth; he suggests, that if any being could bring down a quantity of that light ethereal air that swims above our atmosphere, and inclose it in a ball or vessel, the vessel might be raised, and kept suspended in common air, at any height. This suggestion rested in perfect dormancy until the beginning of the seventeenth century, when Francis Mendoza, a jesuit of Portugal, maintained that the combustibility of fire was no objection to its being made to ascend in proper vehicles, as its extreme laxity and the exclusion of air would preserve it from inflammation. He died at Lyons A.D. 1626. At about the same period Caspar Schott, also a jesuit, published this theory in Germany.

7. In 1670 all the ancient speculations about artificial wings whereby a man might fly as well as a bird, were refuted by Borelli in his treatise *De Motu Animalium*. In this work, from a comparison between the power of the muscles which move the wings of a bird, and those which move the arms of a man, he demonstrates, that the latter are utterly insufficient to strike the air with such force as to raise him from the ground.

8. In the year 1672, Bishop Wilkins published his Discovery of the New World, in which he certainly seems to have conceived the idea of raising bodies into the atmosphere by filling them with rarified air. This, however, he did not pursue, but rested his hopes upon mechanical motions, to be accomplished by human strength, or by springs, &c. which have been proved incapable of answering any useful purpose.

9. The jesuit, Francis Lana, his contemporary, proposed to exhaust hollow balls of metal, of their air, (See Plate I. ÆRONAUTICS,) and thus occasion them to ascend. But though the theory was unexceptionable, the means he suggested were insufficient to the end: for a vessel

of copper, made sufficiently thin to float in the atmosphere, would be utterly unable to resist the external pressure; which being demonstrated, no attempt was made on the principle.

10. In 1709, Friar Guzman applied to the king of Portugal for his patronage of a flying machine constructed somewhat in the form of a bird or paper kite, but with tubes through which the wind was to pass to fill wings that were to elevate it: and absurd as this plan obviously was, he met with the royal patronage to such a degree, that he obtained a place in the college of Barcelos, with a professorship in the university of Boimbra, and a pension for life of 6000 reis. But excepting this metaphorical movement upwards to places and honours, we do not hear that the friar ever made any ascent; though it is said, that in 1736, he constructed a large wicker basket covered with paper, seven or eight feet in diameter, which rose 200 feet in the air; and thus came to be reputed a conjurer.

11. It is well remarked by a valuable contemporary, (*Sup. Ency. Brit.* Art. AERONAUTICS,) that the persons who had hitherto occupied themselves most with attempts at ærial navigation, were all of them Catholic priests. And he enquires whether such a pursuit may be explained from their habits of seclusion, and ignorance of the affairs of real life, or from their familiar acquaintance with the relations of miracles and legendary tales. There can be no question that it arose from these causes in great part, as well as from the fact of religious men during the dark ages, engrossing almost every pretension to knowledge; thus some of the more artful of the priests, imposed on the vulgar the smatterings of natural philosophy as really miraculous facts: and then again in the dawning of the new day of literature, others of their order largely redeemed its credit by nobly dealing forth of their secluded stores of literature and science, and leading on to a brighter day.

12. In 1766, Mr. Henry Cavendish ascertained that inflammable air was at least seven times lighter than common air, and suggested to Dr. Black, that perhaps a thin bag filled with the former might be buoyed up by the common atmosphere. The same thought occurred afterwards to Mr. Cavallo; and he has the honour of being the first who made experiments on the subject. He first tried bladders; but found them too heavy. He then tried Chinese paper; but that proved permeable to the vapour. His experiments, therefore, in 1782, proceeded no farther than blowing up soap bubbles with inflammable air, which ascended rapidly to the ceiling.

13. While the true doctrine of æronautics seemed thus on the point of being discovered in Britain, it was all at once announced in France, by two brothers, Stephen and John Montgolfier, natives of Annonay, and masters of a considerable paper manufactory there, who had turned their thoughts to this subject, as early as the middle of the year 1782. Their idea was to form an artificial cloud, by enclosing smoke in a bag, and making it carry up the covering along with it. In that year, the experiment was made at Avignon with a fine silk bag; and by applying burning paper to an aperture at the bottom, the air was rarified, and the bag ascended to the height of 70 feet.—Various experiments were now tried upon a large scale, which greatly excited the public curiosity.

14. An immense bag of linen, lined with paper, and containing upwards of 23,000 cubit feet, was found to have the power of lifting about 500 pounds, including its own weight. Burning chopped straw and wool under the aperture of the machine, immediately occasioned it to swell; and afterwards to ascend into the atmosphere. In ten minutes it had risen 6000 feet; and when its force was exhausted, it fell to the ground at the distance of 7668 feet from the place it had left.

15. Not long after this, one of the brothers, invited by the Academy of Sciences to repeat his experiments at their expense, constructed a large balloon of an elliptical form. In a preliminary experiment, this machine lifted from the ground eight persons who held it, and would have carried them all off, if others had not quickly come to their assistance. Next day the machine was filled by the combustion of fifty pounds of straw, and twelve pounds of wool. The machine soon swelled, and sustained itself in the air, together with the charge of between 4 and 500 pounds weight. It was designed to repeat the experiment before the king at Versailles; but a violent storm of rain and wind happening to damage the machine, it became necessary to prepare a new one; and such expedition was used, that this vast balloon, nearly sixty feet in height and forty-three in diameter, was made, painted within and without, and finely decorated, in ninety-six hours. Along with it was sent a wicker cage, containing a sheep, a cock, and a duck, which were the first animals ever sent on such a voyage. The full success of the experiment was, however, prevented by a violent gust of wind, which tore the machine in two places near the top before it ascended. Still it rose 1440 feet; and after remaining in the air about eight minutes, fell to the ground at the distance of 10,200 feet from the place of its setting out. The animals were not in the least hurt.

16. As the great power of these ærostatic machines, and their very gradual descent, now demonstrated they were capable of transporting people through the air with safety, M. Pilatre de Rozier offered to be the first ærial adventurer in a new machine, constructed in a garden in the Fauxbourg of St. Antoine. It was of an oval shape, forty-eight feet in diameter, and seventy-four in height, elegantly painted with the signs of the zodiac, ciphers of the king's name, and other ornaments; a proper gallery, grate, &c. enabled the person who ascended to supply the fire with fuel, and thus keep up the machine as long as he pleased. The weight of the whole apparatus was upwards of 1600 pounds. On the 15th October, 1783, M. Pilatre placing himself in the gallery, the machine was inflated, and permitted to ascend to the height of eighty-four feet, where he kept it afloat about four minutes and half; after which it descended very gently: and such was its tendency to ascend, that it rebounded to a considerable height after

touching the ground. On repeating the experiment, he ascended to the height of 210 feet. His next ascent was 262 feet; and in the descent a gust of wind having blown the machine over some large trees in an adjoining garden, M. Pilatre suddenly extricated himself by throwing straw and wool on the fire, which raised him at once to a sufficient height. On descending again, he once more raised himself to a proper height by the same means. The balloon was constructed by the Montgolfiers, and the spirited young naturalist who thus first ascended, seems to have caught at the moment of its filling, a sort of enthusiasm that prompted him to seat himself in the gallery, and to become the leader of these sublime experiments. Some time after, he ascended with M. Girand de Villette to the height of 330 feet; hovering over Paris at least nine minutes in sight of all the inhabitants, and the machine keeping all the while in a steady position.

17. It was now proved that ærostatic machines might be raised or lowered at the pleasure of the persons who ascended. On the 21st of November, 1783, therefore, M. Pilatre and the Marquis d'Arlandes undertook an ærial voyage, which lasted about twenty-five minutes, and during which time, they passed over a space of five miles. From the account given by the Marquis, they met with several different currents of air, the effect of which was, to give a very sensible shock to the machine, and the direction of the motion seemed to be from the upper part downwards. It appears also that they were in some danger of having the balloon burnt altogether; as the Marquis observed several round holes made by the fire in the lower part of it, which alarmed him considerably, and indeed not without reason. However, the progress of the fire was easily stopped by the application of a wet sponge, and all appearance of danger ceased.

18. Speculations were now entertained as to the possibility of a more convenient method of filling balloons, and instead of feeding a fire as it ascended, to inclose inflammable air at once in the machine; a plan which promised many advantages over the other. The first experiment upon it, was made by two brothers, M. Robert, and M. Charles, a professor of experimental philosophy. A bag composed of lutestring was varnished over with a solution of the elastic gum, called *caoutchouc;* and was about thirteen English feet in diameter. Many difficulties occurred in filling it with inflammable air; but being at last set at liberty, after having been well filled, it was thirty-five pounds lighter than an equal bulk of common air. It remained in the atmosphere about three quarters of an hour, during which it travelled fifteen miles. Its sudden descent was supposed to have been owing to a rupture, which had taken place when it ascended into the higher regions of the atmosphere.

This experiment, and the successful voyage made by M. Pilatre and the marquis, encouraged the idea of undertaking something of the same kind with a balloon filled with inflammable air. The machine used on this occasion was formed of gores of silk, covered with a varnish of caoutchouc, of a spherical figure, and measuring twenty-seven feet and a half in diameter. A net was spread over the upper hemisphere, and fastened to a hoop which passed round the middle of the balloon. To this a sort of car was suspended a few feet below the under part of the balloon; and, in order to prevent the bursting of the machine, a valve was placed in it; by opening of which some of the inflammable air might be occasionally let out. The car was of basket work, covered with linen and beautifully ornamented; being eight feet long, four broad, and three and half deep; in weight 130 pounds. Great difficulties again occurred in filling the machine; but these at last being removed, the two adventurers took their seats about two P.M. on the 1st December, 1783. Persons skilled in mathematics were stationed with proper instruments, to calculate the height, velocity, &c. of the balloon. The weight of the whole apparatus, including that of the adventurers, was 604lb. and a half, and the power of ascent when they set out was 20lb. so that the whole difference betwixt the weight of this balloon and an equal bulk of common air, was 624lb. But the weight of the atmosphere displaced by the inflammable gas was calculated to be 771lb. so that there remains 147 for the weight of the latter; and this calculation makes it only five times and a fourth lighter than common air.

19. When the balloon rose, the thermometer stood at 9°. of Fahrenheit, and the barometer at 30.18 inches; and, by means of the power of ascent with which it left the ground, it mounted upwards till the mercury fell to twenty-seven inches, from which they calculated their height to be about 600 yards. Throwing out ballast occasionally as they found the machine descending by the escape of some of the inflammable air, they found it practicable to keep at pretty near the same distance from the earth during the rest of their voyage; the quicksilver fluctuating between 27 and 27·65 inches, and the thermometer between 53°. and 57°. the whole time. They continued in the air an hour and three quarters, and alighted at the distance of twenty-seven miles from Paris; having suffered no inconvenience during their voyage, nor experienced any contrary currents of air, as had been felt by M. Pilatre and the Marquis.

20. As the balloon still retained a great quantity of inflammable gas, M. Charles determined to continue the voyage by himself. M. Robert accordingly left the machine, which was now 130 pounds lighter, and arose with such velocity, that in twenty minutes it was almost 9000 feet from the earth, and entirely out of the sight of terrestrial objects. The globe, which had been rather flaccid, soon began to swell, and the inflammable air escaped in great quantity. He now drew the valve to prevent the balloon from bursting; and the inflammable gas, being considerably warmer than the external air, diffused itself all round, and was felt like a warm atmosphere. In ten minutes, however, the thermometer indicated a great variation of temperature: his fingers were benumbed with cold, and he

felt a violent pain in his right ear and jaw, which he ascribed to the expansion of the air in these organs, as well as to the external cold. But the beauty of the prospect which he enjoyed, made amends for these inconveniences. At his departure the sun was set on the vallies; but the height to which M. Charles was got in the atmosphere, rendered him again visible, though only for a short time. He saw, for a few seconds, vapours rising from the vallies and rivers. The clouds seemed to ascend from the earth, and collect one upon the other, still preserving their usual form; only their colour was grey and uniform for want of sufficient light in the atmosphere. By the light of the moon, he perceived that the machine was turning round with him in the air; and he observed that there were contrary currents which brought him back again. He observed also, with surprise, the effects of the wind, and that the streamers of his banners pointed upwards; which, he says, could not be the effect either of his ascent or descent, as he was moving horizontally at the time. At last, recollecting his promise of returning to his friends in half an hour, he pulled the valve, and accelerated his descent. When within 200 feet of the earth, he threw out two or three pounds of ballast, which rendered the balloon again stationary; but, in a little time afterwards, he gently alighted in a field about three miles distant from the place whence he set out; though, by making allowance for all the turnings and windings of the voyage, he supposes that he had gone through nine miles at least. By the calculations made, it appears that he rose at this time not less than 10,500 feet; a height somewhat greater than that of Mount Ætna.

21. Many similar ærial voyages were now performed, of which a particular description would be superfluous. But as it had occurred to M. Charles, in his last flight, that there might be a possibility of directing the machine in the atmosphere, this was attempted by M. Jean Pierre Blanchard; who gives an account of the sensations he felt during one of his ærostatic excursions, somewhat different from those of M. Charles; having, in one part of it, found the atmosphere very warm, in another cold; and having once found himself very hungry, and at another time almost overcome by a propensity to sleep. The height to which he arose, as measured by mathematical instruments, was thought to be very little less than 10,000 feet; and he remained in the atmosphere an hour and a quarter.

22. Similar attempts to direct balloons through the atmosphere, were made in 1784, by Messrs. Morveau and Bertrand, at Dijon, who raised themselves with an inflammable air balloon to the height, as was thought, of 13,000 feet; passing through a space of eighteen miles in an hour and twenty-five minutes. M. Morveau had prepared oars for directing the machine through the air; but they were damaged by the wind, so that only two remained serviceable; by working these, however, they were able to produce a sensible effect on the motion of the machine. In a third ærial voyage performed by M. Blanchard, he seemed to produce some effect by the agitation of his wings, both in ascending, descending, moving sidewise, and even in some measure against the wind: however, this is supposed, with some degree of probability, to have been a mistake, as in no succeeding voyage could the effect of his machinery be perceived.

23. On the 28th of June, 1784, M. Flewrant and Madame Thible, (the first female who ever dared adventure upon these exploits,) ascended at Lyons before the king of Sweden, who then travelled under the name of Count Haga. On their entering the car, (which was 75 feet in height,) they ascended with great celerity, and in four minutes the noise of the multitude was no longer audible. Two minutes afterwards, the eye could not distinguish them. Their greatest altitude was 13,500 feet, (the highest yet reached) and the flag, with its staff of fourteen pounds weight, being thrown out, it was seven minutes descending to the ground. The thermometer had dropt to 43° on Fahrenheit's scale; and the sensation of cold that they felt, was attended by a ringing in the ears. Different currents were found to occupy the strata of the atmosphere, and when passing from one strata to another, the balloon received a sensible undulation. The travellers continued to feed their fire with vine loppings, till, having exhausted their fuel, they descended in a corn field, after remaining in the atmosphere three quarters of an hour. About a fortnight afterwards, a splendid ascent was exhibited from the outer court of Versailles, by command of the French monarch, as a compliment to the king of Sweden. Of this balloon, the naturalists, Rozier and Proust, undertook the management. On their stepping into the car, it rose in the most rapid manner to the height of 12,520 feet, and appeared to float in a vast congregation of towering white clouds. The thermometer stood at 21°, and flakes of snow fell copiously on the voyagers, while it only rained below. Descending from this chaos of clouds, they were cheered and delighted by the aspect of the rich and populous district, spread out before them in the most lively manner, and finally alighted at the forest of Chantilly, thirty-six miles from the place of their ascent, after an excursion of one hour and five minutes.

24. In August, the Abbé Carnus, professor of philosophy, and M. Lauchet, professor of belles lettres, ascended at Rodez, a town of Guienne in France, to a height of 3920 yards above the level of the town. These æronauts filled one or two bottles with air at their highest elevation, and found that they contained a quarter less air than if filled at the level of the sea, and that the air was much purer.

25. Messrs. Charles and Robert, from their success in their former experiments, were encouraged to enlarge their balloon to the size of an oblong spheroid, 46 feet and a third long, and 27 and a half in diameter, made so as to float with its longest part parallel to the horizon. The wings were of the shape of an umbrella without the handle, to the top of which a stick was fastened parallel to the aperture of the umbrella. See Plate I. fig. 2. Five of these were disposed round the car, which was near 17 feet in length. The balloon was filled in

three hours, and, with the addition of 450 lbs. of ballast, remained *in æquilibrio* with the atmosphere. About noon, on the 19th September 1784, they began to ascend; and having risen to the height of 1400 feet, they perceived some thunder clouds near the horizon, which they took great pains to avoid. From this account, however, it should seem, that they had passed safely through the thunder clouds; as, about forty minutes after three, they heard a loud clap of thunder; and, three minutes after, another much louder; at which time the thermometer sunk from 77 to 59 degrees. The sudden cold, occasioned by the approach of these clouds, condensed the inflammable air, so that the balloon descended very low, and they were obliged to throw out forty pounds of ballast; yet on examining the heat of the air within the balloon, they found it to be 104°, when that of the external atmosphere was only 63. When they had got so high that the mercury in the barometer stood only at 23.94 inches, they found themselves becalmed; so that the machine did not go even at the rate of two feet in a second, though it had before gone at the rate of 24 feet in a second. On this they determined to try the effect of their oars to the utmost; and, by working them for thirty-five minutes, and marking the shadow of the balloon on the ground, they found in that time, that they had described the segment of an ellipsis, whose longest diameter was 6000 feet. After having travelled about 150 miles, they descended, only on account of the approach of night, having still 200 pounds of ballast left.

26. The effect of their wings is described thus:—'Far from going against the wind, as is said by some persons to be possible in a certain manner, and some æronauts pretend to have actually done, we only obtained, by means of two oars, a deviation of 22°: it is certain, however, that if we could have used our four oars, we might have deviated about 40° from the direction of the wind; and as our machine would have been capable of carrying seven persons, it would have been easy for five persons to have managed and put in action eight oars, by means of which a deviation of about 80° would have been obtained. We had already observed, (say they) that if we did not deviate more than 22°, it was because the wind carried us at the rate of twenty-four miles an hour; and it is natural to judge, that, if the wind had been twice as strong as it was, we should not have deviated more than one half of what we actually did; and, on the contrary, if the wind had been only half as strong, our deviation would have been proportionably greater.'

27. One of the longest and most remarkable ærial voyages ever performed in France, was undertaken at Paris, in June 1786, by M. Testu, with a balloon twenty-nine feet in diameter, of glazed tiffany, furnished with wings, and inflated with gas. He ascended at four o'clock in the afternoon, the barometer standing at 29.68 inches, and the thermometer at 84°, though the day was cloudy and lowering. The machine had been only ⅔ filled, but gradually swelled as it became drier and warmer, and acquired its full distension at the height of 2800 feet; when, to avoid the waste of gas, and the danger of a rupture, M. Testu attempted to lower the balloon by his wings. Not being able to succeed, he thought proper to descend, and alighted in a corn field in the plain of Montmorency, where he was surrounded by the proprietor of the field, and a troop of peasants, who seized him, and insisted on being indemnified for the mischief occasioned by his idle and curious followers. He persuaded them that his wings were broken, and that he and the balloon were entirely at their mercy; when they drew both along, in supposed triumph, by cords fixed to the car, till M. Testu, perceiving that the loss of wings, cloak, &c. had made the balloon much lighter, suddenly cut the string, and left the farmer and his peasants gazing below. He now arose to the region of the clouds, whence he saw small frozen particles floating in the atmosphere, and heard thunder rolling under his feet. As the coolness of the evening advanced, the power of ascension diminished, and he alighted on the ground near the abbey of Royaumont about seven o'clock. He afterwards threw out some ballast, and rose again to a height of 2400 feet, when the thermometer was 66°. He now heard the blast of a horn below, and saw a company of huntsmen in full chase. He immediately opened the valve, and descended between Etouen and Varville; when rejecting his oars, he began to collect some ballast. While he did this, the huntsmen galloped up to him. He then made another ascent, and passed through a dense body of clouds, awful by the frequent thunders, and flashes of lightning following each other in a rapid and vivid stream, illuminating the whole heavens at every explosion. The thermometer fell to 21°; but at the height of 3000 feet, rose as high as 56°. At this altitude, he floated about till half past nine o'clock, when he witnessed the final setting of the sun; a scene so grand, as to mock the richness of description. After this, he was involved in thick masses of thunder clouds, and lightnings flashing round him on all sides. The thermometer sunk to 21°. Snow and sleet fell copiously; loud peals of thunder rolled around, and seemed to shake the very firmament. This tremendous scene continued three hours, during which time our æronaut remained in the midst of the storm. The balloon was affected by a sort of undulating motion upward and downward, occasioned, as he supposed, by the electric action of the clouds. The lightning was excessively vivid, and the thunder was preceded by a sort of crackling noise. A calm at last succeeding, the stars broke upon his sight as clear as ever, and the sky seemed perfectly serene. He then took some refreshment, and at half-past two o'clock the day began to open upon the world. He staid till he had witnessed the rising of the sun, and afterwards descended to the earth, and alighted near the village of Campremie, sixty-three miles from Paris, having completed a voyage of nearly twelve hours.

28. The first balloon seen in England, was constructed by the ingenious Italian, Count Zambeccari. It was ten feet in diameter, weighed eleven pounds, and consisted of oiled silk, gilt,

by which means it became, not only more beautiful, but less permeable to the gas. It was launched from the Artillery ground, London, on the 25th of November, 1783; and was taken up at Petworth in Sussex, at the distance of forty-eight miles.

29. On the 21st of September, 1784, Vincent Lunardi, an Italian, is said to have made the first ærial ascent in England. His balloon was of oiled silk, striped with blue and red, and thirty-three feet in diameter. There was no valve; the neck, which was in the form of a pear, through which the gas was introduced, being the medium through which it might be emitted. He took with him a dog, a cat, and a pigeon; and after remaining sometime, alighted, about twenty minutes after three, in a meadow in the neighbourhood of Ware, Hertfordshire.

30. Blanchard, who had performed numerous voyages before, on the 16th October ascended with Mr. Sheldon, professor of anatomy to the royal academy, from Chelsea, and after a short voyage of fourteen miles, brought his companion down, and re-ascended to so great an altitude, that he found great difficulty in breathing. The atmosphere at that height was so rare, that a pigeon sent off from the car, found great difficulty in supporting itself, and at length came and settled on the machine, afraid to venture in the boundless ocean which he saw on every side.

31. On the 7th of January, 1785, the same gentleman ascended from Dover, with Dr. Jefferies of America, on the daring exploit of crossing the sea to Calais. The morning was clear and frosty, and a little wind, scarcely perceptible, NNW. The balloon was stationed on the cliff, and at one o'clock, when all things were arranged, M. Blanchard ordered the boat to be pushed off, from the top of that celebrated precipice so finely described by Shakspeare. The balloon being scarcely sufficient to carry two men, (for in fact, Blanchard, though a successful adventurer, had little scientific knowledge as an æronaut,) they were soon obliged to cast out all their ballast, except three bags of sand, weighing in the whole thirty pounds. After this, they rose a little, but moved very slowly, in consequence of the calmness of the atmosphere. In a short time the barometer which on the cliff stood at 29°, 7′. had fallen to 27°, 3′. The weather being fine and warm, they had now a most beautiful view of the south of England. At ten minutes before two o'clock, when they were just in the midst of the strait, twelve miles from either shore, they found the balloon descending, and became alarmed at their situation. They threw out half their remaining ballast, but their descent was still more rapid than before; they then threw out the remainder, but this was insufficient; they next cast out a quantity of books. This caused the balloon again to ascend, but at a quarter past two, finding themselves again descending, they threw out the remainder of their books, and ten minutes after had a most delightful view of the coast of France. Still, however, the balloon was falling, and having no more ballast, they cast out their provisions, cut off the wings of their boat, and parted with every thing that was moveable, even to their only bottle, which in its descent cast out a steam like smoke, accompanied by a rushing noise, and when it struck the water, the balloon felt the shock. All this not stopping the descent of the balloon, they next threw out their anchors and cords, and at last stripped off their clothes, and fastening themselves to certain slings, intended to cut away the boat as their last resource. The balloon, however, began to rise, and they finally descended in safety in the forest of Guiennes, not far from Calais. The magistrates of that town received them with great kindness, and the king presented M. Blanchard with 12,000 livres, and a pension of 1200.

32. It would be tedious to relate all the different ærial voyages that have been performed in this and other countries; but we must not omit the ingenious Mr. Baldwin's excursion from Chester. This gentleman in September, 1785, ascended in Mr. Lunardi's balloon; and after traversing the air in a variety of directions, first alighted in the neighbourhood of Frodsham; then re-ascending, and pursuing his excursion, he finally landed at Rixtonmoss, twenty-five miles from Chester. Mr. Baldwin published the observations he made during this voyage, and gives the following curious particulars of it:—The sensation of ascending, he compares to a strong pressure from the bottom of the car upwards against the soles of his feet. At the distance of what appeared to him seven miles from the earth, though by the barometer, scarcely a mile and a half, he had a grand and most enchanting view of the city of Chester, and its adjacent places, below. The river Dee was of a red colour; the city very diminutive, and entirely blue. The whole seemed a perfect plain, the highest building having no apparent height, but all reduced to the same level, and the whole terrestrial prospect appeared like a coloured map. The perspective appearance of things to him, was very remarkable. The lowest bed of vapour that first appeared as a cloud, was pure white, in detached fleeces, increasing as they rose: they presently coalesced, and formed, as he expresses it, a sea of cotton, tufting here and there by the action of the air in the undisturbed part of the clouds. The whole became an extended white floor of cloud, the upper surface being smooth and even. Above this white floor he observed, at great and unequal distances, a vast assemblage of thunder clouds, each parcel consisting of whole acres in the densest form: he compares their form and appearance to the smoke of pieces of ordnance, which had consolidated as it were into masses of snow, and penetrated through the upper surface or white floor of common clouds, there remaining invisible and at rest. Some clouds had motions in slow and various directions, forming an appearance truly stupendous and majestic.

33. Mr. Baldwin endeavoured to convey some idea of the scene by a sketch, for which, see Plate II. fig. 1. It represents a circular view he had from the car of the balloon, himself being over the centre of the view, looking down on the white floor of clouds and seeing the city of Chester through an opening, which discovered

the landscape below, limited by surrounding vapour to less than two miles in diameter. The breadth of the outer margin defines his apparent height in the balloon (viz. four miles) above the white floor of clouds. These regions did not feel colder, but rather warmer, than below, and the sun felt hottest when the balloon was stationary. The discharge of a cannon when the balloon was at a considerable height, was distinctly heard; and a second discharge, when at the height of thirty yards, so disturbed him as to oblige him for safety to lay hold firmly of the cords of the balloon. At a considerable height he emptied a pint bottle full of water; and as the air did not oppose a resistance sufficient to break the stream into small drops, it mostly fell down in large ones. The balloon was much affected by the water (a circumstance observed by others,) and at one time was going directly towards the sea. The mouth of the balloon, however, being opened, it descended into an under current blowing from the sea, and Mr. B. at length landed at Bellair Farm, in Rinsley, twelve miles from Chester.

34. The first ærial voyage that was made in Scotland, was performed by Mr. Vincent Lunardi, who, in November and December 1785, ascended twice from Heriot's Hospital-Gardens, Edinburgh. On both these occasions he went entirely out of sight, and the first day of his exhibition being remarkably fine and clear, his balloon, for a long time before it became quite invisible, by the reflection of the sun beams, appeared at first like a full moon, and afterwards like a star of the first magnitude. He alighted safely on that occasion in a field between Cupar and St. Andrews; but in his second voyage he was not so fortunate; for, a strong wind blowing from the west, his balloon was carried in an easterly direction, and when the power of the inflammable air was exhausted, fell into the sea, near the Isle of May, where he was taken up by some fishermen; after having, for a considerable time, experienced the cold bath in his basket: which was prevented from sinking altogether, by the small quantity of inflammable air still remaining in the balloon. After this he repeated his ærial voyages at Glasgow, Kelso, and several other places. Previous to Mr. Lunardi's exhibitions, Mr. James Tytler had greatly excited the public curiosity by undertaking to ascend from Comely Gardens with a rarefied air balloon; but, excepting one morning, that he went up a few hundred yards, in a small basket, without his stove, every other attempt, to make the balloon carry up him and the whole necessary apparatus, proved fruitless. Had he filled his balloon with inflammable, instead of rarefied air, as his skill in chemical operations is undoubted, he would certainly have succeeded, and in that case might have claimed the honour of being the first æronaut in Britain.

35. Sect. II. The attempts to improve the structure of Aeronautic machines will now engage our attention; and feeling that we have entered sufficiently into the details of preceding voyages, we shall only occupy our pages in the continuation of this article with such ascents as were made for scientific purposes. A first attempt of this kind was connected with the desire to lessen the expence of balloons, by discovering some method of ascending without throwing out ballast, and of descending without losing any of the inflammable air. The balloon of the duke de Chartres, afterwards duke d'Orleans, who ascended with this view from Paris in 1784, was constructed upon somewhat new principles. It was of an oblong form, made to ascend with its longer diameter horizontally, and measured fifty-five feet in length, and twenty-four in breadth. It contained within it a smaller balloon filled with common air; by blowing into which with a pair of bellows, and thus throwing in a considerable quantity of common air, it was supposed that the machine would become sufficiently heavy to descend; especially as, by the inflation of the internal bag, the inflammable air in the external one would be condensed into a smaller space, and thus become specifically heavier. The voyage, however, was attended with such circumstances as rendered it impossible to know what would have been the event of the scheme. The power of ascent, with which they set out, seems to have been very great; as in three minutes after parting with the ground, they were lost in the clouds, and involved in such a dense vapour, that they could see neither the sky nor the earth. In this situation they seemed to be attacked by a whirlwind, which, besides turning the balloon three times round from right to left, shook and beat it so about, that they were rendered incapable of using any of the means proposed for directing their course; and the silk stuff, of which the helm had been composed, was torn away. No scene can be conceived more terrible, than that in which they were now involved. An immense ocean of shapeless clouds rolled upon one another below them, and seemed to prevent any return to the earth, which still continued invisible, while the agitation of the balloon became greater every moment. In this extremity they cut the cords which held the interior balloon, and of consequence it fell down upon the aperture of the tube, that came from the large balloon into the boat, and stopped it up. They were then driven upwards by a gust of wind from below, which carried them to the top of that stormy vapour in which they had been involved. They now saw the sun without a cloud; but the heat of his rays, with the diminished density of the atmosphere, had such an effect on the inflammable air, that the balloon seemed every moment ready to burst. To prevent this, they introduced a stick through the tube, in order to push away the inner balloon from its aperture: but the expansion of the inflammable air pushed it so close, that all attempts of this kind proved ineffectual. It was now, however, become absolutely necessary to give vent to a very considerable quantity of the inflammable air; for which purpose the duke de Chartres himself bored two holes in the balloon, which tore open for the length of seven or eight feet. On this they descended with great rapidity, and would have fallen into a lake, had they not hastily thrown out sixty pounds of ballast, which enabled them just to reach the water's edge.

36. This plan for navigating aerostatic machines

by common air, being thus rendered dubious, another method was suggested: which was to put a small Ærostatic machine with rarefied air under an inflammable air balloon, but at such a distance that the inflammable air of the latter might be perfectly out of the reach of the fire used for inflating the former; and thus, by increasing or diminishing the fire in the small machine, the absolute weight of the whole would be considerably diminished or augmented. This scheme was unhappily put in execution by the celebrated M. Pilatre de Rozier and M. Romaine. Their inflammable air balloon was about thirty-seven feet in diameter, and the power of the rarefied air one, was equivalent to about sixty pounds. They ascended without any accident; but had not been long in the atmosphere, when the inflammable air balloon was seen to swell very considerably, at the same time that the Æronauts were observed, by telescopes, very anxious to get down, and busied in pulling the valve and opening the appendages to the balloon, in order to facilitate the escape of as much inflammable air as possible. Soon after this the machine took fire, at the height of about three quarters of a mile from the ground. No explosion was heard; and the silk of the balloon seemed to resist the atmosphere for about a minute; after which it collapsed, and descended along with the two unfortunate travellers so rapidly, that both of them were killed. Rozier seemed to have been dead before he came to the ground; but M. Romaine was alive when some persons came up to him, though he expired immediately after.

37. But the most striking improvement that has been attempted in the management of balloons is, the detaching a distinct vehicle for the safety or separate descent of the æronaut. The first invention of this description, now denominated a *parachute*, (Fr. *a guard for falling*,) is attributed to Blanchard, who, in one of his excursions from Lisle, about the end of August, 1785, let down from a great height a dog, by means of a basket fastened to a parachute, and the animal reached the ground unhurt. Since that period, the practice and management of the parachute have been carried much farther by other ærial adventurers, and particularly by M. Garnerin, who has repeatedly descended from the region of the clouds by that very slender machine.

When he visited London in 1802, he made two ascents, in the second of which he threw himself from an amazing elevation in his parachute, consisting of thirty-two gores of canvass, forming a complete hemisphere. When the balloon rose, the parachute hung like a curtain from the hoop, and below it was suspended a cylindrical basket, covered with canvass, four feet high and two and a quarter wide. In this basket the æronaut placed himself, and rose from North Audley-street, on the evening of the 2d of September. After hovering five or six minutes in the air, he cut the rope, and precipitated himself to the earth. Before the parachute opened he fell with great velocity, but as soon as it was expanded the descent was gradual: the whole apparatus, however, swung with the æronaut from one direction to another, like the pendulum of a clock, and made such tremendous oscillations, that the basket was sometimes thrown in almost an horizontal position, and was borne along before the wind over Mary-le-Bone and Somer's-Town, till it alighted in a field of St. Pancras. M. Garnerin received some severe cuts, bled considerably, and trembled, and was greatly agitated on his release from the basket. He said that the accident had been caused by one of the stays of the parachute having given way.

38. This voyage, and subsequent experiments of the same kind, gave rise to calculations on the rate and danger of the descent with a parachute. When it is first abandoned to the air, we see it fall with great celerity till the increasing velocity meets a resistance in the air equal, or nearly so, to the force of gravitation, after which it descends uniformly; but as this equilibrium is not attained at once, the machine in the first instance shoots beyond the bounds of its terminal velocity, then contracts within its just limits, exciting great alarm both in the æronaut and the spectators; and thus continues for some time, subject to a sort of interior oscillation, alternately accelerating and retarding. If the surface were flat, its motion would be equal to the velocity which a heavy body must acquire in falling through the altitude of a column of air incumbent on that surface, and having the same gravity as the whole apparatus. But a cylinder of air of one foot diameter and height, weighs only $\frac{1}{17}$ of a pound avoirdupoise. Wherefore if the square of the diameter of the parachute be divided by 17, the quotient will give the weight of an atmospheric column of one foot, and the weight of the apparatus being again divided by this quotient, will give the entire altitude of an equiponderant column; the square root of which multiplied by 8, will express the final velocity with which the parachute will strike the surface of the earth: thus, if the diameter of the parachute were 25 feet, then $25 \times 25 = 625$, which, divided by $17 = 36\frac{13}{17}$. If, then, the parachute and æronaut weighed $36\frac{13}{17}$, the shock would be equal to a fall of one foot; had the weight been twice as great, the fall would have been twice as heavy, &c. the velocity being at least $8\sqrt{4}$, or 16 feet a second.

39. The resistance of the air, however, is greater than theory supposes. In the higher regions of the air the parachute descends with a rapidity that is not maintained in a dense atmosphere; and when the momentary inconvenience of rushing through this part of the atmosphere is overcome, the mean descent may be calculated at the rate of 12 feet a second, or a mile in $7\frac{1}{2}$ minutes; a rate which will not make the shock at the earth considerable.

40. It being now supposed that balloons might be usefully employed in observing the state of the atmosphere, and what circumstances attended the magnetic and electric actions in the upper regions; as also the proportions of the component parts of air in different altitudes, more or less remote from the earth, Messrs. Robertson and Lhoest made an ærial voyage from Hamburgh about the middle of July, 1803, and rose to so great a height, that the elasticity of the air

alarmingly distended the balloon. They were forced to let out some gas; after which they ascended to an altitude in which it was almost impossible to endure the cold. Their teeth chattered without ceasing. Mr. Robertson's veins swelled, and blood came from his nose. Mr. Lhoest complained that his head swelled so much, that he could not keep on his hat; and they both felt a great degree of numbness, and inclination to sleep. This was at about the height of 2600 toises. Unable to continue any longer they descended, and would have alighted at Badenburg, near Winsen, on the Lube, but the inhabitants fled with the greatest alarm, and took them for spectres. They therefore continued their voyage till they arrived at Wichtenbeck, on the way to Zell. As they first arose the atmosphere was calm, but cloudy; as they ascended, the heat decreased, and they could look at the sun without being dazzled. The barometer fell from 27 to 14 inches, and the thermometer to $4\frac{1}{2}$ below zero. As they still ascended, the barometer fell to $12\frac{1}{2}$ inches.; but here the cold was insupportable, although the thermometer was only one degree below the freezing point, and they respired very rapidly; the pulsations, also, became greatly accelerated. Mr. Robertson made the following experiments, and observations:

i. He let fall a drop of ether on a piece of glass, and it evaporated in four seconds.

ii. He electrified glass and sealing-wax, but they gave no intimation of an accumulation of fluid that could be communicated to other bodies; and the voltaic pile, which, when the balloon was free from the earth, acted with full force, yielded only one-tenth part of its electricity.

iii. The dipping needle lost its magnetic virtue, and could not be brought to that direction which it had at the surface of the earth.

iv. He struck with a hammer oxygenated muriate of potash. The explosion though it made not a very loud noise, was almost insufferable to the ear, and they moreover, observed that though they spoke very loudly, they could with great difficulty hear each other.

v. Water began to boil with a moderate degree of heat, maintained by quick lime.

vi. Mr. Robertson having carried two birds with him, the rarefaction of the air killed one of them, and the other could not fly, but lay extended on its back and fluttered with its wings.

vii. Mr. Robertson could not extract any electricity from the atmospheric electrometer and condenser.

viii. The clouds, Mr. R. observed, never rise above 2000 toises, and it was only in ascending and descending through them that he obtained any positive electricity. The greatest altitude during this voyage was 2600 toises.

41. Mr. Robertson also ascended from Petersburg, on the 30th June, 1804, with the professor Sacharof, to make certain experiments proposed by the academy, and took 12 exhausted flasks, a barometer, thermometer, two electrometers sealing wax, and sulphur, compass, a magnetic needle, a seconds watch, a bell, a speaking trumpet, a prism of crystal, unslacked lime, &c. To ascertain the position of the balloon, they fixed perpendicularly an achromatic telescope in an aperture in the bottom of the car, which showed terrestrial objects distinctly; two sheets of black paper were also fixed at right angles, suspended from the car with a piece of thread to indicate any variation in the direction of the balloon, which contrivance they called the *way-wiser*. About a quarter past seven in the evening, the barometer being at thirty inches, and the centigrade thermometer at 19°. they ascended, and at thirty-one minutes past seven, the barometer sunk to twenty-nine inches, and the thermometer to 18°. The first cask was now filled with air, and when the barometer had fallen another inch, another cask was filled. The towns and villages being now obscured by a fog, the paper way-wiser was thrown out, and showed the direction of the balloon, for as the balloon fell, the way-wiser being lighter, and meeting more resistance in falling than the balloon, flew up, and when it rose, sunk down to the full length of its thread.

At other times it was seen in a diagonal direction, and pointed out with considerable accuracy the general direction and movements of the machine. At twenty-five minutes past eight, the barometer being at twenty-six inches, another cask was filled with air, and another, when it was twenty-five inches, and so on for every inch descent of the mercury. At half-past nine o'clock, the barometer being at twenty-two inches the thermometer at 4°, 30′, the voyagers saw the sun which was about half obscured by the fogs or the horizon or both. A piece of sealing wax rubbed with cloth, put in motion Bennet's Electrometer. A magnetic needle placed by M. Sacharof on a pin, elevated its north end, and lowered its south end, making an angle of 10, or 12°, but ever after descending, the same needle assumed an horizontal position. The æronauts experienced no inconvenience except that their ears were benumbed with cold. There were white clouds a great way above the balloon, but the sky was in general clear and bright. They could however see no stars. As they were now floating over some towns and villages, M. Sacharof took his speaking trumpet and directed it toward the earth, and called as loud as he was able; after a lapse of ten seconds his words returned in echo, and sounded distinctly and clearly: calculating by the velocity of sound, he thought himself 5700 feet from the earth! To render the descent as safe as possible, all the instruments, clothing, &c. with an anchor were let down by a rope, but the handle being drawn a considerable distance along the ground, many of the instruments were destroyed, and of the eight casks that had been charged with air at different altitudes, four only were fit for experiment. These last two voyages may be said to be the first ever undertaken with the general view of investigating philosophy and science.

42. Besides the account given by Messrs. Robertson and Sacharof, with respect to the magnet, that there was a change in the dipping power of the needle.

M. Saussure, from experiments made on the Col du Geant, at the height of 3435 metres

above the level of the sea, thought he observed a sensible decrease of the magnetic virtue. Some æronauts had stated that at a certain height the power of magnetism entirely vanishes.

43. To ascertain the truth or fallacy of these assertions, and also to try the experiment of Saussure in isolated situations remote from the influence of any local attractions; to explore the constitution of the higher atmosphere, its fitness or unfitness for respiration, &c.; and also to make electrical, chemical, and meteorological observations, M. Biot and Gay Lussac, two young philosophers, educated at the Polytechnic school in Paris, proposed taking an ærial voyage. Their plan was patronised by the French government. The balloon which once visited Egypt, was delivered to these gentlemen, for the purpose of the excursion; the artist who constructed it was appointed to repair it under their direction, and every facility was to be afforded them. Besides the usual provision of barometers, thermometers, hygrometers, and electrometers, they had two compasses, a dipping-needle, and another fine needle carefully magnetized, and suspended by a very delicate silk thread for ascertaining, by its vibrations, the force of attraction in the upper strata of the atmosphere. To examine the electricity of the strata they carried up several metallic wires from sixty to 300 feet in length, and a small electrophorus slightly charged. For galvanic experiments, they had procured a few discs of zinc and copper, with some frogs, insects, and birds. It was also proposed to bring back air collected at as great a height as possible, for chemical analysis, for which purpose they had a glass ball closely shut up, previously exhausted of air; so that they had only to open and shut it up carefully, by means of the stopper.

44. They ascended from the *Conservatoire des Arts*, or repository of models, formerly the convent of St. Martin; on 23rd of August, 1804, the barometer being 30, 10.′ inches; the thermometer 61°, 7′. on Fahrenheit's scale, and Saussure's hygrometer 80°, 8′. near the point of absolute humidity. In a few moments they entered the region of the clouds, which seemed like a thin fog, and communicated a slight sensation of humidity. The balloon becoming quite inflated, they let out part of their gas, and threw out some ballast to give a greater elevation. They now shot through the clouds, and reached an altitude of 6500 English feet. Viewed from above, the clouds had the usual whitish appearance, exhibiting an elegant variety of gentle swells and undulations, resembling a wide plain of snow. At this altitude they commenced their experiments, and first of all employed the magnetic needle. This was attracted by iron; but owing to a slow rotatory motion of the balloon, they found it impossible to determine its rate of oscillation. The rotation showed itself, when any of the ropes were brought in a straight line with the edge of the clouds on any terrestrial objects, the contours of which were sensibly distinguishable the one from the other. Electricity was excited by the contact of insulated metals, as upon the earth. An electric pile, prepared with twenty discs of copper, and as many of zinc, exhibited all the usual symptoms, the pungent taste, the nervous shock, and the decomposition of water. This might have been expected, says M. Biot, since the action of this pile does not cease, even in a vacuum. They afterwards attained the altitude of 8,940 feet, but afterwards settled at 8,600 feet. At this great elevation the animals seemed to suffer from the rarety of the air. They let off a bee, which flew away making its usual humming noise. The thermometer had fallen to 56°, 4′. by Fahrenheit; yet so far were they from experiencing cold, that they were absolutely scorched by the rays of the sun, and were obliged to lay aside their gloves from the inconvenience occasioned by the heat. Their pulsations were much accelerated, that of Gay Lussac was increased from sixty to eighty in a minute, and his companion's from 79 to 111, attended, however, with no difficulty of breathing; Gay Lussac, whose frame was less robust, experienced the less acceleration. The balloon continued its rotatory motion, which rendered it still difficult to observe, with accuracy, the oscillations of the magnetic needle; but on looking attentively down upon the surface of of the conglomerated clouds, they observed that the balloon revolved slowly, first in one direction, next in the contrary one. They therefore, seized the few minutes of quiescence between these opposite motions for their experiments and observations upon the needle; but in these pauses, though they set the needle to vibrate, they were rarely able to count more than from five to ten oscillations. From a number of trials made between the altitudes of 9,500 and 13,000 feet, they calculated seven for the mean length of an oscillation, which at the earth is but $7\frac{1}{20}$, and attributing so nice a distinction to the imperfection of the experiment, they concluded that the force of the magnetic attraction had in no degree diminished, at the greatest elevation they could possibly reach; and the direction of this force, in their opinion, remained the same. M. Biot confesses that he was not able to observe the needle with accuracy, and therefore, cannot positively assert that it experiences no variation; but he thinks it highly probable that it does not, its horizontal force having undergone no change, or if any, it must have been very inconsiderable, because the magnetic bars brought into equilibrium before their departure, retained their horizontality during the whole journey. The weather and the disposition of the apparatus, however, prevented their coming to any nice conclusion.

45. At the altitude of 11,000 feet, they liberated a green linnet, which flew away directly; but soon feeling itself abandoned in the midst of an unknown ocean, returned and settled on the balloon, then collecting itself, took a second flight, and darted downward to the earth, describing a tortuous, yet almost perpendicular track. A pigeon which they sent off, offered a more curious spectacle: He rested a short time on the edge of the car, and looked down as if measuring the breadth of that unexplored sea before him, then launching into the abyss, fluttered irregularly, and after a few strokes, whirling in spiral like birds of prey, precipitated himself toward

the mass of extended clouds, and became invisible. Our æronauts had now arrived at the altitude of 13,385 feet, and had not yet made electrical experiments. In order to try the apparatus an insulated wire was let down 240 feet in length, and electricity was extracted from its upper extremity, which when applied to the electrometer, appeared to be resinous, or negative, confirming the observations of Saussure and Volta, respecting the increase of electricity, observed in ascending the atmosphere. The experiment was tried, first, by destroying the atmospheric electricity by means of the vitreous electricity, from the electrophorus; and, secondly, by destroying the vitreous electricity, extricated from the electrophorus, by means of the atmospheric electricity. The latter must therefore, have been resinous. The inference drawn from these experiments was, that electricity increases as we ascend farther from the surface of the earth, agreeably to the experiments and observations of Volta and Saussure. The diminution of temperature in the higher regions, was not so great as might have been expected, and less than what is experienced in the same altitude on the tops of mountains, even at the elevation of 12,800 feet. The thermometer was at 51°, by Fahrenheit, while it stood as low as 63½, at the observatory, being a decrement of one degree for every 1000 feet of ascent.

46. The hygrometer, or rather hygroscope of Saussure advanced regularly towards dryness in proportion to the altitude they attained. At the time of the ascent, this instrument indicated 80°, 8′, at 16°, 5′ of the centrigade thermometer, but at the elevation of 13,000 feet, it changed from 80°, 8′, to 30°, from which it would appear that the air is much drier in the upper regions than at the earth, which was the conclusion of M. Biot. The rectitude of it however, has been questioned. It has been observed that the indications of the hygroscope depend on the relative attraction for humidity possessed by the substance employed, and the medium in which it is immersed. But air has its disposition to retain humidity, always augmented by rarefaction, and consequently such attraction must materially affect the hygroscope. Such are the results of this voyage, which has been considered the most scientific of any that have been hitherto made. Having expended all their ballast they descended gradually till at about the altitude of 4000 feet, they entered the stratum of clouds extending horizontally with the surface of the earth, and at last reached the ground. There being no people near the spot to stop the machine, they were dragged in the car to some distance along the fields. M. Biot was so overpowered by the alarm of their descent as to lose entire possession of himself, and the only way left of avoiding the dangers that threatened them, was, by discharging the remaining gas.

47. M. Biot afterwards presented himself to the Institute as a candidate for a second ascent. He did not however repeat his excursion; but at the request of several Parisian philosophers M. Gay Lussac made another voyage on the 15th of September, from the same place, at about forty-nine minutes past nine in the morning. He reduced his apparatus, and adapted it better to his circumstances. Aware that he could only observe the magnetic needle during the short periods of quiescence, intervening between the rotatory motions of the balloon, he preferred one of not more than six inches long, the oscillations of which were more rapid. The dipping needle was magnetized, and adjusted by M. Coulomb, and the thermometer was inclosed within two concentric cylinders of pasteboard covered with gilt paper, proper to prevent the immediate action of the sun. The hygrometer, on Richer's principle, with four bodies, was sheltered in a similar manner. Two glass vessels were exhausted, with the intention of bringing down air from the higher regions, and the mercurial gauge stood at the twenty-fifth part of an inch. The barometer at the period of ascent, stood at 76,525 centimetres, or 30.66 English inches. The hygrometer at 57.5, and the thermometer at 27.50, of the centigrade, or 82° of Fahrenheit's thermometer. At the elevation of 3000 feet, he saw a light vapour dispersed through the whole atmosphere below him, through which distant objects *might* be confusedly seen. At the height of 3032 metres, or about 9950 English feet, he commenced his experiments on the magnetic needle, which made twenty oscillations in 83°, the same as it would have made at the earth in 83°, 20′. At the height of 12,680 feet, the needle taking the mean amplitude of the oscillations was 31° as at the observatory. Owing to the wind and other difficulties, he was obliged to renounce any further observations. In his experiments with the dipping needle, he was equally unsuccessful, for the dryness formed by the sun in rarefied air, was so great, that the compass became damaged by the bending of the metallic circle on which the divisions were traced out, by which all his deductions were rendered uncertain: he therefore proceeded to his other experiments.

48. At the altitude of 14,000 feet, a key held in the magnetic direction repelled with one end, and attracted with the other the North Pole of the needle, and even at the increased altitude of 20,150 feet, he found no sensible difference; whence, he concludes magnetism to be the same at the greatest elevation.

The table of observations will, perhaps, give the clearest view of the result of his experiments to the curious reader.

Table of the Observations of M. Gay Lussac, in his ascent on the 15th of September, 1804.

Temperature expressed in degrees of the centigrade thermometer.	Mean of the indications of the two hygrometers.	Mean height of the barometer, reduced to that of a barometer at a constant level.	Corresponding heights in metres above Paris.	The same in toises.	Number of magnetic oscillations.	Duration of the oscillations in seconds.	Oscillations reduced to the common number 10.	Corresponding time.
		Cent.						
27°·75	57·5	76·525	Surface.	Surface.	30	126·5	10	42·16
12·50	62·0	53·81	3032·01	1555·64	20	83·3	10	41·5
11·00	50·0	51·43	3412·11	1750·66				
8·50	37·3	49·68	3691·32	1893·92				
10·50	33·0	49·05	3816·79	1958·29	10	42·0	10	42·0
—	—	45·28	4511·61	2314·84	30	127·5	10	42·5
12·0	30·9	46·66	4264·65	2188·08	30	125·5	10	41·8
11·0	29·9	46·26	4327·86	2220·51	20	86·0	10	43·0
8·25	27·6	44.04	4725·90	2428·89	20	84·5	10	42·2
6·50	27·5	43·53	4808·74	2467·24	30	128·5	10	42·8
8·75	29·4	45·28	4511·61	2314·84	30	127·5	10	42·5
5·25	30·1	42·49	5001·85	2566·32				
4·25	27·5	41·14	5267·73	2702·74	40	169	10	42·2
2·5	32·7	39·85	5519·16	2831·74				
0·4	30·2	39·01	5674·85	2911·62				
1·0	33·0	41·41	5175·06	2654·68	30	126·5	10	42·1
—3·0	32 4	37·17	6040·70	3099·32			10	
—1·0	32·1	36·96	6107·19	3133·44	20	84·0	10	42·0
0·0	35·1	39·18	5631·65	2889·45	30	127·5	10	42·5
—3·25	33·9	36·70	6143·31	5151·97	20	82·0	10	41·0
—7·0	34·5	33·39	6884·14	3532·07	20	83·5	10	41·7
—9·5		32·88	6977·97	3579·90				

49. From this it appears, that the temperature is very irregular in corresponding heights, which he supposed to arise from the observations being taken, some in ascending and some in descending, the thermometer obeying the variations too slowly. But regarding only the decreasing series of degrees in the thermometer, the law of temperature appears more regular: thus, the temperature at the earth is 27°, 75′, and at the height of 3691 metres, is 8°, 5′, dividing the difference of the altitudes by that of the temperatures, we shall have 191.7 metres, or 98.3 toises of elevation for each lowering degree of temperature. Towards the surface of the earth, the heat follows a less decreasing law than in the higher parts of the atmosphere. At greater heights it follows arithmetical progression. The lowest temperature observed, was 9°, 25′, corresponding to 14°, 9′, of Fahrenheit's thermometer; and to an elevation of 23,040 English feet. The gradation evidently is not uniform, as appears from facts already laid down by other observers, but proceeds with augmented rapidity in the upper regions. The hygrometer was very irregular, but tended obviously toward dryness. At the earth, it was 57°, 5′, but at the height of 3032 metres, changed to 62°, and then declined till the balloon attained the height of 5267 metres, when it stood at 27°, 5′. From this point it advanced again, with slight aberrations to 35°, 1′, at an altitude of 5631 metres, but above this, the variation was slight. Facts and observations, have, however, convinced us, that the higher strata of the atmosphere, are generally driven through the lower, and are capable of retaining at the same temperature, a larger share of moisture. The two air flasks were opened, one at the height of 21,460 feet, and the other at 21,790 feet, when the air rushed into them with a whistling noise. From that stupendous height, he still saw fleecy clouds at a great height above him, but none below. The atmosphere wanted transparency, and exhibited a dull misty appearance. The different aspect of the sky, was owing, in his opinion, to the different direction of the winds. At this enormous elevation, he began to feel increasingly cold, great numbness, difficulty of breathing, while his throat was so parched from inhaling the dry attenuated air, that he could scarcely swallow a morsel of bread. His ballast being nearly gone, and his balloon completely distended, he began to descend at the rate of about a mile in eight minutes, and after a lapse of thirty-four minutes, alighted, at three-quarters past three o'clock, near the hamlet of St. Gourgon, sixteen miles north west of Rouen. On his arrival at Paris, he hasted to the laboratory of the polytechnic school, with his flasks of air, and proceeded to analyze it. On opening the flasks under the water, the liquid rushed in, and half filled their capacity. It was found on analysis to be exactly the same in point

of proportions, as that at the surface of the earth; each 1,000 parts being 215 of oxygen.

50. The next voyage which we must notice by way of warning to future adventurers, was one of the few fatal ones. On the 7th April, 1806, M. Mosment ascended from Lisle, apparently under auspicious circumstances. During his ascent, he dropped a dog with a parachute, which came safely to the ground, and about one o'clock something was seen descending slowly through the air, and proved to be the flag of M. Mosment. Soon after, a murmur was circulated that the body of the æronaut was found in one of the fosses of the city, lifeless and covered with blood, which proved in the end but too correct. The misfortune has been attributed to the shallowness of the car, by which, he is supposed to have lost his balance in throwing out the dog, and precipitated to the earth.

51. On the 4th of August, M. Garnerin, ascended from Paris at eleven o'clock in the evening, for the purpose of making nocturnal observations, under the Russian flag. His balloon was illuminated by twenty lamps, and formed a very splendid appearance; rockets let off at Tivoli, seemed to him scarcely to rise above the earth, and Paris appeared studded with numerous stars. In forty minutes he rose to an elevation of 13,200 feet: at twelve o'clock, when 3,600 feet from the earth, he heard the barking of dogs; at two o'clock, he saw several meteors flying around him; at half past three, he beheld the sun rising in magnificence and grandeur above the ocean of clouds, and the gas expanding, he rose to the height of 15,000 feet, and after a lapse of more than seven hours, descended at Loges, forty-five leagues from Paris.

52. He took a second nocturnal voyage, on the 21st September, in which he was exposed to great danger. He commenced his voyage as before from Tivoli, and was at first carried with unexampled rapidity to an immense height, when he began to prognosticate a storm. The balloon dilated to an alarming degree, and having neglected his apparatus for conducting the gas away from the lamps in its escape, he could not manage the balloon: he therefore with one hand made an opening of two feet diameter, and with the other put out all the lamps he could, and was, without a regulating valve, tossed about from current to current; his ballast was gone, and in this condition, the balloon rose through thick clouds, then sunk, then struck the earth and rebounded to an amazing altitude: the storm dashed him against the mountains, and after many severe shocks he became for a time insensible. On recovering his senses, he found he had been carried to Tonnere, in a storm of thunder. His anchors shortly hooked in a tree, and he alighted in seven hours and a half from his ascension, 300 miles from Paris, having travelled a distance of forty miles in an hour. This, however, is not more than half the distance he travelled on one occasion in this country, when he went from London to Colchester, a distance of fifty miles, in three-quarters of an hour.

53. Since this period, the names of Sadler, Green, Graham, and other adventurers have been connected with the ascent of balloons, for the purpose of emolument, in England: sometimes exhibiting the triumphs, and sometimes the paucity of scientific attainments in their conductors. But we know of no further efforts than the above, to increase the materials of science itself, by these voyages.

54. The utility of Æronautic studies and experiments has been very much questioned even by philosophical minds. M. Cavallo, well known in the philosophical world, suggested long ago that small balloons, especially those made of paper, and raised by means of spirit of wine, may serve to explore the direction of the winds in the upper regions of the atmosphere, particularly when there is a calm below; and we see the French æronauts adopted this idea, that they might serve also for signals in various circumstances, in which no other means can be used; and letters or other small things may be easily sent by them; for instance, from ships that cannot safely land on account of storms; from besieged places, islands, or the like. The larger ærostatic machines, he adds, may answer all the above mentioned purposes in a better manner; and they may, besides, be used as a help to a person who wants to ascend a mountain, or a precipice, or to cross a river; and perhaps one of the machines tied to a boat by a long rope, may be, in some cases, a better sort of sail than any that is used at present. Their conveying people from place to place with great swiftness, and without trouble, may be of essential use, even if the art of guiding them in a direction different from that of the wind should never be discovered. By means of those machines the shape of certain seas and lands may be better ascertained; men may ascend to the tops of mountains they never visited before; they may be carried over marshy and dangerous grounds; they may by that means come out of a besieged place, or an island; they may, in hot climates, ascend to a cold region of the atmosphere, either to refresh themselves, or to observe the ice which is never seen below; and, in short, they may be thus taken to several places, to which human art hitherto knew of no conveyance.

55. 'The philosophical uses, to which these machines may be subservient, are numerous indeed; and it may be sufficient to say, that hardly any thing which passes in the atmosphere is known with precision, and that, principally for want of a method of ascending into it. The formation of rain, of thunder storms, of vapours, hail, snow, and meteors in general, requires to be attentively examined and ascertained. The action of the barometer, the refraction and temperature of the air in various regions, the descent of bodies, the propagation of sound, &c. are subjects which all require a series of observations and experiments, the performance of which could never have been properly expected, before the discovery of ærostatic machines.'

56. Such speculations have been for years on record: the reader will see from our preceding detail that they have but partially been fulfilled.

But we should not omit to state, that the French applied balloons to military purposes during the late war, and ascribe to this in a great measure, the celebrated victory obtained over the Austrians, at Fleurus, 1794. A balloon was sent up under the direction of Mr. Coutel, accompanied by an adjutant and a general, who rose twice the same day to the height of 220 fathoms, and remained each time four hours suspended in the air, observing the movements of the enemy, and corresponding all the time by military signs with general Jourdan, commander of the French army. The enterprise was at last discovered, and a battery opened upon the æronauts, but they soon gained an elevation beyond the reach of the fire. Afterwards the French commonly prepared balloons to go with their armies, as into Egypt, &c. but we have never heard of any other practical result. We would now direct the reader to

57. Sect. III. Of the Principles of Æronautic Machinery.—The general principles of Ærostation are so little different from those of hydrostatics, that it is almost superfluous to insist on them. It is a fact universally known, that when a body is immersed in any fluid, if its weight be less than an equal bulk of that fluid, it will rise to the surface; but if heavier, it will sink; and if equal, it will remain in the place where it is left. For this reason smoke ascends into the atmosphere, and heated air in that which is colder. Upon this simple principle depends the whole theory of ærostation.

58. A cubic foot of air has been found to weigh about 554 grains, and to be expanded by every degree of heat, about $\frac{1}{500}$ part of the whole. By heating a quantity of air, therefore, to 500 degrees of Fahrenheit, we just double its bulk when the thermometer stands at fifty-four in the open air, and in the same proportion we diminish its weight; and if such a quantity of this hot air be inclosed in a bag, and the excess of the weight of an equal bulk of common air weighs more than the bag with the air contained in it, both the bag and the air will rise into the atmosphere, and continue to do so until they arrive at a place where the external air is naturally so much rarefied, that the weight becomes equal; and here the whole will float.

59. From the frequent exhibition of ærostatic machines, the power of hot air in raising weights, or rather that by which it is itself impelled upwards, has been illustrated by a variety of experiments with which every one is familiar. From these it appears, that in the ærostatic machines on Montgolfier's plan, it must be an advantage to have them as large as possible; because a smaller quantity of fire will then have a greater effect in raising them, and the danger from that element, which in this kind of machines is chiefly to be dreaded, will be in a great measure avoided. On this subject it may be remarked, that as the cubical contents of a globe, or any other figure of which balloons are made, increase much more rapidly than their surfaces, there must ultimately be a degree of magnitude at which the smallest additional heat would raise any weight whatever. Thus, supposing any ærostatic machine capable of containing 500 cubic feet, and the air within it to be only one degree hotter than the external atmosphere; the tendency of this machine to rise, even without the application of artificial heat, would be near an ounce. Let its capacity be increased sixteen times, and the tendency to rise will be equivalent to a pound; and this may be done without making the machine sixteen times heavier than before.

60. It is certain, however, that all ærostatic machines have a tendency to produce or preserve heat within them, as Messrs Charles and Roberts found in their ærial voyage of 150 miles, when the external atmosphere was 63°. and the thermometer within the balloon at 104°. Such a difference of temperature affording a power of ascent equal to forty-one grains on every cubic foot, must, in a machine of 50,000 such feet, have amounted to almost 200 pounds. Hence we may easily account for Mr. Morveau's accident at Dijon, when a balloon filled only with common air made its escape to some distance by the spontaneous rarefaction of the air within. This difference between the external and internal heat, being so very considerable, must have a great influence upon ærostatic machines, and will undoubtedly influence those filled with inflammable air as well as the other kind. The rain, snow, and vapours, which condense upon them in the higher regions, may also occasion an evaporation, and consequently a very violent degree of cold, so as to make them specifically heavier than the atmosphere.

To this, probably, we may ascribe the descent of the balloon which carried M. Blanchard and Dr. Jeffries; and which seemed so extraordinary, that many had recourse to an imaginary attraction in the waters of the ocean, in order to solve the phenomenon. This supposition, however, is rejected by Cavallo; who explains the matter, by remarking, that in two former voyages made with the same machine, it could not long support two men in the atmosphere, so that we had no reason to wonder at its weakness on this occasion. In fact, it does not appear that the air over the sea is at all warmer than that above land; on the contrary, there is every reason to believe that the superior reflective power of the land renders the atmosphere above it warmer: but it is very natural to suppose, that the air above the sea is more moist than that above land; and consequently, by letting fall its moisture upon the balloon, must have occasioned an evaporation, that would deprive the machine of its internal heat; which it would partly recover after it entered the warmer and drier atmosphere over land.

61. Much attention has been directed to the shape most proper for the balloon, an object in æronautics of considerable importance. The early balloons appear to have been elliptical or oval, but the spherical is now generally preferred because this figure admits the greatest capacity under the least surface. The conical or oblong figure has been proposed as an experiment; in which case the machine is supposed to proceed with its narrow end forward. This suggestion arose from the consideration that a round form, and that which is approximately so, presents a

greater surface to the opposition of air; and is, therefore, an insuperable obstacle to guiding it by the action of the oar, wings, or any other invention which might be contrived to turn it, either in the current of the atmosphere, or even in a perfect calm. Mr. Hoole, copying nature, suggests the shape of a fish, the head of which figure might serve to divide the fluid, and the tail as a rudder, to steer the course of the balloon. The traveller, he suggests, should sit in the centre of gravity of the whole mass; and thus he would not only render it perfectly horizontal, but be able, from his situation, to give an impulse of sufficient force to move the whole body: he should also be provided with instruments analogous to the fins of fishes, says this author, and of sufficient texture to bear the whole force of his muscular strength. The oblong form is, however, attended with the disadvantage already named, as to its capacity being less under the same surface than the sphere; and consequently, its power of buoyancy must be calculated at a proportional diminution, to say nothing of the positive augmentation necessarily incurred by such a change of figure to its ponderosity, or the superadded consideration of the difficulty of balancing and governing such a figure in the open heavens, exposed to the action of violent winds and storms; the first blast of which might roll it sideways, sweep it away upon its bosom, or perhaps turn it over. Other advantages of the spherical form are as follow. The circumferences of spheres are as their diameters; their surfaces as their squares; their solid contents as the cubes of their diameters. The diameter of the circumference being as 7 to 22. If the diameter of a spherical balloon be 35 feet, the circumference will be 110: that diameter multiplied by the circumference, will give the surface of the sphere, and in the case above named 3850 feet. By knowing the weight of a given portion of the materials of which the balloon is formed, as of a square foot or yard, it is easy to calculate the whole; and, in order to find the capacity, take $\frac{1}{21}$ of the cube of the diameter, or multiply $\frac{1}{6}$ of the surface by the entire diameter.

62. Having found the contents and surface of the balloon, we calculate its buoyancy. If the cubic foot of air weighs $1\frac{1}{3}$ of an ounce, we take the number of cubic feet in the solid content of the balloon, and add to them $\frac{1}{3}$ part of themselves, considering the feet as ounces; and hence we have the weight of air displaced by the balloon. If the balloon contain 22,458 cubic feet, each of the weight of $1\frac{1}{3}$ oz. we add to 22,458 ounces $\frac{1}{3}$ of that quantity; and hence have 26,949$\frac{3}{3}$ ounces the weight of the whole, supposing the dimensions of the same weight as air. This, however, is not the case. From the aggregate, then, of the 26,949$\frac{3}{3}$ ounces, we deduct the weight of the materials of which the vehicle is made, and the remainder expresses the exact levity of the balloon, on the supposition that it contains common air. But inflammable air weighs from $\frac{1}{4}$ to $\frac{1}{13}$ of the weight of common air only, and, supposed in the above case at $\frac{1}{6}$, will stand thus $\frac{1664}{6}$=280; also 1256—280=976ths power of ascension. The same general reasonings may be applied in other cases for calculating the buoyancy of spherical balloons of all sizes, the levities being nearly as the cubes of the diameters, and consequently the diameters as the cube roots of the levities. But from the application of similar reasonings to the oblong figure, there appears, as we should expect, an augment of weight, and a decrease of capacity, under the same extent of surface.

63. The power of ascension in balloons differs considerably, according to the means of aerostation or rarefaction employed. If a perfect vacuum could be procured, a globe of 10 feet in diameter would rise, with a force of 40 pounds; one of 20 feet, 320 pounds; one of 30 feet, 1080 pounds, in the ratio of the cube of the diameter. We have already stated, the levities are as the cube of the diameters, and consequently diameters as the cube roots of the levities. But air expands by heat at least 450th part of its bulk; and it is impossible to apply caloric in a sufficient degree to obtain its whole ascensional power. That air within a balloon or vehicle, heated 50 degrees, would dilate by elasticity till one-ninth part was driven out; so that even then the tendency of the balloon to rise would be equal only to the ninth part of its whole buoyant force. That being the relation in which 50 stands to 450, and 50 degrees of heat is as much, perhaps, as could be supported. Humidity produces a dilation of air, amounting, in good weather to an eightieth part of the volume of fluid, and in the tropical regions would exceed one-twentieth: hence moist air thrown into a large bag, sufficiently waxed, would cause it to rise. But heat and moisture combined, produce a far greater rarefaction of the air than either of them is capable of producing alone. The smoke used by Montgolfier with so great success, was nothing scarcely but air charged with vapour, produced by burning of vine-twigs, chopped straw, &c. and was computed to be one-third specifically lighter than common air, and therefore must have possessed a degree of rarefaction which it would require 150 degrees of heat to produce operating alone. From these data it is evident that the force estimated at $12\frac{1}{2}$ pounds avoirdupoise in a globe of 10 feet diameter, would amount to $1562\frac{1}{2}$ pounds, if the diameter were 50 feet, and to 12,500, if it were a hundred, being as the cube roots of the levities, from which is to be deducted, the weight of the case, appendages, &c. which, estimated at two-fifths of a pound, for a sphere of one foot in diameter, demonstrates a balloon of 100 feet diameter, capable of exerting an ascending power of not less than 8500 pounds, independent of the cordage, car, ballast, &c. which still must be deducted; and one of $33\frac{1}{3}$ feet diameter would exert a power capable of producing a mere equilibrium between the weight of the canvass and the buoyant force of the rarefied air.

64. Balloons filled with gas remain to be considered. Hydrogen gas obtained from sulphuric acid, acting on iron filings, is six times lighter than common air, but gas evolved by a solution of zinc in that acid, is twelve times lighter. We may, therefore, independently of accidents, &c. consider, that on a general scale the hydrogen gas that fills a balloon, is six times specifically lighter than common air, the balloon must there-

e exert ⅞ of the buoyant force corresponding to capacity, and will have an ascending power ual to $\frac{1}{30}$ of a pound avoirdupois for a globe one foot diameter, 112½ pounds for a balloon 15 feet diameter, 900 pounds for one of 30 et, and 7200 pounds for one of 60 feet, the eight of the balloon, &c. to be deducted, which lowing, as has been calculated $\frac{1}{20}$ part of a ound for a varnished silk globe of one foot dia- eter, would be in a balloon of 15 feet diameter, 1¼ pounds, in one of 30 feet 45 pounds, in one 60 feet 180 pounds, and the consequent power ascension in such balloons would be 101¼, 55, and 7020 pounds, whilst a balloon of 1½ eet would just float in the atmosphere. There eing in that case an exact equilibrium between he weight of the materials and the ascensional ower of the gas. The weight of the appendages, must be considered, has a tendency to com- ress the gas embodied in the balloon, and there- y to render it more dense, but this effect is not onsiderable. A load of 6000 pounds in a bal- oon of 60 feet diameter, has been calculated to roduce a compression amounting to ⅗ of a ound; for a circle of one foot diameter in the orizontal section, the 979th part of the pressure f the atmosphere on a globe of those dimensions, nd rating the weight of gas at 1200 pounds, here will be a diminution of buoyancy of $1\frac{7}{31}$ pounds. The balloon, according to its power of ascension, would rise with a motion perpetually accelerating, were not this velocity checked by he resistance of the air through which it passes, which according to the theory of dynamics, is to hat which a falling body acquires in the same pace of time, as the ascensional power is to the weight of the apparatus and fluid. Still, not- withstanding the opposition it meets with from the atmosphere, it will attain its final velocity in about double the time which would be otherwise required for that purpose, after which its ascent will be uniform, the resistance of the air being just equal to the buoyancy of the balloon. The resistance of a circle moving through any given fluid in a direction perpendicular to its plane, is measured by the weight of a column of that fluid of equal base with the circle, and at an altitude from which a heavy body falling will acquire the same celerity; a rule which arises out of the ge- neral principle that air presses equally every way. Near the level of the sea, at mean temperature, a column of air 17 feet high, incumbent on a circle of a single foot diameter, weighs a pound; the consequent resistance which such a circle would suffer, propelled at the celerity of 33 feet each second. Newton calculates the resistance of the atmosphere to be just half that of its generating circle, and therefore a velocity of 46⅔ feet in a second, would create a resistance of one pound to a sphere of one foot diameter. In other cir- cumstances the resistance will be proportionate to the squares of the velocities and densities. Con- sequently if the buoyant force were always the same, the velocity of ascent in a balloon would be inversely as its diameter. A balloon of 30 feet diameter and 100 pounds ascensional power, has the same effect as the ninth part of a pound for a globe of one foot diameter; and would therefore meet a resistance corresponding to the velocity of 46⅔ divided by 3, the square root of 9 or 15⅝ each second, consequently the balloon would rise a mile in six minutes.

65. To determine the height to which a balloon will rise, the rule is, to compute the contents of the globe in cubic feet, and divide its restraining weight in ounces by the content, and the quotient will be the difference in the density of the atmos- phere at the surface of the earth, and at the point to which the balloon will rise. Subtract this quo- tient from 1¼, the density at the earth, and the re- mainder will be the density at that height; after which, the height may be found by comparing the density thus obtained, with philosophical tables for that purpose. The balloon would in- deed, at first, rise above this altitude, by reason of the rapid celerity acquired in its ascent, and afterwards sink below it; but this is the point at which it would ultimately settle and continue in the diffuse medium; the density of air, at that degree of elevation, just balancing the ascen- sional power.

66. Its equipoise cannot be stable so long as it remains in a loose flaccid state; but the circum- stances of its ascent are to be determined by means of ballast, and the safety valve appointed for occasionally letting out a portion of the gas; for although the balloon designed for any con- siderable altitude, is not more than half filled with gas at first, still, by the increased rarefaction of the air as it ascends, and the consequent diminished pressure on the exterior, the expan- sion sometimes becomes so great as to endanger the bursting of the machine.

67. The rarefied air balloons have been com- monly elevated or depressed by increasing or di- minishing the fire; the inflammable air balloons, by throwing out the ballast, or letting out the gas, in suitable portions, through the valve. But these means will in time render the vessel inca- pable of floating; for in the air they can have no supply of ballast, and with great difficulty can procure gas. They will also rise or fall by the rare- faction of the inclosed air; and it has been pro- posed to effect these purposes, by means of an- nexing to the balloon a vessel of common air, by condensing and rarefying which, the machine may be lowered or elevated at pleasure. M. Meuvier proposed to inclose one balloon of common air in another of inflammable air; by this means, as the balloon ascends, the gas becomes expanded, and compressing the balloon of common air, diminishes its weight; and to in- crease the quantity of this air when needful, he suggested the use of bellows. Some propose to annex a small balloon with rarefied air, to one of inflammable air; and by altering the fire of the lower one, to raise or depress the machine.

68. Several inventions have been offered for the purpose of conducting these machines through the air, and giving them a direction to whatever point the æronaut should wish to travel. Some have proposed to govern them by sails and rudder, in the same manner as ships at sea; but this, as might have been expected, was found impracticable, the course of balloons and ships being so exceedingly different. A vessel upon the water moves with less velocity than the wind, and therefore the wind acts powerfully

upon the sails; but ballous, having the same velocity as the surrounding air, feel no wind, and consequently can derive no benefit from sails. Oars and wings have been applied with as little success. The helm, indeed, was for some time encouraged, from the motion of fishes in the water; but from this no practical benefits have been derived. Professor Dauzel is said to have contrived a machine for the direction of the balloon, an account of which may be seen in the Philosophical Magazine, vol. iv. p. 108; but it seems to have fallen into disuse; and it is probable that these contrivances will never be brought to a state of perfection. The power which the æronaut has of raising and lowering himself in the atmosphere, will, at present, best enable him to take advantage of the different currents of air, which are blowing at the same time in various directions; and, by committing himself to the breeze he wants, to supersede the necessity of contrivances, which would tend at best to encumber the machine. The parachute, however, is a useful appendage, by means of which the voyager can, at any height, leave the balloon, in case of danger, and escape to the earth without incurring the inconvenience of a rapid fall. A machine on the same principle is said to have been long used in the east, by the Vaulters, to enable them to jump from great heights. We have noticed its general principles of descent already.

69. Sec.V. OF MAKING AND FILLING BALLOONS.—With respect to the construction of the balloon or globe, the first thing to be considered, is the formation of the gores of which it is composed. In order to frame these, we must consider that the edges are not segments of circles, and cannot in consequence be described by compasses. To shape them, the following directions are necessary: first draw a right line A B, (see plate I. fig. 1.) equal to half the circumference, which divide by the line C D into two equal parts at the point E, each equal to the one-fourth of the circumference. Describe the line A B in feet and decimals; divide the quarter circumference A E into eighteen equal parts, and to the points of division apply the lines f g, h i, k l, &c: divide the whole circumference into twice the given number of pieces, and make C E and E D each equal to the quotient of this division: so that C D may be equal to the breadth of one of those pieces: multiply the above mentioned quotient by the decimals at the end of the lines f g, h i, k l, &c., and you have the length to which the line ought to be continued. Draw a curve along the extremities of these lines, and you have one quarter of the pattern complete, by which you may shape the rest. The reason of the rule is, that the several breadths of each slip, at the several distances from the point to the centre, are as the sines of those distances, the radius being the size of half the length of the slip. Having computed the circumference of the balloon, it is comparatively easy to form the gores after which nothing remains to complete the machine, but fitting them together, varnishing the exterior, and suspending the car, which is commonly of wicker work, covered with leather, to the balloon, by means of ropes attached to a net, formed to fit the shape of the balloon. For the greater convenience of ærostation, the ropes from the net are attached to the circumference of a circle about twenty feet below the balloon, whence other ropes go to the edge of the boat.

70. The material universally employed for ærostatic machines of a larger size, to be filled with inflammable air, is varnished silk; and for those of the rarefied air kind, linen painted over with some size colour, or lined with paper; the best varnish for an inflammable air balloon, is that made with birdlime, and recommended by M. Faujas de Saint Fond, in a treatise published on the subject:—'Take one pound of birdlime, put it into a new proper earthen pot that can resist the fire, and let it boil gently for about one hour, viz., till it ceases to crackle; or, which is the same thing, till it is so far boiled, as that a drop of it being let fall upon the fire, will burn: then pour upon it a pound of spirits of turpentine, stirring it at the same time with a wooden spatula, and keeping the pot at a good distance from the flame, lest the vapour of this essential oil should take fire. After this, let it boil for about six minutes longer; then pour upon the whole, three pounds of boiling oil of nuts, linseed, or poppy, rendered drying by means of litharge; stir it well, let it boil for a quarter of an hour longer, and the varnish is made. After it has rested for twenty-four hours, and the sediment has gone to the bottom, decant it into another pot; and when you want to use it, warm and apply it with a flat brush upon the silk stuff, whilst that is kept well stretched. One coat of it may be sufficient, but if two are necessary, it will be proper to give one on each side of the silk, and to let them dry in the open air, while the silk remains extended.'

On this subject, however, M. Cavallo has made some improvements, as may be seen in his printed publications. Much likewise has been said in France of the elastic gum varnish, and its composition, which was kept a secret; but Mr. Baldwin, after many expensive trials, declares it to be made by melting in an iron ladle, properly heated, pieces of elastic gum, and afterwards stirring in a quantity of drying oil. M. Blanchard's method of making elastic gum varnish for the silk of a balloon, is the following: 'Dissolve elastic gum, cut small, in five times its weight of spirit of turpentine, by keeping them some days together; then boil one ounce of this solution in eight ounces of drying linseed oil for a few minutes; lastly strain it. It must be used warm. The pieces of silk, after the varnish is sufficiently dry, may be joined by laying about half an inch of the edge of one piece, over the edge of the other, and sewing them by a double stitch.'

71. Having thus completed the structure of the balloon mechanically, the next consideration is that of filling it. This is commonly done with gas, which may be obtained in different ways, according as inclination and circumstances may direct. The best way is by applying acids to certain metals; by exposing certain animal, vegetable, and mineral substances, to a strong fire, in a close vessel; or by transmitting the

vapour of certain fluids through red hot tubes. Since it is impossible to obtain a sufficient quantity in its natural state, latterly it has been found convenient and cheaper for balloons to be filled from the nearest gas works.

72. The materials that have been generally employed by scientific æronauts, are iron or zinc, and vitriolic acid diluted with five or six parts of water. The chippings of iron, or the borings of cannon are more suitable to the purpose than iron filings, because the interstices admit the diluted acid more easily, and the heat attending the effervescence is much greater. Iron in this way is capable of producing 1700 times its bulk of gas, four ounces and a half of iron, the same weight of vitriol, and twenty-two and a half ounces and a half of water, will produce one cubic foot of inflammable air; also six ounces of zinc, six of oil of vitriol, and thirty of water, will produce the same quantity, the inflammable air thus obtained, weighing one seventh part of the weight of common air. By passing this air through water in which quick lime has been dissolved, the elastic fluids generated with the air, become absorbed with the water, and the inflammable air is rendered cool and prevented from overheating the balloon. The gas is collected in casks lined with tin. M. Garnerin, in 1802, used thirty-six casks, every twelve of which communicated with a collar, and three tubes from three collars, conveyed the gas into one large tube which joined the balloon. Professor Robertson and Sacharof, had twenty-five vessels into each of which were put 120 pounds of iron filings, 600 pounds of water, and then poured in 120 pounds of sulphuric acid. M. Blanchard filled a balloon from only four casks, each 120 gallons. Lunardi employed only two casks, by which he filled a balloon in the shape of a pea, twenty-three feet in diameter, and thirty feet high, in the short space of half an hour. He employed 2000 pounds of each, and 12,000 pounds of water, a quantity which has been pronounced sufficient for a balloon thirty feet in diameter, having a capacity of 14,137 feet. Zinc is said to be superior to iron, in as much as the gas obtained from iron by the action of vitriolic acid is computed to be six times lighter than atmospheric air; whereas the gas evolved during the solution of zinc in that acid, is not less than twelve times lighter than that fluid.

73. An inferior inflammable air is also obtained by the action of fire upon various substances as pit coal, asphaltum, wood, especially oak, camphor, oil, spirits of wine, &c. but is not so light as that obtained from iron or zinc. It may also be observed that animal substances yield from six to ten times more inflammable air when the fire is suddenly increased than when it is gently raised. The common way of obtaining it is, by enclosing the materials in iron vessels, which are afterwards heated red hot, when the inflammable air immediately proceeds from the aperture of the vessels.

74. M. Lavoisier made inflammable air, by passing the steam of boiling water through a red hot gun barrel. Dr. Priestley, instead of this, took a tube of brass, on which the steam of water has no effect, and having filled it with iron obtained from the boring of cannon, made the water boil with vehemence, and passing the steam through this red hot tube, the iron yielded one half more air than had ever been obtained from the action of vitriolic acid.

75. Balloons of small dimensions may be filled with gas in the following manner. Let A, (plate I. fig. 3.) be a bottle containing the requisite ingredients, B C D a tube in the shape of a siphon, fastened at one end to the neck of the vessel or the bottle. Let A pass through an orifice in the stopper nearly to the bottom of the bottle, or vessel E, almost full of water. In another orifice in the stopper of E, place another tube, to which fix the bladder or balloon. Then the gas coming out of the end of the tube D, and passing through the water, will collect itself in the bottle E, and be conveyed by the additional tube into the balloon.

76. It may also be done in the following manner, (see fig. 4.) let A B C, represent a vessel of clay or iron in the form of a Florence flask, containing the materials. To C, the neck of the vessel, let there be luted a tube of brass, and then a leaden tube, as the materials will swell during the action of the fire. Let the extremity of the tube pass through the water of the vessel H I, and terminate under the inverted vessel E F, to the upper aperture of which the balloon is fixed. The part A B of the vessel is then heated red hot, and the inflammable air proceeding from the tube C D, and passing through the water in the vessel H I, will empty itself into the balloon G. Two things, however, are to be observed, first that the aperture of the vessel E F, be one foot below the surface of the water in the vessel H I, and the fire at a sufficient distance from H I, that if any gas escape it may not explode. There should also be a stop cock K, in the vessel E F, through which the common air ought to be drawn out before the operation commences, after which the water will rise as far as the cock.

77. For filling a larger air balloon with gas, See plate II. fig. 2. where A A are two tubes, about three feet in diameter and nearly two feet deep, inverted in larger vessels. At the bottom of each of the inverted vessels there is a hole to which is adapted a tin tube E seven inches in diameter, and seven or eight inches long, to which the silken tubes of the balloon are to be tied; each of the tubes B is surrounded by several casks so regulated as to be no less than half full when the materials are equally distributed. In the top of each cask are two holes, to one of which a tin tube is adapted, so formed as to pass over the edge of the tube B and through the water, terminating under the inverted tube A. The other hole designed to supply the cask with materials, is to be secured with a wooden plug, nearly of the same diameter as the tubes are, about three inches and a half in diameter. The two masts, ropes, &c. are designed to elevate the balloon above the level of the tubes A A and during the process of filling the balloon a net is to be put over it, suspended as in the figure. When the common air is expelled the balloon, the silk tubes are fastened round the tin tubes E E, and by passing into the casks the vitriolic acid upon the other materials, the balloon

will soon be sufficiently inflated to support itself, and the rope G H will be unnecessary. The net is adjusted round the balloon, during its inflation the ropes are tied to the net and fastened to the hoop M N: the boat I K is suspended from the hoop M N, all the necessaries deposited, and as soon as the sphere is three parts full the silk tubes are separated from the tin tubes, their extremities tied and placed in the boat, the aeronauts seated, the lateral ropes slipped off, and the balloon ascends.

78. To fill a balloon with rarefied air the common way is as follows: (see plate II. fig. 3.) A B C D is a scaffold, the breadth of which is two thirds the diameter of the machine elevated six or eight feet from the ground. In the middle is a well E F, made of brick or plastered wood, of less diameter than the balloon, rising two or three feet above the scaffold from the ground, and furnished with doors through which the fire is supplied with fuel. H I and K L are two masts erected one on each side the scaffold, each having a pulley at the top, rendered firm by means of the ropes K G, K P, H P, H G. The balloon is placed on the scaffold with its neck round the aperture of the well; the rope passing over the pullies of the two masts serves, by pulling its two ends, to lift the machine fifteen feet or more above the scaffold, as represented by dotted lines in the figure M N O. The machine is kept steady and held down by ropes, passing through loops and holes about its equator which are disengaged as soon as the machine can sustain itself. The materials burnt in the well are such as burn quick and clear, rather than those that produce much smoke. Hot air is what should be introduced into the balloon, not smoke; and to obtain which, small wood, straw, spirits of wine, &c. are most eligible. As the hot air ascends, the machine dilates and lifts itself above the scaffold and gallery, making efforts to ascend. Its aperture is then brought, by ropes annexed to it, towards the side of the well, a little above the scaffold, the fire-place suspended in it, the fire lighted, the passengers, fuel, instruments and other necessaria placed in the gallery, the lateral ropes slipped off, and the machine abandoned to the atmosphere.

79. On reviewing the entire history and progress of this imperfect science, we are naturally led to reflect, both on the restlessness and the astonishing capabilities of the human mind. 'Men would be angels,' says the poet; and to 'ride on the wings of the wind' seems to be used by the highest authority, as an expression of sublime power. Our aeronauts, advancing from the feeble conceptions of those who at first would have imitated the flight of birds, have done this. But they ride the wind as an inexperienced boy first vaults into the saddle, for his steed to be the teacher rather than he the governor of their new connexion.

80. Still that much has been gained for science by these aerial experiments, none can deny. The uniformity of some of the most important natural agencies has been established on a larger scale; the sciences of meteorology, pneumatology, &c. have been illustrated, and the attention of mankind awoke to the exploring new fields of nature. We only lament that of late the subject has been singularly neglected, many years have now elapsed since men of real and accredited pretensions to science have concerned themselves with the management of aeronautic machines. We venture to recal their attention to them, that the past triumphs of philosophy may not degenerate into the rewards of ignorance, cupidity, and empiricism.

INDEX.

ACADEMY of Sciences, patronize the Montgolfiers, 15.

ÆRONAUTICS, the science defined, 1. Manner of treating the subject, *ib.* General principles and origin of the Science, *ib.* Obscure hints of Lord Bacon on the subject, 5. Albert of Saxony first suggests the true theory, 6. Bp. Wilkins on the theory, 8. Scheme of Lana, 9. Guzman's plans in 1709, 10. Numerous attempts at ærial navigation made by catholic priests, accounted for, 11. Experiments by Mr. H. Cavendish, 12. Experiments of M. Cavallo, *ib.* True doctrine of, announced by Montgolfier, 13. Utility of the science, 54. Its connexion with meteorology, &c. 55. Principles of the machinery employed, 57. Imperfection of the science as a whole, 79. Some scientific knowledge which has resulted from it, 80.

AIR, its compression and expansion the causes of aerostatic phænomena, 1. Inflammable, first enclosed in a balloon, 18. Resistance of to the parachute, 39. Rarefaction of, in great heights, 40. Kills a bird taken up, *ib.* Rarety of, affects the bee, &c. of Gay Lussac, 44. Its temperature at various heights, 49. Two flasks filled at a great altitude, *ib.* Gay Lussac's flasks analyzed, *ib.* Weight of a cubic foot, 58. Effect of heat on it, *ib.* Rarefied, power of it in raising weight, 59.

ASCENT, AERIAL, first actually made, 1783, by M de Rozier, 16. With a balloon filled with inflammable air, 18. Of a lady first made, 23. One of the longest and most remarkable, 27. The first made in England, 29. The first made in Scotland, 34. Fatal one made by M. de Rozier, 36. Phænomena observed in Mr. Robertson's, 49. A second fatal one, 50. Of various speculators, 53.

BACON, LORD, some obscure hints of his on the theory of aeronautics, 5.

BALDWIN'S ascent from Chester, 32. His sketch of the Country, 33.

BALLOONS, supersede the ancient attempts at flying, 2. The first seen in England, 28. Utility of, only partially demonstrated, 56. Applied to military purposes by the French, *ib.* Their power of preserving heat, 60. The proper shape of, 61. Their buoyancy and the mode of calculating it, 62. The power of ascension of, 63. Mode of calculating their final power of rising, 64, 65. Use of ballast and safety valves, 66. Other modes of elevating and lowering them, 67. Various modes of conducting them, 68. Methods of making and filling them, 69. The materials of, 70. Mode of filling smaller ones, 75, 76. Larger ones, 77. Mode of filling them with rarefied air, 78.

BIOT and Gay Lussac's ascent, 43.

BLANCHARD ascends to the height of 10,000 feet, 21. Blanchard and Mr. Sheldon ascend from Chelsea, 30. And Dr. Jeffreys cross the Straits of Dover, 31. Their dangers, *ib.*

BORELLI demonstrates the impossibility of flying, 7.

CARNUS and Lauchet's ascent, 24.
CAVALLO, M. his experiments, 12.
CAVENDISH, Mr. H. his experiments, *ib.*
CHARLES, M. ascends alone, and sees the sun set a second time, 20. And Roberts attempt to guide their balloon with wings, 25.
CHATRES, Duke de, ascends from Paris, 35. Dangers of his voyage, *ib.*
COLD of the upper regions, 41. M. Gay Lussac's sensations, at 21,790 feet altitude, 49.

ELECTRICAL experiments of Gay Lussac at 13,385 feet altitude, 45.
ELECTRICITY in the upper regions of the atmosphere, 44.

FILLING balloons, 71.
FLEURANT and Thible's ascent, 23.
FLYING with wings attempted in Scotland before James IV. 3. And at Tubingen, 1628, 4. Its impossibility demonstrated by Morelli, 7.

GARNERIN descends in a parachute, 37. Nocturnal voyage, 51. Second nocturnal voyage, 52.
GAS, method of making it for balloons, 71. Garnerin's do. 72. Lunardi's do. *ib.* Common method, 73. Lavoisiers, 74. Dr. Priestley's, *ib.*
GASES, used to fill balloons, 64.
GAY LUSSAC making his second ascent, 47.
GORES &c. of balloons, 69.
GOVERNMENT, French, patronizes Gay Lussac, 43.
GUZMAN'S speculations in aeronautics, 10.

HYGROMETER at 13,000 feet altitude, 46.

INSTRUMENTS of Gay Lussac in his second voyage, 47.

LANA, T. his scheme of sending up copper balls, 9.
LINNET of Gay-Lussac liberated at 11,000 feet altitude, 45.
LUNARDI. The first who ascended in England, 29. Makes his first ascent in Scotland, 34.

MAGNETIC NEEDLE, experiments on by Gay Lussac, 44.
MAGNETISM, the same at all elevations, 48.
MATERIALS of balloons, 70.
MENDOZA, F. adopts and publishes the true theory of aeronautics, 6.
MONTGOLFIER, S. and J. their first announcement of the true doctrine of aeronautics, 13. Construct a bag which is made to ascend by burning straw and wool under it, 14. Continue their experiments before the French Academy of Sciences, 15. Send up a sheep, cock, &c. *ib.*
MORVEAU and BERTRAND ascend 13,500 feet, 22.
MOSMENT'S fatal ascent, 50.

OARS and wings applied to balloons, 68.

PARACHUTE, first invented by Blanchard, 36. Adopted and improved by Garnerin, *ib.* Effect of cutting it away from the balloon, 37. The principle of its descent, 38. First used in the East, 68.
PIGEON, liberated at 11,000 feet altitude, 45.
POWER of rarefied air in raising weights, 59.

ROBERTS, M. and Charles, first enclose inflammable air in a balloon, 18.
ROBERTSON, and Lhoest's voyage from Hamburgh, 40. Second ascent, 41.
ROZIER, de, the first actual aeronaut, 16. Second ascent, *ib.* Third ascent, 17. Fatal ascent, 36.

SPEAKING TRUMPET, effect of, directed to the earth, 41.

TABLE of Gay Lussac's observations, 48.
TESTU'S ascent from Paris, 27. In a storm for three hours, *ib.* In the clouds all night, *ib.*
THERMOMETER at 12,800 feet, 45.

VARNISH of balloons, 70.

WAY-WISER first used, 41.
WILKINS, Bishop, on the theory of aeronautics, 8.
WINGS attached to balloons, 25. Effect of them, 26

ZAMBECCARI, Count, first constructs a balloon in England, 28.

AEROPHOBIA, of *αηρ*, and *φοβος*, fear; a term that Dr. Franklin, and others, have applied to the dread of fresh air. He speaks of having indulged it for many years himself; but was at last convinced that almost any air is preferable to that of a close chamber which has been frequently respired; and ridicules those valetudinarians who, enclosing themselves in warm garments, and carefully wrapping about them as much of the noxious air of their close apartments as possible, carry it with them into a close carriage, from which the air is also carefully excluded, and call this taking the air! He speaks of using the air as a tonic bath, by sitting in his chamber without clothes to wash or write, half an hour or an hour every morning, and that he never found any ill consequences from the practice. See *Posthumous and other works of Dr. Franklin*, v. vi. p. 172.

AEROPHYLACEA, in natural history, subterraneous receptacles of air or wind, from *αηρ*, *air*, and *φυλακη*, *custodia*, keeping. Kircher speaks much of aerophylacea, huge caverns, replete with air, disposed under ground, from whence, through numerous occult passages, that element is conveyed either to subterraneous receptacles of water, which are raised into springs or rivers, or into the funds of subterraneous fire, which are hereby supposed to be fed for the reparation of metals, minerals, and the like. See ABYSS.

AEROSIS, among the ancient physicians, denotes the act whereby the blood is attenuated and converted into an aura, for the support of the vital spirits, and the maintenance of the flame of life.

AEROSTATIC, *adj.* belonging to aerostation.

AEROSTATICA, AEROSTATICS, from *αηρ*, and *σατικος*, from *ιστημι*, *statuo*, is used by some authors for AEROMETRY. It is properly the doctrine of the weight, pressure, and balance of the air and atmosphere.

AERSCHOT, or ARSCHOT, a town in the Netherlands, in Austrian Brabant, and capital of the duchy of Aerschot. It is seated on the river Demer, twenty miles S. E. of Antwerp, and seven N. E. of Louvain.

ÆRVA, in botany, a genus of plants of the class monadelphia, order decandria. The characters of which are, that the flowers are polygamous: CAL. five-leaved and patent: STAM five, and barren: PIST. a globulous ovary, having a filiform style terminated by a bifid stigma; the fruit is a capsule, which is oblong, single-seeded, and encompassed by the calyx. There is one common species, viz. Æ. ægyptiaca, or tomentosa, which grows on sandy calcareous soil in Arabia.

ÆRUGINOUS, in chemistry, something partaking of, or like the rust of copper. Authors do not seem perfectly agreed about the colour to be expressed by this word, some expressing by it green, others brown.

ÆRUGO, in natural history, the rust of copper, whether natural or artificial. The former is found in copper mines, and the latter, called verdigrise, made by corroding copper-plates with acids. See VERDIGRISE. Dr. Grew says, the turquoise stone is a kind of petrified ærugo. Another species of natural ærugo is a greenish marcasite, like the drops of iron, found in copper mines. There is also, on some mountains in Moravia, a sort of grains, like sand, of a grass green colour, when used in painting, which are called the Hungarian, mountain, or sea verdigrise.

ÆRUGO RASILIS, a rust formed on copper, by hanging a plate of it over the strongest vinegar for ten days, without suffering it to touch it.

ÆRUGO SALIS, in natural history, a name given by Pliny, and several other ancient authors, to a reddish slimy matter, separated from the Egyptian salt, called natrum, in purifying it.—We find this matter remain in the filter, on dissolving and filtering the Egyptian nitre, at this time. It seems to be a mixture of a bituminous matter, and a red earth, which had mingled among the cakes of the salt, during the time of their concreting from the water.

ÆRUSCATORES, in antiquity, a kind of strolling beggars, like our gypsies, who drew money from the credulous, by fortune-telling, &c. It was also a denomination given to griping collectors of the revenue. The priests of Cybele, were called æruscatores magnæ matris, on account of their begging alms in the streets; to which end they had little bells to draw people's attention to them, like some modern orders of mendicants abroad.

AERY, or AIRY, among sportsmen, the nest of hawks, or eagles.

ÆS, among the ancient Romans, had various significations. It properly denoted brass or copper; but as copper was the first metal used in coinage by the Romans, the word was used to signify money in general, as well as the particular coin made of that metal.

ÆS CALDARIUM, or CAST BRASS, otherwise called æs olorium, or pot brass, is mentioned by Pliny, as not capable of being hammered. This is likewise a term used by the German mineralists, for a substance which sometimes occurs to those who work upon cobalt, and is used for making the fine blue colour called smalt.

ÆS CANDIDUM, among the ancients, was different from that which we call white brass; it was a purer and whiter kind of metal, found, it is said, under the veins of silver, somewhat analogous to Venetian talc. They had probably a method of making copper white, as well as yellow, equal, if not superior, to that now in use. The phrases of orichalcum album in Virgil, and of λευκον κραμα, among the Greeks, strictly signify white brass.

ÆS CORINTHIUM, a precious metallic composition, of a much finer colour than common brass, and in its beauty little inferior to gold. Pliny says, that it was an accidental mixture of metals at the burning of Corinth, by L. Mummius, when the gold, silver, and brass statues, and all metallic substances, melting and mingling together formed this mass. But some refiners, who have strictly examined this metal, find no gold in it; a circumstance which, if true, suggests one reason, among others, for concluding, that this account is fabulous. However, the fable has been interpreted by some to signify, that the art of making copper into brass was first discovered by the Corinthians, who found the calamine stone on the plains of Peloponnesus, or at least that they brought this art to perfection.

ÆS CORNARIUM is used by Pliny, to denote brass worked into thin plates.

ÆS FLAVUM, yellow copper. All the Roman authors have mentioned the method of making brass with calamine and copper; but their finest kind which they called orichalcum, or aurichalcum, they distinguished from the inferior sorts which had only the name of æs flavum.

ÆS GRAVE, denoted money among the Romans, which was paid by weight, and not by tale. Others understand by æs grave, large pieces of copper coined, containing an *as*, or pound of that metal, such as we find current in Sweden. These they assert bore this name, till such time as they were reduced to a smaller standard.

ÆS HEPATICUM was of a silverish colour, and probably what the moderns call bronze; though some confound it with the æs Corinthium.

ÆS PAUPERUM, copper ore, divested of its silver.

ÆS PER, ET LIBRAM, was a formula in the Roman law, whereby purchases and sales were ratified. Originally the phrase seems to have been used only in speaking of things sold by weight, or by the scales; but it afterwards was used on other occasions. Hence, even in adoptions, there was a kind of imaginary purchase; the formula whereof expressed, that the person adopted was bought, per æs et libram.

ÆS RUDE, money unshaped, or not fashioned for any particular purpose. The money during the first ages of Rome was all of this kind. Others, by æs rude, understand metal unstamped; in opposition to æs signatum, money stamped or coined.

ÆS USTUM, a chemical preparation, made of thin leaves of copper, sulphur, and nitre, placed stratum super stratum in a crucible, and set in a charcoal fire till all the sulphur is consumed; after which, the copper is taken out of the crucible, and reduced to powder. Some quench the leaves of copper in vinegar, and repeat the calcination. Its principal use is in colouring glass, to which it gives a beautiful tincture. The surgeons use it as a detersive, and some have given it internally; but it is certainly a very dangerous medicine, and should be avoided.

ÆS UXORIUM, in antiquity, a sum paid by bachelors, as a penalty for living single. This tax for not marrying seems to have been first imposed in the year of Rome 350, under the censorship of M. Furius Camillus and M. Posthumus. At the census, or review of the people, each person was asked, Et tu ex animæ sententia

uxorem habes liberum quærendorum causâ? He who had no wife, was hereupon fined, after a certain rate.

ÆSACUS, in fabulous history, one of the sons of Priam, king of Troy, who is said to have thrown himself from a rock into the sea, because Hesperia, whom he was in love with, and had followed into the woods, was stung to death by a serpent; or, as others say, changed into a bird.

ÆSALON, in ornithology, a species of hawk, called in English the merlin. It is the smallest of all the hawk kind, and about the size of the blackbird. It feeds on partridges and other birds.

ÆSCH, in ichthyology, a name which some writers have given the grayling or tumbler, a fish of the trutaceous kind.

ÆSCHINES, in ancient history, the son of Charinus, a disciple and admirer of Socrates; who said of him (alluding to the trade of Æschines's father) that the sausage-maker's son was the only person who knew how to pay a due regard to him. It is said that poverty obliged him to go to Sicily to Dionysius the Tyrant; and that he met with contumelious treatment from Plato, but was extremely well received by Aristippus; to whom he showed some of his dialogues, and obtained from him a handsome reward. He would not venture to profess philosophy at Athens, Plato and Aristippus being in such high esteem; but he set up a school to maintain himself, and wrote orations for the Forum. Phrynicus, in Photius, ranks him among the best orators, and mentions his orations as the standard of the pure Attic style. Hermogenes has also spoken very highly of him. He likewise wrote several dialogues, of which there are only three extant: 1. Concerning virtue, whether it can be taught. 2. Eryxias, or Erasistratus; concerning riches, whether they are good. 3. Axiochus; concerning death, whether it is to be feared. Mr. Le Clerc has given a Latin translation of them, with notes, Amst. 1711, 8vo.

ÆSCHINES, one of the most celebrated orators of Greece, was the son of Atrometus, a grammarian and schoolmaster, and Glaucothea, who is said by Lucian and others, to have been a timbrel-player. From this circumstance, perhaps, it was that Demosthenes upbraided him with being the son of a courtezan. Plutarch says, he was distinguished neither by his birth nor riches. Being in his youth, of a robust constitution, he devoted himself to the exercises of the gymnasium, and having a clear voice, performed a part in the exhibition of tragedies. Some say that he attended the lectures of Isocrates and Plato: but according to others, he received instruction from Alcidamas, the preceptor of Gorgias. His progress, however, was rapid; and he became so respectable a competitor with Demosthenes, that when the Athenians negociated a peace with Philip of Macedon, he was sent with him as an ambassador to that prince. Philip is said to have successfully attempted to corrupt our orator on this occasion, and that he in consequence persuaded the Athenians, in opposition to the remonstrances of Demosthenes, to confide in the promises of the Macedonian prince, and gave him an opportunity to possess himself of Thermopylæ. Philip, by further intrigues, engaged the support of Æschines, to prevail with the council of the Amphyctions, to elect him for their general, by which means he obtained possession of Elatæa, the chief city of Phocis, and established himself in a favourable situation for his farther ambitious designs. Demosthenes at last roused the Athenians, to unite with the Thebans in disconcerting the machinations of Philip; and the two hostile armies encamped near Cheronæa, a city of Bœotia; but his countrymen being discomfited, Athens received a shock, the effects of which she was never able to recover, and Æschines took the lead in criminating his rival. He, accordingly, drew up an accusation against Ctesiphon, or rather against Demosthenes. The conflict between the two orators excited very general attention; and the attack and defence have been considered as the master-pieces of ancient oratory. Æschines lost his cause, and was sentenced to banishment for his rash accusation, ante Christi, 230; when he settled at Rhodes, and opened a school for eloquence. Here he re-delivered the two orations, and when that of Demosthenes was received with redoubled plaudits, Æschines exclaimed, 'Had you heard him thunder out the words himself, what would you have thought of it?' Demosthenes was so sensible of the liberal spirit of his rival, that when Æschines left Athens, in order to embark for Rhodes, he ran after him and obliged him to accept a purse of money; upon which Æschines remarked, 'How will it be possible for me not to regret a country, in which I leave an enemy more generous than I can hope to find friends in any other part of the world!' Æschines finally removed to Samos, where he died at the age of 75 years. He is said to have been the first who delivered extemporaneous orations. Philostratus extols him for luminous perspicuity, decorous gravity, and distinguished energy; and he is denominated by Demosthenes μεγαλοφωνοτατος. Photius ascribes nine epistles, (according to the number of the muses), to Æschines; but there are twelve, which were addressed to the Athenians when he was in exile at Rhodes, in Wolfius's edition of Demosthenes and Æschines, p. 205; and Taylor has added them to his edition. The ancients acknowledge only three genuine orations, viz. 1. Adversus Timarchum, Wolf. ed. p. 259. 2. De falsa Legatione, Id. p. 395. 3. Adversus Ctesiphontem, Id. p. 425. Fabricius compares these orations to the Three Graces Another entitled Δηλιακος νομος, was formerly inscribed with the name of Æschines; but the ancients attribute it to another person of the same name. See *Plutarch and Philostratus*, ubi supra. *Demosthen. et Æchin. Opera*, by *Wolfius Francof.* 1604. *Fabricius Bibl. Græc* tom. i. p. 412—928, &c. Several other persons called Æschines have been confounded both with the Socratic philosopher, and the Athenian orator.

ÆSCHNA, in natural history, the name of a species of water fly, of an ash colour, with four wings, a long body, and hairy near the tail.

ÆSCHYLUS, the tragic poet, was born at Athens, about the sixty-fifth or seventieth Olympiad, Stanley says in the sixty-third; he was the son of Euphorion, and brother to Cynegirus and Aminias, who distinguished themselves in the battle of Marathon, and the sea-fight of Salamis, at which engagements Æschylus was likewise present. In this last action, Aminias commanded a squadron of ships, attacked, and sunk the admiral of the Persian fleet, and signalized himself above all the Athenians: so that when Æschylus was charged by the Athenians with blasphemy, and condemned to be stoned to death, Aminias, throwing aside his cloak, showed his arm without a hand, which he had lost at the battle of Salamis. This sight made an impression on the judges, and, touched with his fraternal affection, they pardoned our poet; but he resented the indignity of this prosecution, and resolved to leave a place where his life had been in danger: he accordingly retired to the court of Hiero, king of Syracuse, where he soon after died at the age of sixty-nine. Some affirm, that Æschylus never composed but when he had drank liberally. He wrote a great number of tragedies of which there are but seven remaining, and appears to have been the father of the tragic art. In the time of Thespis, there was no public theatre, the players driving about from place to place in a cart. Æschylus furnished his actors with masks, dressed them suitably to their characters, and introduced the buskin, to make them appear like heroes.—The ancients gave him also the praise of having been the first who removed murders and shocking sights from the eyes of the spectators. He is said likewise to have lessened the number of the chorus. M. Le Fevre remarks, that Æschylus never represented women in love in his tragedies; which, he says, was not suited to his genius; but, in representing a woman transported with fury, he was incomparable. Longinus says, that Æschylus has a noble boldness of expression; and that his imagination is lofty and heroic. His works were held in great esteem by the Athenians, who made a public decree that his tragedies should be played after his death. He was killed by an eagle letting fall a tortoise upon his head as he was walking in the fields: and had the honour of a pompous funeral from the Sicilians, who buried him near the river Gela; where the tragedians of the country performed plays and theatrical exercises at his tomb. One of the best editions of his plays is that of London, 1663, folio, with a Latin translation, and a learned commentary by Thomas Stanley: professor Porson edited them in 2 vols. 8vo. 1805; Bishop Blomfield has also ably edited some of the plays, and Archdeacon Potter has lately furnished an able English translation of them.

ÆSCHYNOMENE, BASTARD SENSITIVE-PLANT: A genus of plants, of the decandria order, and diadelphia class; the characters of which are: CAL. a one-leaved campanulated bilabiated perianthium; the lips equal, but the superior one two-cleft, the inferior tridentate: COR. papilionaceous; the banner cordated and subringent; the alæ ovate, obtuse, and shorter than the banner; and the carina, lunated, pointed, and the length of the alæ. The STAM. consist, of ten simple nine-cleft filaments; the anthers are small: PIST. an oblong villous columnar germen; the stylus subulated and ascending, the stigma simple and somewhat obtuse. The pericarpium is a long, compressed, unilocular jointed pod. The seeds are kidney shaped, and solitary within each joint. There are six species of the genus, all natives of warm countries, viz. the Americana, arborea, aspera, grandiflora, paniculata, and sesbana.

ÆSCHYNOMENOUS PLANTS, a name sometimes given to sensitive plants. See the last article.

ÆSCULANUS, ÆRES, or ÆS, in antiquity, are names given to the divinity who presided over the coinage of copper-money. Æsculanus, it is said, was the father of Argentinus, because copper money was employed before silver; and Argentinus, the father of Aurinus, because gold money succeeded silver. Thus they had three divinities presiding over the coinage of the three principal metals, and some medals of the emperors represent three goddesses, with balances, a cornucopia, and near them a piece of the different metals.

ÆSCULAPII ANGUIS, in zoology, the name of a harmless species of serpent, common in Spain and Italy, called also paræa. The coluber æsculapii of Linnæus has white and black bands, bisected by a white ring, and is found in both Indies.

ÆSCULAPIUS, in astronomy, the ancient name for the constellation Ophiuchus.

ÆSCULAPIUS, in the heathen mythology, the god of physic, was the son of Apollo and the nymph Coronis. He was educated by the centaur Chiron, who taught him physic; by which means Æsculapius cured the most desperate diseases: but Jupiter enraged at his restoring to life Hippolitus, who had been torn in pieces by his own horses, killed him with a thunderbolt. According to Cicero, there were three deities of this name: 1. The son of Apollo, inventor of the probe, and bandages for wounds, worshipped in Arcadia: 2. The brother of Mercury, killed by lightning: 3. The son of Aristippus and Arsinoe, who first taught the art of tooth drawing and purging. At Epidaurus Æsculapius's statue was of gold and ivory, with a long beard, his head surrounded with rays, holding in one hand a knotty stick, and the other entwined with a serpent; he was seated on a throne of the same materials as his statue, and had a dog lying at his feet. The Romans crowned him with laurel, to represent his descent from Apollo, and the Phaliasins represented him as beardless. The cock, the raven, and the goat, were sacred to this deity; and serpents, more particularly, as symbols of the prudence and forethought necessary in the profession he patronised. His chief temples were at Pergamos, Smyrna, Trica, a city in Ionia, and the isle of Coos; in all which votive tablets were hung up, showing the diseases cured by his assistance. But his famous shrine was at Epidaurus; where, every five years, games were instituted to him, nine days after the Isthmian games at Corinth.

ÆSCULUS, in botany, the HORSE-CHESNUT. A genus of plants of the monogynia order, and heptandria class; ranking in the natural method,

under the thirty-ninth order, trihilatæ. The characters are: CAL. a small, single-leaved, bellied perianthium, divided into five segments: COR. (except in the pavia, where it is four-petaled and close,) five roundish, flat, expanding petals, unequally coloured, and with narrow claws inserted into the calyx: STAM. seven subulated declining filaments, the length of the corolla; the antheræ ascending: PIST. a roundish germen, ending in a subulated stylus; the stigma pointed: the pericarpium, a leathery, roundish, trilocular, three-valved capsule. The seeds are two, and subglobular.—In this genus Van Rozen and Miller observe both male and hermaphrodite flowers. There are two species; viz.

1. ÆSCULUS HIPPOCASTANUM, or common horse-chesnut, brought from the northern parts of Asia, about the year 1550, and sent to Vienna about 1588; the nuts of which are reckoned good food for horses.

In Turkey, they are ground, and mixed with the provender of these animals, especially those which are troubled with coughs, or broken winded. Deer are also very fond of the fruit: and at the time of their ripening keep much about the trees, but especially in strong winds, when the nuts are blown down, which they carefully watch, and greedily devour as they fall.

2. ÆSCULUS PAVIA, or scarlet flowering horse-chesnut, a native of Carolina, the Brasils, and the East.

ÆSHNA, in entomology, a sub-division of the unogata, or fifth class of insects, by Fabricius, comprehending several species of the libellula of Linnæus, characterized by equal lacinæ, or fringes of the hip.

ÆSNECY, in law, priority of age, among co-partners.

ÆSON, in fabulous history, the son of Cretheus, king of Thessaly, and father of Jason, the famous Argonaut; who was said to have been restored to his youth, in his old age, by the enchantments of Medea, Jason's wife.

ÆSOP, the Phrygian, lived in the time of Solon, about the 50th Olympiad, under the reign of Crœsus, the last king of Lydia. For genius and abilities, he was greatly indebted to nature; but in other respects he was not so fortunate, being born a slave and extremely deformed. St. Jerome, speaking of him, says he was unfortunate in his birth, condition in life, and death; hinting thereby at his deformity, servile state, and tragical end. His great genius, however, enabled him to support his misfortunes; and to alleviate the hardships of servitude, he composed those entertaining and instructive fables which have acquired him so much reputation. He is generally supposed to have been the inventor of that kind of writing; but this is contested by several, particularly Quintilian, who seems to think that Hesiod was the first author of fables; and we are certain that Jotham, the son of Gideon, was the author of a fable or parable, long before either of them. Æsop, however, certainly improved this art to a very great degree. The first master, whom Æsop served, was Carasius Demarchus, of Athens; and there, in all probability he acquired his purity in the Greek tongue. After him he had several masters; and at length came under a philosopher, Xanthus, or as Herodotus calls him, Iadmon, from whom he obtained his liberty. Some curious anecdotes are told of his domestication with this philosopher.

Being exposed in an open market place for sale, Xanthus entering the area, was attracted by the appearance of Æsop's companions, and enquired of the merchant his price for them, which he thought exorbitant; and was on the point of quitting the market, when some of the pupils, by whom he was attended, pointed out Æsop to his notice. At their solicitation, and jocularly, more than with any serious intention, he put the accustomed question to the despised captive, of What he could do? Nothing at all replied Æsop; for I have just overheard my companions answer your question, by affirming they could do every thing; therefore there is nothing left for me to do. He afterwards boldly told Xanthus, that a philosopher like him should appreciate a man according to the vigour of his mind, and not to the appearance of his body; and when the philosopher's wife, (of a most furious and jealous temper,) asked in scorn, of Xanthus, 'whether it were a beast or a man he had brought home?' Æsop is said to have exclaimed, 'From the mercies of fire, water, and a wicked woman, great gods deliver us!'

Æsop once accompanying his master to a gardener for the purpose of purchasing some herbs, the agriculturist enquired the reason why those plants which grew of themselves, and without any artificial aid, should come up so fast and thrive so well, whilst others, though never so carefully cultivated, could scarcely be preserved from perishing? Xanthus contented himself with saying, That so providence had ordered it to be. Here Æsop interfered; and, after a sarcasm upon the imperfection of the school of philosophy in which Xanthus was bred, requested to be permitted himself to give the solution. 'For what,' said the slave, 'signifies a general answer to a general question, but an acknowledgment of complete ignorance on the subject proposed? 'The earth then,' said Æsop, 'may be considered as in the nature of a real mother to that which she brings forth out of her own bowels; but she is only a step-dame in the production of those plants which are cultivated and assisted, nay, sometimes even forced under her care, by means of the sheer industry of another. It is natural for her to withdraw her nourishment from the one, and to lavish her powers upon the other kind of plants.'

Æsop is said to have interpreted an obscure inscription which had utterly foiled his master; and, emboldened by his success, to have demanded of him what reward he would offer, if he were to point out to him a considerable hidden treasure? One half of it and your liberty, said Xanthus. Possessed of the property, however, the faithless Samian conveniently forgot the conditions upon which he acquired it, and returned to the defenceless Æsop menaces and blows. On another occasion, the wife of Xanthus having eloped from her husband, notwithstanding the acerbity of her disposition, he was desirous of recalling her, and Æsop undertook the task of fulfilling his wishes. He prepared a plentiful

feast, and gave it publicly abroad, that his master's first wife having separated from him, this entertainment was prepared for a second marriage. The effect was as he had imagined, the lady immediately ordered her chariot to be prepared, and returned to the house of her husband. At another time, Xanthus in a moment of inebriety, had made a considerable wager, that he would drink the sea dry; and, on becoming sober, applied to Æsop to extricate him from the difficulty into which he had involved himself. Sir, said the slave, be careful of Bacchus, it is the humour of this god, first to make men cheerful, then to make them drunk, and lastly to make them mad. He exhorted him, however, to take courage, and pursue his advice. Xanthus, accordingly, appeared next day on the sea shore, attended by the man with whom he had made the ridiculous agreement; and now, said he, am I ready to drink the sea dry, but it is you who must first stop all the rivers which run into it.

When he had obtained his liberty, he soon acquired a great reputation amongst the Greeks; and the report of his wisdom having reached Crœsus, he sent and engaged him in his service. He travelled through Greece soon after Pisistratus had usurped the sovereign power, and finding that the Athenians bore the yoke very impatiently, he told them the fable of the frogs who petitioned Jupiter for a king. Æsop was put to death at Delphi. Plutarch tells us that he came there with a great quantity of gold and silver, being ordered by Crœsus to offer a sacrifice to Apollo, and to give a considerable sum to each inhabitant: but a quarrel arising betwixt him and the Delphians, he sent back the money to Crœsus; for he thought those for whom the prince designed it, had rendered themselves unworthy of it. The inhabitants of Delphi contrived an accusation of sacrilege against him; and pretending they had convicted him, threw him headlong from a rock. For this cruelty and injustice, we are told they were visited with famine and pestilence; and consulting the oracle, they received for answer, that the god designed this as a punishment for their treatment of Æsop: they endeavoured to make an atonement, by raising a pyramid to his honour.

ÆSOPUS, (Clodius,) a celebrated actor, who flourished about the 670th year of Rome. He and Roscius were contemporaries, and the best performers who ever appeared upon the Roman stage, the former excelling in tragedy, the latter in comedy. Cicero put himself under their direction to perfect his action. Æsop lived in a most expensive manner, and at one entertainment is said to have had a dish which cost £800. It was filled, we are told, with singing and speaking birds, some of which cost near fifty pounds. The delight which Æsop took in this sort of birds, proceeded, as Mr. Bayle observes, from the expence. He did not make a dish of them because they could speak, according to the refinement of Pliny upon this circumstance, this motive being only by accident; but because of their extraordinary price. Æsop's son was no less luxurious than his father, for he dissolved pearls for his guests to swallow. Horace speaks of one pearl of very great value, which he dissolved in vinegar and drank. Notwithstanding his expences, Æsop is said to have died worth above £160,000. When he was upon the stage, he entered into his part to such a degree, as sometimes to be seized with a perfect ecstacy. Plutarch mentions it as reported of him, that whilst he was representing Atreus deliberating how he should revenge himself on Thyestes, he was so transported beyond himself in the heat of action, that with his truncheon he smote one of the servants crossing the stage, and laid him dead on the spot.

ÆSPING, in zoology, a species of coluber.

ÆSQUILINUS, a hill in ancient Rome.

ÆSTHPHARA, incineration, or burning of any part of the body.

ÆSTIMATIO CAPITIS, in our ancient law books, a fine in proportion to the degree of the person against whom the offence was committed. King Athelstan, in a great assembly held at Exeter, declared what mulcts were to be paid *pro æstimatione capitis;* the estimation of the king's head, to be 30,000 thrymsæ; that of an archbishop or prince, 15,000; a bishop's or senator's, 8000; a priest's or thane's, 2000, &c.

ÆSTIVAL, in astronomy, of, or belonging to, summer; as ÆSTIVAL POINT, is that whereby the sun's ascent above the equator is determined.

ÆSTIVAL SIGNS, are those extended from the sun's greatest declination northward, to the intersection of the ecliptic and equinoctial southward, including Cancer, Leo, and Virgo.

ÆSTIVATION, in botany, expresses the state of the bud in summer, and is used by Linnæus to denote one of those circumstances which constitute the habit of plants.

ÆSTRUS, in entomology, a species of the beetle.

ÆSTUARY, in ancient baths, a secret passage from the hypocaustum, or stove, into the chambers.

ÆSTUARY, ÆSTUARIUM, in geography, an arm of the sea, running up a good way into the land, such as Bristol Channel, many of the friths in Scotland. See BAY.

ÆSTUARY, in medicine, a vapour bath, or any thing that conveys heat to the body.

ÆSYMNETIC MONARCHY, among ancient writers on government, denotes a limited elective monarchy. *Arist. Pol.* c. 10. The word is formed from *αισυμναω*, regno, I govern.—An æsymnetic state stands opposed to a barbaric, or hereditary one.

ÆSYMNIUM, in antiquity, a monument erected to the memory of deceased heroes, by Æsymnus.

ÆSYMNUS, a native of Megara, who consulting the oracle in what manner the Megarean might be most happily governed, was answered if they held consultation with the more numerous; whom he taking for the dead, built a senate-house, with a monument to the dead within it.

ÆTATE PROBANDA, in law, a writ to enquire whether the king's tenant, holding in chief by chivalry, were of full age to receive his lands into his own hands. It was directed to the escheator of the county, but is now disused.

ÆTERNITAS, Eternity, in mythology, was worshipped as a god by the ancients, the Pytha-

goreans, Plato, and Hermes Trismegistus, made time to be the image of it. On medals, eternity was represented in various forms, sometimes under the figure of the sun and moon; sometimes by that of the elephant, for its length of years, as on a medal of Faustina, fig. 1,

Fig. 1. *Fig.* 2.

where a chariot is drawn by two elephants; sometimes by a phœnix and a globe, the one for its long life, and the other for its supposed eternity, as on the medal fig. 2, where a female is holding a phœnix and a globe. There was also the common representation of a serpent, winding itself round a globe, or with its tail brought down to its mouth; of a figure veiled, to imply, that eternity is inscrutable; and of a head with two faces, implying that it can see backwards and forwards. The medals of the emperors which have the figure of eternity, implying the perpetuity of the government in their family, are those of Augustus, Vespasian, Titus, Domitian, Severus, Caracalla, Geta, Alexander Severus, Gordianus Philippus, Gallienus, Claudius Gothicus, Quintilian, and Maximian.

ÆETH, or Ath, a strong little town in the Austrian Netherlands and province of Hainault, situated on the river Dender, about 25 miles S. W. of Brussels, and 18 miles N.W. of Mons. It is noted for its linen manufactories, bleaching fields, and iron works. It was once a castellany, having more than 100 villages under its government. Population, 7600.

ÆTHALE, in natural history, a name given by some writers to the cadmia fornacum, or tutty, from its being the concreted soot of the lapis calaminaris and copper, melted together, in the making of brass.

ÆTHALIA, or Ilva, in ancient geography, now Elba; an island on the coast of Etruria, in compass 100 miles, formerly abounding in iron, as it still does. Stephanus calls it Aethale. The port of Aethalia was called Argous. See Elba.

ÆTHELSTAN. See Athelstan.

ÆTHER, in chemistry, the lightest, most volatile, and most inflammable of all liquids, is produced by distillation of acids with rectified spirit of wine. See the Indexes to Chemistry and Pharmacy.

Æther, in physiology, Gr. from Αιθειν, to burn or flame, the ancients supposing it of the nature of fire, a thin subtile matter, much finer and rarer than air; which, commencing from the limits of our atmosphere, is supposed to possess the whole heavenly space. Mythologists speak of it as the origin of all things, an attenuation of fire, which, according to Hippocrates, was immortal; knows all things; sees, hears, and determines whatsoever is, or shall hereafter be. From this fluid, (existing in perfection only in the highest heavens, and encircling the whole of the material universe,) all grosser elements were said to be first derived, and from them the various productions of nature. Here the gods were enthroned, and the stars rolled along in 'divinest harmony.'

Philosophers cannot conceive that the largest part of the creation should be perfectly void; and therefore, they fill it with a species of matter under the denomination of æther. But they vary extremely as to the nature and character of this æther. Some conceive it as a body sui generis, appointed only to fill up the vacuities between the heavenly bodies; and therefore, confined to the regions above our atmosphere. Others suppose it of so subtile and penetrating a nature, as to pervade the air, and other bodies, and possess the pores and intervals thereof. Others deny the existence of any such specific matter; and think the air itself, by that immense tenuity and expansion it is found capable of, may diffuse itself through the interstellary spaces, and be the only matter found therein. In fact, æther, being no object of our senses, but the mere work of imagination, brought only upon the stage for the sake of hypothesis, or to solve some phenomenon, real or imaginary; authors take the liberty to modify it as they please. Some suppose it of an elementary nature, like other bodies; and only distinguished by its tenuity, and the other affections consequent thereon: which is the philosophical æther. Others will have it of another species, and not elementary; but rather a sort of fifth element, of a purer, more refined, and spirituous nature, than the substances about our earth; and void of the common affections thereof, as gravity, &c. Some represent it as 7200 times more rare than air! Others make it more dense than gold itself! Others argue, that the heavenly spaces being the supposed region or residence of a more exalted class of beings, the medium must be more pure and exalted in proportion. Such is the ancient and popular idea of æther, or æthereal matter. The term being thus embarrassed with a variety of ideas, and arbitrarily applied to so many different things, later and severer philosophers set it aside, and in lieu thereof, substitute other more determinate ones. Thus, the Cartesians use the term materia subtilis, which is their æther: and Sir Isaac Newton, sometimes a subtile spirit, as in the close of his Principia; and sometimes a subtile, or æthereal medium, as in his Optics. The truth is, there are abundance of considerations, which seem to evince the existence of some matter in the air, much finer than air itself: an unknown something, which remains behind when the air is taken away, as appears from certain effects which we see produced in vacuo. Heat, Sir Isaac Newton observes, is communicated through a vacuum, almost as readily as through air; but such communication cannot be without some interjacent body, to act as a medium. And such body may be subtile enough to penetrate the pores of glass; and may be very well concluded to penetrate those of all other bodies, and consequently be diffused through all the parts of space which answers to the full character of an æther. The existence of such an æthereal me-

dium being settled, our philosopher proceeds to its properties; inferring it to be not only rarer and more fluid than air, but exceedingly more elastic and active: in virtue of which, he shows, that a great part of the phænomena of nature may be produced by it. To the weight, e. g. of this medium, he attributes gravitation, or the weight of all other bodies; and to its elasticity, the elastic force of the air and of nervous fibres, and the emission, rarefaction, reflection, and other phenomena of light; as also, sensation, muscular motion, &c. In fine, according to his theory, æther seems to be the primum mobile, the first source or spring of physical action in the modern system. Dr. Hartley constructed upon the theory of a vibrating æther, the celebrated system of vibration, and vibratiuncles of the medullary substance of the nerves and brain; by which, he accounts for all our sensations and ideas. He even thinks it a consequence of this theory, that could matter be endowed with the most simple kinds of sensation, it might arrive at all the intelligence of which the human mind is possessed! The difficulties of Dr. Hartley's system, are thus ably stated by Dr. Reid. Our sensations arise from vibrations, and our ideas from vibratiuncles, or miniature vibrations; and he (Dr. Hartley) comprehends, under these two words of sensations and ideas, all the operations of the mind. But how can we expect any proof of the connection between vibrations and thought, when the existence of such vibrations was never proved. The proof of their connection cannot be stronger than the proof of their existence. For, as the author acknowledges, that we cannot infer the existence of the thoughts from the existence of the vibrations, it is no less evident, that we cannot infer the existence of vibrations from the existence of our thoughts. The existence of both must be known, before we can know their connection. As to the existence of our thoughts, we have the evidence of consciousness; a kind of evidence, that was never called in question. But as to the existence of vibrations, in the medullary substance of the nerves and brain, no proof has yet been brought.

The Cartesian æther is supposed not only to pervade, but adequately to fill all the vacuities of bodies; and thus to make an absolute plenum in the universe. But Sir Isaac Newton overturns this opinion, from divers considerations; by showing, that the celestial spaces are void of all sensible resistance: for the matter contained therein must be immensely rare, as the resistance of bodies is chiefly in proportion to their density; so that, if the heavens were thus adequately filled with a medium or matter, how subtile soever, they would resist the motion of the planets and comets, more than quicksilver or gold. The late discoveries in electricity have thrown great light upon this subject, and rendered it extremely probable, that the æther so often talked of, is no other than the electric fluid, or solar light, which diffuses itself throughout the whole system of nature. See Electricity, Fire, Heat, Light, &c.

ÆTHERA, in botany, eringo.

ÆTHEREAL, Æthereus, something that belongs to, or partakes of, the nature of Æther. Thus we read of the æthereal space, æthereal regions, &c. Some of the ancients divided the universe, with respect to the matter contained therein, into elementary and æthereal. Under the æthereal world, was included in that space above the uppermost element, viz fire. This they supposed to be perfectly homogeneous, incorruptible, unchangeable, &c. See Correction. The Chaldeans placed an æthereal world between the empyreum and the region of the fixed stars. Besides which, they sometimes also speak of a second æthereal world, meaning by it the starry orb: and a third æthereal world, by which was meant the planetary region.

Æthereal Oil, is a fine, subtile, essential oil, approaching nearly to the nature of a spirit. Thus, the pure liquor rising next after the spirit, in the distillation of turpentine, is called the æthereal oil of turpentine. Some chemists distinguish two principles in urine; the one a volatile urinous salt, resembling spirit of nitre; the other, an æthereal oil, or sulphur, partaking of the nature of spirit of wine.

Æthereal Phosphorus, is a name generally given, by Bernoulli, to that otherwise called mercurial, or barometrical phosphorus.

ÆTHIONEMA, in botany, from *αἰθω*, to scorch, and *νημα*, a stamen, in allusion to some tawny or sun-burnt tinge in the stamens; a genus of plants.—Class and order, tetradynamia siliculosa. Natural order, siliquosæ, linn; cruciferæ, Juss. Its characters are: pouch with boat-like winged valves, (sometimes not bursting. Longer filaments either combined, or finely toothed towards the top. Insertion of the calyx unequal. There are two species. *Brown.*

ÆTHIOPIA. See Ethiopia.

ÆTHIOPIAN Crown, in natural history, the name of a shell fish, of the genus of the dolium, or concha globosa. It is of a brown colour; but differs from the common shells of this genus, in having the top, or head, dentated, so as to represent a crown.

ÆTHIOPIS, Ethiopian clary; a decoction of its roots is recommended in pleurisies and rheumatisms.

ÆTHIOPS, in entomology, a species of black Cerambyx, with a spinose thorax, and with two bands of the elytræ; the point of the apex yellow, and middle-sized antennæ, found at the Cape of Good Hope. Also a species of the carabus, wholly black, found at Berlin, and of the cimex, black, with a ridge on the middle of the thorax, and black spinose tibiæ, found at Cayenne.

Æthiops is also a species of papilio, with black wings; the primores marked with three white bands, and cærulean spots on the upper part; the posterior with two longitudinal pale furrows at the base, and a transverse ridge, with five cærulean points; found out of Europe. Also a species of apis, or the black bee, with the margin of the segments of the abdomen white; found in America: and of the hairy black musca, with black wings, white at the apex; two points, and a silvery anus; found in Italy.

Æthiops, in natural history, a species of the turbo, with the shell transversely furrowed and black; the first windings are nearly striated; the succeeding ones are of a silvery brightness,

with the lip and limb brown; the aperture is dilated.

ÆTHIOPS fulica, in ornithology, the wholly black fulica or coot of Sparrman.

ÆTHIOPS Simia, in zoology, the white eye-lid ape of Pennant, and mangabey of Buffon.

ÆTHIOPS ANTIMONIAL, MARTIAL, &c. See INDEX to PHARMACY.

ÆTHOLICES, in medicine, from *αιθω*, to inflame, superficial pustules, or boils in the skin, occasioned by heat.

ÆTHON, in mythology, of *αιθω*, to burn, one of the four horses of the sun, which caused the fall of Phaeton, according to Ovid. Claudian calls one of the horses of Pluto's chariot by the same name.

ÆTHRA, a river of Sweden, that rises in the lake Alsugan, and running by Falkenburg, in South Halland, falls into the sea. It is also called Falkenburg.

ÆTHRA, in fabulous history, the daughter of Pittheus, king of Træzene, and mother of Theseus.

ÆTHUSA, in botany, a genus of the pentandria digynia class; and, in the natural method, ranking under the forty-fifth order, umbellatæ. The characters are: CAL. an universal umbel expanding, the interior rays shorter by degrees; with a partial umbel, small, and expanding. There is no universal involucrum; the partial one is dimidiated, with three or five leaflets, and pendulous; the proper perianthium scarcely discernible: COR. uniform, with fertile florets; the partial one has five heart-inflected unequal petals: STAM. five simple filaments, with roundish antheræ: PIST. a germen beneath; with two reflected styli; the stigmata obtuse. There is no pericarpium; the fruit is ovate, striated, and tripartite. The seeds are two, roundish and striated. There is but one species, viz. the æthusa cynapium, fools-parsley, or lesser hemlock, a native of Britain, which grows in corn fields and gardens. This plant, from its resemblance to common parsley, hath sometimes been mistaken for it; and when eaten, it occasions sickness. If the curled leaved parsley only, were cultivated in our gardens, no such mistakes would happen. Cows, horses, sheep, goats, and swine, eat it. It is noxious to geese.

ÆTHYIA, in ornithology, a name by which old authors have called one of the web-footed fowls, the Utamania of Crete, or the common auk, or razor-bill.

AETIANS, in church history, a branch of Arians, who maintained that the Son and Holy Ghost are in all things dissimilar to the Father. See AETIUS.

ÆTIOLOGICA, *Αιτιολογικη*, Gr. that branch of physic which explains the causes and reasons of diseases, and their various symptoms in order to their cure. *Bailey.*

ÆTIOLOGICAL, something that assigns the cause of an effect, or appearance.

ÆTIOLOGY, in medicine, from *Αιτια*, cause, and *λογος*, discourse, a discourse of the cause of a disease. In this sense, we say, the ætiology of the small pox, of the hydrophobia, of the gout, the dropsy, &c.

ÆTIOLOGY, in rhetoric, a figure, whereby, in relating an event, we assign also the cause of it. In this sense, ætiology differs from colour, as the former assigns the true cause, the latter only a feigned or specious one. The sceptics were professed opponents of all ætiology, or argumentation from causes.

ÆTION, a celebrated painter, who has left us an excellent picture of Roxana and Alexander, which he exhibited at the Olympic Games: it represents a magnificent chamber, where Roxana is sitting on a bed of a most splendid appearance, rendered still more brilliant by her beauty. She looks downwards, in a kind of confusion, being struck with the appearance of Alexander standing before her. A number of little cupids flutter about, some holding up the curtain, others undressing the lady; some pulling Alexander by the cloak, and presenting him to his mistress, others playing with his arms; while his friend Hæphestion, and the god Hymen, are represented attending with the matrimonial torch. This picture gained Ætion so much reputation, that the president of the games gave him his daughter in marriage.

ÆTITES, is one of those curiosities, in natural history, which merits a more full description than Dr. Johnson has given it. It was formerly in repute for several extraordinary magical as well as medical powers; such as preventing abortion, discovering thieves, and other ridiculous properties. The popular tradition is, that it is found in the eagle's nest, whither it is supposed to be carried while the female sits, to prevent her eggs from being rotten. These stones are found in several parts; near Trevoux in France, one can scarcely dig a few feet deep, without finding considerable strata, of the coarser or ferruginous kind.—They are originally soft, and of the colour of yellow ochre. But the finest and most valued of all the eagle stones, are accidental states of one or other of our common pebbles. These are so far from being a peculiar species of fossil, though usually accounted such, that they are not determinately of any one species of pebble. Those, however, which most usually furnish them, are the brown centered pebbles, with whitish, bluish, and brown crusts. The plain history of this remarkable fossil is this: the central nucleus of many species of pebbles, particularly of this, is coarser than the rest of the stone, that is, it is made up of more earth and less crystal; the natural consequence of which must be, that being of a more loose and rare texture, it is in drying more apt to shrink than such masses as are composed of a harder and purer matter. The central nucleus in this species is also surrounded with a whitish crust of a more loose texture, and more subject to shrink in drying, than even the nucleus itself; and being composed of more earth and less crystal, is also more friable and soft. The outer circles of this stone are of a much harder substance. When the earthy matter in the nucleus, and first crust of this pebble, exceeds its just proportion, the consequence will be, that the stone will become an ætites; for the nucleus, contracting itself to a small size, on the evaporation of its fluid matter, must separate from

its first crust, and that also shrinking must be drawn backward towards the other crusts; whence the cavity will become larger between that and the nucleus, and consequently, the nucleus will rattle in it when the stone is shaken. The pebble in this state having been afterwards rolled about by the waters, the nucleus has by rolling broken to pieces all the inner crust, and is usually found in the hollow of the stone, buried in a large quantity of a whitish powder. These eagle-stones are not uncommon in our gravel pits. The ætites is also known by the names of *eutocium*, *echites*, *lapis aquilæ*, *aquileus*, and *lapis pregnans*.

AETIUS, a famous physician, born at Amida, in Mesopotamia, and the author of a work entitled *Tetrabibles*, a collection from the writings of former physicians. He lived about the end of the fifth, and beginning of the sixth century.

AETIUS, governor of Gallia Narbonensis in the reign of Valentinian III. forced the Franks, who were passing into Gaul, to repass the Rhine. He defeated the Goths; and routed Attila king of the Huns, who invaded Gaul with an army of 700,000 men. But the emperor, jealous of the merit of this great man, ungratefully murdered him, in 454, with his own hand, under the pretence that he had permitted the invasion of the Huns, after Attila's defeat.

AETIUS, one of the most zealous defenders of Arianism, was born in Syria, and flourished about the year 336. After being a servant to a grammarian, of whom he learned grammar and logic, he was ordained deacon, and at last bishop, by Eudoxus, patriarch of Constantinople. St. Epiphanius has preserved forty-seven of his propositions against the doctrines of the Trinity. His followers were called Aetians.

ÆTNA.

ÆTNA, or ÆTHANA, (as Bochart thinks from אתנא Hebrew a furnace,) called also in modern times Gibello, a burning mountain on the east of the island of Sicily, in the district of Val de Demoné, or Demona: a name derived evidently from the superstitious notion of the ancients, that dæmons resided here, and held their emporium in the caverns of the mountain. In classic history, we learn that in this place were the forges of the Cyclops, who were engaged in making thunder-bolts for Jupiter, under the superintending care of Vulcan.

Ferrant exercebant vasto Cyclopes in antro
Brontesque Steropesque, et nudus membra Pyracmon.

On their eternal anvils here he found
The brethren beating and the blows go round.

Homer is altogether silent as to its eruptions, a circumstance which has been thought to imply, that they were in his time not known; or had been for ages suspended. There was a temple of Vulcan erected on the island, in which, according to Ælian, a perpetual fire was maintained: (De Animal. l. xi. c. 3:) and Ætna was the fabled prison in which the giant Enceladus was confined by Jupiter.

The dimensions of the mountain have never yet been ascertained with accuracy; and there are no two travellers whose calculations on this subject exactly correspond. M. Houel, one of the most accurate observers of its phænomena, makes it forty miles in circumference at the base; there are others that make it sixty; others again, make it 100: M. Brydone, who copies the calculations of Signior Recupero, affirms it to be 183 miles round; Mentelle makes the diameter to be even thirty miles; and Buffon gives 300 square leagues as the superficial extent of the entire mountain. As to Brydone, if we compare the account of Mount Ætna's circumference, given by Recupero, with its apparent circumference on the map, prefixed to the 'Tour through Sicily and Malta,' we must at once be struck with the prodigious disparity. It is plain, that in the map no room is found for any mountain of these dimensions; while by comparing the distances of some of the Sicilian towns from one another, Signior Recupero's calculation will be found enormously exaggerated. The geographer, for instance, has placed Catania, which stands at the foot of Mount Ætna, on one side no more than twenty-eight miles from the most distant point of the river Alcantara, which forms the boundary on the opposite side; so that a circle, whose radius is fourteen or fifteen miles, must encompass as much space as can possibly be occupied by the basis of Mount Ætna. If then, we make the circumference of this famous mountain to be between eighty and ninety miles, we shall not be far perhaps from the truth, though our data are far from satisfying us.

Nor do travellers differ less with respect to its height:

	Above the level of the sea.
Kircher makes it	4000 toises
Mentelle	1950
Recupero	2500
Buffon	2000 fath.
Faujas de St. Fond . . .	10,036 feet
Sir G. Shuckburgh . . .	10,954
Saussure	10,963
Brydone	12,000

Some affirm it to be six, some eight, and others even twelve miles high. Pindar, the first writer who mentions an eruption of Ætna, calls it 'the pillared prop of heaven.' *Pyth. Od.* v. 36.

Presenting a picture of all the climates, Ætna epitomizes also the history of the world. Its annals extend through all authentic history. The first eruption taken notice of by ancient and by no means contemporary authors, happened before the Greeks landed on the island, and is supposed to have intimidated the Sicani from continuing in the east part of Sicily. The first recorded eruption was in the time of Py-

thagoras. Plato was invited by the younger Dionysius to examine the state of the mountain, after the sixth. It threw up flames and lava near 100 times between that period and the battle of Pharsalia; and was particularly furious while Sextus Pompeius was adding the horrors of war to its devastations. Charlemagne happened to be at Catania during one of its eruptions; and from his reign the chronicles mention fifteen down to that of the year 1669. Ascending this mountain, therefore, the traveller treads on ground consecrated by the fears and reverence of all ages. Hither Adrian and Plato held their way and combated its difficulties before him; and animated by the same hope, thought themselves sufficiently rewarded by the unparalleled scenery of its brow.

Ætna from a distance has the appearance of an obtuse truncated cone, terminating at an immense altitude, in a bifurcated vertex, in which two separate eminences are distinctly visible. Around the great bulk of the mountain, are a number of conical hills, which appear to have bulged out of its sides in different eruptions, each having a crater at the top, and standing to the height of 300 or 400 feet. These hills adorned with verdure, darkened by a thick shade of trees, and scattered with villages and hamlets the abode of 100,000 inhabitants, agreeably diversify the scene; while a profusion of plants and herbs, and a green belt of oaks and pines, which seem planted by the hand of nature, give to the whole a romantic and highly picturesque appearance. The mountain affords a specimen of all climates, and is commonly divided into three regions; the fertile, the woody, and the desert or barren region; which some writers have not inaptly termed the torrid, the temperate, and the frigid zones of Ætna.

The fertile region is lowest, encircled by the rivers Semetus and Alcantara, except where it is bounded by the sea. Here are found vines, and fruits of the most luxuriant variety; the roots of trees shoot along above the surface of the soil, and the decomposition of the lava has given to the pastures and orchards, a richness and fertility rarely equalled. But Sir William Hamilton observes, they keep their vines low here, contrary to the custom of those who inhabit Mount Vesuvius; and they produce a stronger wine, but not in such abundance. Here also, are the lavas of many terrible eruptions; particularly of that in 1669. At the foot of the mountain raised at that time, is a hole, through which Sir William descended, by means of a rope, into several subterraneous caverns, branching out, and extending much farther than he chose to venture, the cold there being excessive, and a violent wind extinguishing some of the torches. Many other caverns are known in this and the other regions of Ætna; particularly one near this place, called La Spelonca della Palomba, from the wild pigeons building their nests there. Here Mr. Brydone was told that some people had lost their senses, from having advanced too far, imagining they saw devils and damned spirits. Some of these caverns are made use of as magazines for snow; which they are well adapted for, on account of their extreme cold. These are with great probability supposed by Sir William Hamilton, to be the hollows made by the issuing of the lava in eruptions. In this region the river Acis, so much celebrated by the poets in the fable of Acis and Galatea, takes its rise. It bursts out of the earth at once in a large stream, runs with great rapidity, and about a mile from its source throws itself into the sea. Its water is remarkably clear; and so extremely cold, that it is reckoned dangerous to drink it; it is said, however, to have a poisonous quality, from being impregnated with vitriol; in consequence of which cattle have been killed by it. It never freezes, but is said often to contract a greater degree of cold than ice.

After travelling twelve miles from Catania, the traveller usually halts at Nicolosi, 2496 feet above the level of the sea. The heat here is not so fervent as at Catania, because it is higher up the mountain. Mount Rosso, or the Red Mountain, is near this station: so called from its colour, which is not however entirely red, but possesses an agreeable intermixture of other shades: a deep bed of black sand envelopes the bottom; covered with a sort of grey lava, and contains a multitude of openings which have never been explored to any considerable distance in consequence of that excessive cold, of which Sir William Hamilton complained. The year 1669 was the period of its formation, when it rose from the midst of a plain, and discharged torrents of lava. It is one of those mouths through which Ætna has in modern times discharged showers of ashes and flakes of flame.

The stream of lava reached, in 1669, from this place to the sea. To the extent of two miles Mount Rosso is surrounded with a black sand, which was thrown out in that eruption, and which then covered a space of fifteen miles, to such a depth as to bury the vines and shrubs that were scattered over the soil. Some of the finer particles of it were wafted by the wind as far as Calabria. The sand is very deep as you approach the mountain; which is forked at the vertex. Sir William Hamilton estimates its height at a mile, and its circuit at three miles; but Borelli makes its circumference at the base not to exceed two miles, and its perpendicular height not more than 150 paces: and with this account Spallanzani agrees. This naturalist bestowed some attention upon the formation of this singular production of nature, the only one out of the many similar eminences that surround the volcano, with whose origin and complete history we are acquainted. The base of the lava of this eminence is horn-stone, of a grey colour, rough to the touch, and of a moderately fine grain. It gives sparks with steel, and sounds when it is struck. It serves as a matrix to a great number of felt-spathose or shoerlaceous crystallizations. The scoriæ, of which it is principally composed, have the same kind of base, containing shoerls and felt-spars; but they are more light and friable than the lava, and have a kind of vitreous appearance. These and other differences are produced by the mutual collision and pulverization of the scoriæ. The number of detached shoerls found on and near Mount Rosso is very great. It has been thought

that they first entered into the body of lava, and were separated from it by means of the sulphur, which had scorified the lava, but had not produced the same effect on the shoerls, because of the small quantity of iron which they contain; and consequently they remained free and detached. Spallanzani rejects this hypothesis; as upon experiments with the magnetic needle, he found that the martial principle was more abundant in the shoerls than in their base; and he, therefore, accounts for their separation from the lava in another way. The volcanic fire, which melted the lava, was incapable of melting these shoerls, which are not only refractory to the fire, but of a different specific gravity from the lava. When this was melted, elevated to a great height, and separated into small particles in the progress of the eruption, a number of shoerls were detached from it, and fell, isolated, partly within the crater, and partly around it. Accordingly he found, that the shoerls detached from the lava are infusible in the furnace; but those which are incorporated with the lava sustain a proper fusion. These shoerls are also found in many other mountains of Ætna. Spallanzani analyzed them, and from 100 docimastic pounds, he obtained the following results: viz.

	Pounds.
Silex - - - -	34.5
Lime - - - -	18.7
Iron - - - -	7.6
Alum - - - -	12.4
Magnesia - - - -	11
Sum -	84.2

A crater on the summit of this sub-volcano is of an elliptical form, and was explored by Mr. Houel with torches, but he was soon obliged to return, from the extreme cold he felt within it.

Niccolo del Arena, the next station, is a building which was once in the possession of the Benedictine friars, but they were compelled to forsake it in consequence of the devastations of the lava. It is, however, extremely fruitful; the black sand thrown up in 1669 having been converted into vegetable earth. Contiguous to this place is another volcanic hill of the height of 300 feet, richly overspread with verdure, surrounded by other little eminences on every hand, possessing like itself all the charms of vegetable beauty, and rising like spots of verdure amid a dreary waste of lava. About three miles higher up the mountain is the woody region; here the air is cool and agreeable, the morning-breeze comes breathing over beds of spices surcharged with delicious and reviving odours. Trees shape their foliage and spread their boughs in apparent security, diffusing an air of magnificence and grandeur over the whole landscape. The chesnuts of the woody region are thought prodigies in nature; one, which is particularly celebrated, measures 196 feet at the surface of the earth.

Mr. Hamilton says, he observed a gradual decrease of the vegetation as he advanced up the mountain; the under part being covered with large timber trees, which grew gradually less as he approached the crater; at last they degenerated into the small plants of the northern climates. He also observed quantities of juniper and tansey; and was informed by his guide, that later in the season (he visited Ætna in June 1769) there are a great many curious plants, and in some places rhubarb and saffron in great plenty. In Carrera's history of Catania, there is a list of all the plants and herbs of Ætna, in alphabetical order. This region is extolled by Mr. Brydone as one of the most delightful spots on earth. He lodged for a night in a large cave near the middle, formed by one of the most ancient lavas. It is called La Spelonca del Capriole, or the goat's cavern; because it is frequented by those animals, which take refuge there in bad weather. Here his rest was disturbed by a mountain thrown up in the eruption of 1766. It discharged great quantities of smoke, and made several explosions like heavy cannon fired at a distance; but they could observe no appearance of fire. This gentleman likewise visited the eastern side of Regione sylvosa, intending to have ascended that way to the summit, and descend again on the south side to Catania; but found it impracticable; though what the insurmountable difficulties were, he does not mention. On this side, part of the woody region was destroyed, in 1755, by an immense torrent of boiling water, which issued from the great crater. Its traces were still very visible, about a mile and a half broad, and in some places more. The soil was then only beginning to recover its vegetative power, which it seems this torrent had destroyed for fourteen years.—Near this place are some beautiful woods of cork, and evergreen oak, growing absolutely out of the lava, the soil having hardly filled the crevices; and not far off, our traveller observed seven little mountains that seemed to have been formed by a late eruption. Each of these had a regular cup, or crater, on the top; and, in some, the middle gulph, or Voragine, as the Sicilians call it, was still open. Into these gulphs Mr. Brydone rolled several stones, and heard the noise for a long time after. All the fields round, to a considerable distance, were covered with large burnt stones discharged from these smaller volcanoes. The woody region, particularly the east side, called Carpinetto abounds with very large chesnut trees; the most remarkable of which has been called, from its size, Castagno de Cento Cavalli, or chesnut tree of a hundred horse. Mr. Brydone was greatly disappointed at the sight of this tree, as it is only a bush of five large ones growing together; but his guides assured him, that all these five were once united into one stem; and Signior Recupero told him, that he himself had been at the expence of carrying up peasants with tools to dig round this bush of trees, and found all the stems united below ground in one root. The circumference, as measured by Messrs. Brydone and Glover who accompanied him, amounted to 204 feet. Another of these, about a mile and a half higher on the mountain, is called Castagna de Galea: it rises from one solid stem to a considerable height, after which it branches out, and is a much finer object than the other; this was measured

two feet above the ground, and found to be seventy-six feet in circumference. A third, called Castagna del Nave, is pretty nearly of the same size; and Massa, one of the most esteemed Sicilian authors, affirms that he has seen solid oaks there upwards of forty feet round. All these grow on a thick rich soil, which seems originally to have been formed of ashes thrown out by the mountain. Here the barometer stood at twenty-six inches five lines and a half, indicating an elevation of near 4000 feet. The snow grotto is 5054 feet above the level of the sea. There are two mountains in the vicinity, whose craters exceed in dimension that of Vesuvius.

The barren region includes all the higher part of the mountain. Here the scene is no longer woody: there is a flat expanse of snow and ice, the traveller shivers under some of the coldest blasts of the frigid zone; sounds are heard in the centre of the mountain, sulphurous exhalations issue from its crevices; at last the summit rears its awful head, pouring out volumes of smoke from its caverns.

The man who treads Mount Ætna seems like a man above the world. He generally is advised to ascend before day-break; the stars now brighten, shining like so many gems of flames; others appear which were invisible below. The milky-way seems like a pure flake of light lying across the firmament, and it is the opinion of some that the satellites of Jupiter might be discovered by the naked eye. But when the sun arises the prospect from the summit of Ætna is beyond comparison the finest in nature. The eye rolls over it with astonishment and is lost. The diversity of objects; the extent of the horizon; the immense height; the country like a map at our feet; the ocean around; the heavens above; all conspire to overwhelm the mind, and affect it with sensations of astonishment and grandeur. We must be allowed to extract Mr. Brydone's description of this scene. There is not, he says, on the surface of the globe, any one point that unites so many awful and sublime objects. The immense elevation from the surface of the earth, drawn as it were to a single point, without any neighbouring mountain for the senses and imagination to rest upon and recover from their astonishment in their way down to the world. This point or pinnacle, raised on the brink of a bottomless gulph, as old as the world, often discharging rivers of fire, and throwing out burning rocks, with a noise that shakes the whole island. Add to this the unbounded extent of the prospect, comprehending the greatest diversity, and the most beautiful scenery in nature, with the rising sun advancing in the east to illuminate the wondrous scene.

'The whole atmosphere by degrees kindled up, and shewed dimly and faintly the boundless prospect around. Both sea and land looked dark and confused, as if only emerging from their original chaos, and light and darkness seemed still undivided; till the morning by degrees advancing completed the separation. The stars are extinguished. and the shades disappear. The forests, which but now seemed black and bottomless gulphs, from whence no ray was reflected to shew their form or colours, appear a new creation rising to sight, catching life and beauty from every increasing beam. The scene still enlarges, and the horizon seems to widen and expand itself on all sides; till the sun, like the great Creator, appears in the east, and with his plastic ray completes the mighty scene. All appears enchantment: and it is with difficulty we can believe we are still on earth. The senses, unaccustomed to the sublimity of such a scene, are bewildered and confounded; and it is not till after some time that they are capable of separating and judging of the objects that compose it. The body of the sun is seen rising from the ocean, immense tracts both of sea and land intervening; the islands of Lipari, Panari, Alicudi, Stromboli, and Volcano, with their smoking summits, appear under your feet; and you look down on the whole of Sicily as on a map; and can trace every river through all its windings, from its source to its mouth. The view is absolutely boundless on every side; nor is there any one object within the circle of vision to interrupt it, so that the sight is every where lost in the immensity; and I am persuaded it is only from the imperfection of our organs, that the coasts of Africa, and even of Greece, are not discovered, as they are certainly above the horizon. The circumference of the visible horizon on the top of Ætna, cannot be less than 2000 miles. At Malta, which is near 200 miles distant, they perceive all the eruptions from the second region: and that island is often discovered from about one half the elevation of the mountain: so that at the whole elevation the horizon must extend to near double that distance, or 400 miles, which makes 800 miles for the diameter of the circle, and 2400 for the circumference: but this is by much too vast for our senses, not intended to grasp so boundless a scene. The most beautiful part of the scene is certainly the mountain itself, the island of Sicily, and the numerous islands lying round it. All these, by a kind of magic in vision, that I am at a loss to account for, seem as if they were brought close round the skirts of Ætna; the distances appearing reduced to nothing. Perhaps this singular effect is produced by the rays of light passing from a rarer medium into a denser, which (from a well-known law in optics) to an observer in the rare medium, appears to lift up objects that are at the bottom of the dense one, as a piece of money placed in a bason appears lifted up as soon as the bason is filled with water.

'The Regione Deserta, or the frigid zone of Ætna, is the first object that calls your attention. It is marked out by a circle of snow and ice, which extends on all sides to the distance of about eight miles. In the centre of this circle, the great crater of the mountain rears its burning head, and the regions of intense cold, and of intense heat, seem for ever to be united in the same point The Regione Deserta is immediately succeeded by the Sylvosa, or the woody region, which forms a circle or girdle of the most beautiful green, which surrounds the mountain on all sides, and is certainly one of the most delightful spots on earth. This presents a remarkable contrast with the desert region. It is not smooth and even,

like the greatest part of the latter; but is finely variegated by an infinite number of those beautiful little mountains that have been formed by the different eruptions of Ætna. All these have now acquired a wonderful degree of fertility, except a very few that are but newly formed, that is within these five or six hundred years; for it certainly requires some thousands to bring them to their greatest degree of perfection. We looked down into the craters of these, and attempted, but in vain, to number them.

'This zone is every where succeeded by the vineyards, orchards, and corn-fields that compose the Regione Culta, or the fertile region. This zone makes a delightful contrast with the other two regions. It is bounded by the sea to the south and south-east, and on all its other sides by the rivers Semetus and Alcantara, which run almost round it. The whole course of these rivers is seen at once, and all their beautiful windings through these fertile vallies, looked upon as the favourite possession of Ceres herself, and the very scene of the rape of her daughter Proserpine. Cast your eyes a little further, and you embrace the whole island; all its cities, rivers, and mountains, delineated in the great chart of nature; all the adjacent islands, and the whole coast of Italy, as far as your eye can reach; for it is no where bounded, but every where lost in the space. On the sun's first rising, the shadow of the mountain extends across the whole island, and makes a large track visible even in the sea and in the air. By degrees this is shortened, and in a little time is confined only to the neighbourhood of Ætna.'

Brydone also speaks of observing several of those meteors, generally called by astronomers falling stars; which appeared as much elevated as when viewed from the plain: a proof, says he, that these bodies move in regions much beyond the bounds that some philosophers have assigned to our atmosphere. To have a full and clear prospect from the summit of mount Ætna, it is necessary to be there before sun-rise; as the vapours raised by the sun, in the day time, obscure every object: and all agree, that the beauty of the prospect from thence cannot be expressed. Here Mr. Hamilton also had a view of Calabria in Italy, with the sea beyond it; the Lipari Islands, and Stromboli, (seventy miles distance) appeared just under his feet; the whole island of Sicily, with its rivers, towns, harbours, &c. appeared distinct as if seen on a map. Massa, a Sicilian author, affirms, that the African coast, as well as that of Naples, with many of its islands, have been discovered from the top of Ætna. The visible horizon here is not less than 8 or 900 miles in diameter.

'Seated,' says Spallanzani, 'in the midst of this theatre of the wonders of nature, I felt an indescribable pleasure from the multiplicity and beauty of the objects I surveyed; and a kind of internal satisfaction and exultation of heart. The sun was advancing to the meridian, unobscured by the smallest cloud, and Reaumur's thermometer stood at the tenth degree above the freezing point; I was therefore in that temperature which is most friendly to man, and the refined air I breathed, as if it had been entirely vital, communicated a vigour and agility to my limbs, and an activity and life to my ideas which appeared to be of a celestial nature.'

On the summit, Mr. Hamilton observes that he was sensible of a difficulty in respiration from the too great subtilty of the air, independent of what arose from the sulphurous steam of the mount. Mr. Brydone takes no notice of this; which probably arose from the air being in a more rarefied state at the time of Mr. Hamilton's observation, than of Mr. Brydone's: the barometer, as observed by the former, stands at eighteen inches and ten lines, by the latter at nineteen inches six lines and a half. In these high regions there is generally a very violent wind, which, as all our travellers found it constantly blowing from the south, may possibly be commonly directed from that point. Here Mr. Brydone's thermometer fell.

Near the foot of the great crater, is the Philosopher's tower, called Il Torre del Philosopho, supposed to have been constructed by the philosopher Empedocles while he was studying the phænomena of Ætna; by others these are supposed to be ruins of a temple of Vulcan. They are of brick, and seem to have been ornamented with marble. In this region Mr. D'Orville found a great oblong block of polished marble, eight or ten feet high, and three or four thick; though how it came there was quite unaccountable to him. From Mr. D'Orville's and Mr. Brydone's accounts, we must reckon this part of the mountain steep; but Mr. Hamilton says, the ascent was so gradual as not to be in the least fatiguing, and had it not been for the snows, they might have rode on their mules to the very foot of the crater.

The great crater itself, may be described as a cup, or hollow at the top of a conical hill, rising equally on all sides. The hill is composed chiefly of sand and ashes, thrown up from the mouth at different periods; and at present it is ten miles in circumference, and a quarter of a mile in height. The crater presents the appearance of an inverted cone the inside of which is covered with salts and sulphur of various colours; it is oval in its figure, shelving down from the aperture. Sir W. Hamilton, 1769, calculated the circumference at two miles and a half; Mr. Brydone, 1770, at three miles and a half; Mr. D'Orville, 1727, at three or four miles. In 1788, Spalanzani, who visited this phenomenon, describes the inner sides as terminating in a plain of half a mile in circuit, in the centre of which is a circular aperture of five poles in diameter, contained within the cavity, apparently in a state of ebullition. Several stones that he threw in, fell dead as into a thick paste; but those that did not fall into the matter, made quite a different sound, a circumstance which led him to conclude that the bottom was solid. Riedesel observes, that no sound at all was produced by throwing stones into the gulph; but he heard a roaring like the sea. The crater stood to the east, with one opening, which no longer exists. Mr. D'Orville tells us that he and his companion having fastened themselves by ropes, held by men at the top, went down the shelving sides to the very mouth of the gulph. They beheld a

conic mass of matter in the middle, to the height of about sixty feet, the base as far as they could trace it, nearly 800 feet, from which small lambent flames and smoke issued in every direction. While they were there, the north side of the mountain began to throw out flames and ashes, accompanied by a bellowing noise, on which they retired. Strabo describes the top of the mountain as a level plain, with a smoking hill in the centre. Spallanzani as bifurcated, for he saw another eminence a quarter of a mile distant, with another crater, though not of equal dimension. M. Houel speaks of three eminences, 1782, like an isosceles triangle, only two of which could be perceived from any distance, in the midst of which is the principal crater; in diameter about sixty feet. According to Fazello, there was a hill produced in 1444, which fell into the crater after an eruption, and mingled with the melted mass. Borelli writes that the summit of the mountain rose up like a tower; and during the eruption of 1669, fell into the crater. The whole structure and appearance of the mountain is thus evidently subject to great changes.

The stones ejected from Ætna are granitic, or calcareous, surrounded with columns of Basalt, which M. Dolomieu terms ' prismatic lava.' Spalanzani supposes the shore to be volcanic for twenty-three miles. The same writer observes that there is on Ætna a great scarcity of water, owing, as he imagines, to the rain's falling on scoriæ, in which it sinks for want of those various argillaceous strata, which retain it in other mountains. Others affirm that the mountain is well watered; that there are intermitting springs which flow during the day only, and stop in the night, a fact which may arise from the melting of the snow, which ceases as the night comes on; that there are streams always pouring from the side of the mountain, unquestionably originating in some permanent source; that there are poisonous springs, fine salt springs, &c.

An approaching eruption of mount Ætna is indicated various ways. There is at first an increase of the white smoke issuing from the top of the crater, intermingled with volumes of black smoke in the centre. These are attended by slight explosions, and followed by red flashes, or rather streams of fire perpetually increasing in number, and growing in dimension, till the whole becomes one entire black column, highly electrical, illuminated by frequent lightnings, and attended by occasional thunder. These phænomena are followed by showers of red hot stones and ashes. The former projected often to a great distance, and the latter wafted sometimes by the winds, and carried 100 miles, setting fire to buildings, and destroying the face of vegetation. Recupero tells us, that, he had known rocks thrown up to the altitude of 7000 feet. M. Houel saw one of these stones which had been projected from the mouth of Ætna, whose weight was not less than sixteen tons. It is generally three or four months before the lava makes its appearance, boiling over the top, or bursting through the sides of the mountain; a complete liquid mass of melted mineral matter, running like a river, and destroying the face of nature wherever it comes.

The explosions of Ætna have been recorded from a very early period. Diodorus Siculus mentions eruptions of it 500 years before the Trojan war, or 1693 years before the Christian æra. This is that which drove, he says, the Sicani from the eartern part of Sicily, which they then inhabited. Thucydides mentions three eruptions, of which, the second was the most remarkable. It happened the second year of the seventy-fifth Olympiad, when Phædon was archon of Athens, and when the army of Xerxes was defeated by the Athenians, at Platæa. Both the victory and eruption are recorded in an ancient inscription on the Oxford marble. During this eruption, Amphinomus and Anapis, two Sicilian youths, rushed into the midst of the flames, and saved the lives of their aged parents, at the imminent peril of their own; on which account, a temple has been consecrated to their memory.

The third eruption mentioned by Thucydides, occurred in the year before Christ 425, in the eighty-eighth Olympiad, and desolated part of the Catanian territory. He mentions it in the third book on the Peloponnesian war, in these words :—' About the spring of the year, a torrent of fire overflowed from mount Ætna, in the same manner as formerly, which destroyed part of the lands of the Catanians, who are situated at the foot of that mountain, which is the largest in all Sicily. It is said that fifty years intervened between this flow and the last which preceded; and that, in the whole, the fire has thus issued thrice since Sicily was inhabited by the Grecians.'

The fifth eruption, of authentic history, occurred in the consulship of Sergius Fulvius Flaccus, and Quintus Calpurnius Piso, nearly 133 years before the Christian æra. It was of some importance; but Julius Obsequius, and Orosius, by whom it is recorded, have not transmitted any details respecting it.

In the consulship of Lucius Æmilius Lepidus, and Lucius Aurelius Orestes, about 125 years before Christ, Ætna poured forth such a torrent of fire, that the adjoining sea is represented as absolutely hot, and immense numbers of fishes were destroyed. One historian declares, that the inhabitants of the isles of Lipari ate so many of those fishes as to occasion a distemper, which proved generally fatal.

Orosius states, that four years after the preceding eruption, the city of Catania was desolated by another equally tremendous; the roofs of the houses were demolished by the burning ashes, and so dreadful was the desolation, that the Romans exempted the inhabitants from all taxes for the space of ten years, to afford them an opportunity for repairing the damages they had sustained.

Livy mentions an eruption of Ætna, just previous to the death of Cæsar, in the forty-third year before Christ. It was not very considerable in itself, but acquired importance from being afterwards considered as an omen of Cæsar's death.

In the life of Caligula is mentioned, by Suetonius, an eruption that happened in the year forty, of the Christian æra; on the same night in which the emperor fled from Messina, where he was at the time.

According to Carrera, there was an eruption of mount Ætna, in the year of our Lord 253. The same author records another in the year 420; and Geoffrey of Viterbo, in his Chronicle, mentions an eruption in 812, in the reign of Charlemagne.

We cannot attempt to go into all the authentic details of those occurrences: but that of 1169, was the most tremendous eruption of ancient times; it happened on the 4th of February. At day-break there was an earthquake in Sicily, felt across the Strait, as far as Reggio, Catania sunk in ruins, and 15,000 inhabitants perished in its fall. The roof of St. Agatha's church fell in, and killed the bishop; new rivers burst forth, and several of the ancient rivers disappeared. The clear spring of Arethusa, so celebrated in antiquity, became muddy and brackish. The fountain of Ajo ceased two hours, and then poured out more copiously than before, but its waters became of a blood colour. At Messina, the sea retired; and then returning, it whelmed the city walls, rolled through the town, and swept multitudes away, men, women, and children. The trees and vegetables were burnt up by the showers of hot ashes and stones that fell upon them.

In 1329, another awful visitation occurred, of which a few particulars are furnished by Nicholas Specioli. It happened about vespers, on the 23rd of June. The mountain began to send forth dreadful sounds, and alarmed all the island, a volume of smoke encompassing a blaze of fire, arose from the mountain. Snow spread over Moyona. The flames in the evening touched the clouds; many buildings were reduced to ruins; many rocks on the shore dashed into the sea; springs and streams of water were dried away. The sun was eclipsed from morning to evening, with clouds of smoke and ashes; on the south side of the St. John's church, fire issued out from an opening made in the ground. Our historian drew near to see the wonders of nature: the earth tottered under his feet, and four volumes or showers of red hot stones issued in a very short space. The writer of this history affirms, that neither Babylon nor Sodom suffered so tremendous a visitation, and that many of the inhabitants died for fear; many birds died in the heavens, and the fish in the surrounding seas.

In 1536, another terrible eruption took place, and one which is memorable, on account of the death of Francis Negro de Piazza, a celebrated physician of Lentini, who, from a desire to examine the phenomenon, approached too near the crater, and was killed by a volley of ignited stones.

In 1537, the mountain was again disturbed. It was rent in several places, and the lava poured out with great violence, and destroyed Mont Pellieri and Fallica, together with the gardens, vineyards, and monastery of St. Nicholas D'Arena, and nearly all the inhabitants. The wind tore up the trees, the river Simeto left its banks, and swept away both people and cattle. The summit of the mountain fell in with a noise so dreadful, that the people of the island believed it to be the last day, and prepared accordingly; many of the people were struck deaf by the noise, and the castle of Corleone, though near eighty miles from the volcano, was demolished.

No eruptions of Ætna have been more terrible or destructive than that of 1669. Eight days before the commotion the sky was dark and cloudy, agitated by frequent thunder and lightning. In the island of Stromboli, two volcanoes, to the westward of Sicily, raged more than usual. Several houses were overturned by earthquakes in the village of Nicolosi, and the crater seemed to exhibit signs of great commotion. On the 8th of March, the sky darkened over La Pedara, and on the 11th, a chasm of some miles in length was opened in the mountain, twenty miles from the crater towards the city of Catania. On the following night, many new chasms opened in different places of the mountain, and from them all burst columns of smoke, tremendous thunders, accompanied by alarming earthquakes. From the principal crater a stream of lava flowed towards the lake of La Hardia. On the following day, it proceeded to the territory of Mal Passo, and wasted it in twenty hours. It then turned on Mont Pellieri, and in some places the dreadful stream was two miles broad. A new and immense chasm appeared on the 23d, and produced a hill of stones, sand, and ashes two miles in circumference, covering the surrounding country for a distance of fifteen miles. On the morning of the 25th of March, the whole mountain was agitated by an earthquake, and the highest crater fell down into the form with a tremendous noise. A wide gulph of a mile in extent, yawned in the place where it stood, pouring out large masses of ashes and stones, and among others the celebrated block of lava, now on mount Frumento. The lava turned its course towards Catania with a great noise, accompanied by alarming earthquakes: it overflowed the walls and desolated the gardens of the Benedictine Convent, and ran down into the sea. The stream of lava in forty days destroyed the habitations of 27,000 persons, and of the 20,000 inhabitants of Catania, only 3000 survived. As the lava ran down the mountain, red hot stones of a pale red might be seen swimming along in it of the size of an ordinary table: all the country was covered with it, smoking like a furnace of melted iron. Sometimes large masses fell into the sea with a dreadful noise. But when the lava rolled into the sea, the sound was more dreadful than the most tremendous thunder, and was heard to an immense distance. The water retired, the sun was darkened, the fish were destroyed, and the colour of the sea itself was changed. A continued noise issued from the mouth of the cleft, which could be heard sixty, and sometimes 100 miles, and to this distance the ashes were carried. The mouth whence this terrible inundation proceeded was only ten feet in diameter. Burning rocks, sixty palms in length, were thrown out of it to the distance of a mile. The sun did not appear for many weeks, and four months elapsed before the scene was altered. A vineyard in the possession of a convent, standing on ancient lava, was borne up by the melting of the lava beneath it; and instead of being destroyed, the people with great astonishment saw the whole field begin to move

off. Some of this vineyard remains to this day.

A description of the scene in the neighbourhood of Ætna at the time, was sent to the court of England by Lord Winchelsea, who happened then to be at Catania in his way home from an embassy at Constantinople. The account is not now to be procured; but Sir W. Hamilton found a copy of it in Sicily, and gives an extract, part of which follows: 'When it was night, I went upon two towers in divers places, and I could plainly see, (at ten miles' distance, as we judged,) the fire begin to run from the mountain in a direct line, the flame to ascend as high and as big as one of the greatest steeples in your majesty's kingdoms, and to throw up great stones in the air; I could discern the river of fire to descend the mountain, of a terrible fiery or red colour, and stones of a paler red to swim thereon, and some to be as big as an ordinary table. We could see this fire move in several other places, and all the country covered with fire, ascending with great flames in many places, smoking like a violent furnace of iron melted, making a noise with the great pieces that fell, especially those that fell into the sea. A cavalier of Malta, who lives there, and attended me, told me, that the river was as liquid, where it issues out of the mountain, as water, and came out like a torrent with great violence, and is five or six fathom deep, and as broad, and that no stones sink therein.' The account given in the Philosophical Transactions is to the same purpose.

Since 1669, there have been several eruptions, but none of them comparable to it. In that which happened in 1766, the lava sprung up into the air to a considerable height, twelve miles below the summit; but formed a stream only six miles in length, and one mile in breadth. Another eruption happened in 1787. From the 1st to the 10th of July, there were signs of its approach. On the 11th, after a little calm, there was a subterraneous noise, like the sound of a drum in a close place, and it was followed by a copious burst of black smoke. It was then calm till the 15th, when the same prognostics recurred. On the 17th, the subterraneous noise was heard again; the smoke was more abundant, slight shocks of an earthquake followed, and the lava flowed from behind one of the two little mountains which form the double head of Ætna. On the 18th, while the spectators were in anxious expectation of a more severe eruption, all was quiet, and continued so more than twelve hours: soon after they perceived some new shocks, accompanied with much noise; and the mountain threw out a thick smoke, which, as the wind was westerly, soon darkened the eastern horizon: two hours afterwards a shower of fine black brilliant sand descended; on the east side it was a storm of stones; and, at the foot of the mountain, a deluge of flashes of fire, of scoriæ and lava. These appearances continued the whole day; at the setting of the sun, the scene changed. A number of conical flames rose from the volcano; one on the north, and another on the south, were very conspicuous, and rose and fell alternately. At three in the morning, the mountain appeared cleft, and the summit seemed a burning mass. The cones of light which arose from the crater were of an immense extent, particularly the two just mentioned. The two heads seemed to be cut away: and at their separation was a cone of flame, seemingly composed of many lesser cones. The flame seemed of the height of the mountain placed on the mountain: so that it was probably two miles high, on a base of a mile and a half in diameter. This cone was still covered with a very thick smoke, in which there appeared very brilliant flashes of lightning, a phenomenon which Ætna had not before afforded. At times, sounds, like those from the explosion of a large cannon were heard seemingly at a less distance than the mountain. From the cone, as from a fountain, a jet of many flaming volcanic matters were thrown, which were carried to the distance of six or seven miles: from the base of the cone a thick smoke arose, which, for a moment, obscured some parts of the flame, at the time when the rivers of lava broke out. This beautiful appearance continued three quarters of an hour. It began the next night with more force; but continued only half an hour. In the intervals, however, Ætna continued to throw out flames, smoke, stones ignited, and showers of sand.—From the 20th to the 22d, the appearances gradually ceased. The stream of lava was carried towards Bronte and the plain of Lago. After the eruption, the top of the mountain on the western side was found covered with hardened lava, scoriæ, and stones. The travellers were annoyed by smoke, by showers of sand, mephitic vapours, and excessive heat. They saw that the lava which came from the western point divided into two branches, one of which was directed towards Libeccio; the other, as we have already said, towards the plain of Lago. The lava on the western head of the mountain, had from its various shapes been evidently in a state of fusion: from one of the spiracula, the odour was strongly that of liver of sulphur. The thermometer, in descending, was at 40 degrees of Fahrenheit's scale; while near the lava, in the plain of Lago, it was 140 degrees. The lava extended two miles; its width was from 13 feet and 3-4ths to 21, and its depth 13 feet and 3-4ths.

The last eruption took place on the 27th of March, 1809, which formed a row of craters within the space of about two miles. From the dark bosom of a wood of tall firs and huge oaks, says a British officer present, spread over steep craggy hills and close valleys, conceive twelve craters or mouths, two unceasingly, and the rest at intervals, with a noise like a tremendous chorus of several thousand cannons, muskets, and sky rockets, discharging flame, and showers of burning rocks of various forms and all magnitudes, from several yards in diameter down to the smallest pebble, which, according to their weight and bulk, ascend from 200 to 1000 feet. The two fore-mentioned craters, (or rather double crater,) the lowest of the row down the mountain, formed the principal object of this awful and magnificent scene—they were the only craters which did not seem to labour. Their joint emissions had encompassed them with a black oblong hill of ashes and lava stones; thirty yards above the top of which, their mingling flames

furiously ascended, in one immense blaze, which seemed 100 yards in breadth. Amidst this blaze, vast showers of rocks, rising and falling, were continually passing each other. About the middle of the whole line of craters was situated one, which laboured the most, and made the loudest, the heaviest, the highest, and the most dangerous discharges; from the rocks of which our party twice narrowly escaped one or two of very considerable size, falling within a pace of us:—I think the lava flowed only from a few of the chief craters, particularly the double one. During the emissions of rock and flame, the boiling matter was seen in slow undulating waves issuing through the sides, close to the bottom of the black hills of ashes. The double crater appeared completely isolated by the lava of the others. Just below it, all the lavas uniting, formed one grand stream of various breadths, from half a mile to fifty yards.

During the eruption, the images of the saints were brought from Castiglione, and placed a few yards in front of the fire. Mass was repeated; and the miserable ragged natives of both sexes crying, sobbing, beating their breasts, tearing their hair, &c. The priests told the people it was in consequence of their sins, and exhorted them to entreat all the saints to pray for them; and when the eruption stopped, they attributed it to the interference of saints.

Captain Smyth, our latest British traveller in these regions, estimates the whole altitude of Ætna at 10,874 feet, giving about 150 miles for the radius of vision. The crater, as it at present appears, and which other writers, we see, have represented at from two miles and a half to even four miles in circumference, he describes as 'an oval, stretching from E. and by N. to W. and by S., with a conjugate diameter of 493 yards; the transverse he was prevented from ascertaining by a dense cloud that arose before his operations were completed.' From the edge of the crater, the interior, he adds, 'through successive strata of volcanic substances, is incrusted with various coloured efflorescences of ammonia, sulphur, and martial vitriolic salts, to the depth of about a hundred yards on the east, but considerably less on the west side. The efflorescences of a beautiful orange yellow are the most predominant. The bottom of the crater is plain, and tolerably hard; though, from being composed of loose cinders, the feet sink in some places; near the centre, are two mounds of scoriæ and ashes, each with a large aperture at the summit, and several fissures around, from whence, at intervals, issue volumes of thick smoke, with a rumbling noise and hissing sound. There is, also, a light thin vapour, occasionally oozing from the bottom and sides of the huge amphitheatre in every direction. I endeavoured to look into the principal chasm, but the rapid ejection of the cinders, and the strong sulphureous vapours that exuded, prevented me from attaining my object; and, indeed, I could not but feel apprehensive that a nearer approach, where the footing was so frail, might prove too hazardous; besides which, the heat and smoke had increased to such a degree, that it was high time to regain the summit.'

Our traveller accordingly ascended, 'When on a sudden the ground trembled under our feet, a harsh rumbling with sonorous thunder was heard, and volumes of heavy smoke rolled over the side of the crater, while a lighter one ascended vertically with the electric fluid escaping from it in frequent flashes in every direction. The shortness of the time that had elapsed since I was in the crater, rendered me thankful for so providential an escape; but even from the spot on which we stood it was necessary to remove with the utmost expedition, and before we could effect our retreat, we were overtaken by a disagreeable, cold, humid cloud that annoyed and retarded our progress.'—p. 152.

This gentleman's estimate and observations are the more entitled to regard, as he was an officer (R. N.) who has been for many years stationed in the Mediterranean by Government, to survey various parts of the coasts and islands of that sea.

An able writer, in the Quarterly Review, ventures to correct Captain S. however, upon one point. 'He errs,' says this writer, 'in common with almost every traveller in Sicily, and indeed with the Sicilians themselves, in supposing that the ascent of Ætna is not practicable in winter. In defiance of the difficulties started by the people of Catania,' continues our critic, 'and repeated by the Nicolosi guide, we gained the summit of Ætna on the 27th of January, 1819. That it is a work of severe labour at such a season, cannot be denied, the snow extending ten or twelve miles down the mountain, and mules being consequently so far useless. But the labour is not such as need deter a stout pedestrian from undertaking it; and splendid indeed is the reward which awaits him when he seems to descry at once from that proud pinnacle, 'all the kingdoms of the world and the glory of them.'

We have stated this fact for the benefit of future travellers in Sicily, whose wanderings may fall out in the winter months. If they wish in earnest to ascend Ætna, we charge them not to be discomposed by the 'è impossibile, Signori,' of every Sicilian they may meet; and we further advise them to signify to their guide that they shall graduate his pay by the altitude to which he leads them. With these provisos, we venture to predict, that they will reach the summit. It is singular enough, that it was on the 28th of January that Swinburne relinquished all thoughts of gaining the summit, in compliance with the idle counsel of his conductor. Possibly when the spring is further advanced, and the snow is beginning to melt, the ascent may not be feasible; in January the surface of the snow is hard, (at least early in the morning) and will support the foot.' Captain Smyth's *Memoir on the Hydography of Sicily*, &c. 4 p. 1824—and *Quarterly Review*, Aug. 1824.

Many ingenious hypotheses have been framed relative to the causes of volcanic eruption. Some have attributed it to electricity; some to the fermentation of sulphur and iron, which, mixed with water to a paste, and buried in the earth, will take fire, and produce, on a small scale, similar phænomena. Immense beds of pyrites have been thought to be deposited at the central

base of the mountain, which occasionally explode. Others imagine a central fire, to which Vesuvius, Ætna, and other volcanic mountains, are so many flues or chimneys, connecting themselves with the atmosphere. Some important questions in mineralogy, geognosy, and geology, connected with this topic, are asked by Humboldt, and as yet unanswered.—'Is the conical mountain of a volcano entirely formed of liquified matter, heaped together by successive eruptions; or does it contain in its centre a nucleus of primitive rocks covered with lavas, which are the same rocks altered by fire? What are the affinities which unite the productions of modern volcanoes with the basaltes, the phonolites, and those porphyries with basis of felspar, which are without quartz, and which cover the Cordilleras of Peru, and Mexico, &c.? Has the nucleus of volcanoes been heated in its primitive position, and raised up in a softened state by means of elastic vapours, before these fluids communicated by means of a crater with the external air? What is the substance which for thousands of years keeps up this combustion, which at some times is so active, and at others so slow? Does this cause act at an immense depth, or does it take place in secondary rocks lying on granite?"

Buffon regards Ætna as one of the primitive mountains, which subsisted as a volcano from the creation of the world. He considers that the eruptions ceased for a long period after the deluge, for want of sufficient fluid to occasion effervescence with the minerals it contained, and were not renewed till the bursting open of the straits of Gibraltar and the Bosphorus, when the ocean, mixing with the Mediterranean, inundated the territory between Italy and Sicily, and the base of Ætna itself, producing an eruption of the mountain, which, from a continuation of the cause, has been successively repeated to the present time. M. Dolomieu thinks that Ætna existed as a mountain previous to its becoming a volcano, shells having been found two thousand feet above the level of the sea, and calcareous strata beneath the lava, the deposition of which must have preceded the eruption of the lava. A more obvious conjecture respecting Ætna is, that it has been formed by successive eruptions, each adding to its elevation and extent. New mountains and hills are seen springing up at every great eruption, and of these hills the mountain seems formed. It is therefore to be regarded as a compilation of volcanoes, the growth of many ages, and formed, by their own convulsions, into that vast mass of mountains that has assumed so magnificent an appearance. Recently an opinion has been current, that Ætna sensibly diminishes, and it cannot be discerned to so great a distance as formerly. M. Houel considers the lower part of the mountain to consist entirely of marine substances, deposited in different ages; and the higher part, of matter that has been thrown up from the crater and has dropped upon the surface. He proposes in his Voyage Picturesque, a theory of the volcanic fire, which merits a particular detail. We can form no idea of fire subsisting alone, he observes, without any pabulum, and unconnected with any other principle. It is only seen in conjunction with some other body which nourishes it.—The matter in fusion, which issues from the focus, is but the incombustible part of that which nourishes the fire, into the bosom of which it penetrates in search of pabulum. But the bottom of the volcano is the only part on which it acts, because the fire can only operate in proportion to the facility with which it can dissolve and evaporate; and its action extends no further than to keep the substances it has melted in a state of ebullition. The fusible matter which is ejected from the mouth of the volcano, hardens by degrees as it cools in the external air, and produces that species of stone which is commonly denominated lava. Even in a state of fluidity, and when in the burning focus, lava, on account of its gravity and density, must possess some considerable degree of solidity; in consequence of which it resists and irritates the fire into a state of ebullition. A quantity of matter, in such circumstances, must resemble generally any other thick substance or concreted mass in a boiling state, and small explosions are liable to be produced, from time to time, upon every part of the surface of this heated matter, by which means small particles or pieces are scattered around in every direction. A similar process is carried on, this writer contends, though on a much larger scale, in the focus of a volcano, and the explosions there, though precisely of the same nature, produce proportionably greater effects, repelling with the utmost violence, whatever lies in the way, or offers any resistance.

An attempt has been made by some geologists to impeach the Mosaic testimony respecting the creation of the world, from some circumstances connected with this. Recupero discovered a stratum of lava, which, he says, was discharged from the mountain during the second Punic war, and yet in his time was not covered with depth of soil sufficient to produce vegetation. From this isolated part, which in itself is extremely questionable, he ascends into the general principle, that it requires two thousand years to cover a stratum of lava. He found, in digging into a pit, seven distinct strata, or layers of lava overspread with rich mould, and hence he attempts to infer that 14,000 years must have elapsed since the deposition of the lowest strata. Count Borch following the same defective mode of reasoning, concludes Ætna to be eight thousand years old. In 1776 he examined several beds of lava; that produced in 1157 had twelve inches of earth; that in 1329 had eight inches; that of 1669 had one inch; that of 1766 being totally bare. But the abbé Spallanzani observes, that the lava of 1329 had eight inches of earth; in 447 years after its deposition. Yet the lava of Arso in Ischia, emitted in 1302, was perfectly hard and sterile in 1788; and lava, near Catania, which has been used for the purpose of building upwards of two thousand years, is unconquerably barren, although cultivation has been attempted. Gioeni again in the year 1787, found lava covered with mould which had been produced little more than twenty years; and others entirely barren, though of a much earlier date. The ruins of Herculaneum are envoloped in seven

beds of strata, each covered with rich mould, so that the very process has taken place at Herculaneum which in Recupero's opinion would require fourteen thousand years! It is clear that lavas of different degrees of density placed in various situations of altitude, and exposure to the action of the elements, require different periods of time to make them fertile, and that no general rule can be established from any one or even all of them. Ætna being at the top perpetually covered with snow, the whole island is supplied from thence with that article, so necessary in a hot climate, and without which, the natives say, Sicily could not be inhabited. So great is the demand for this commodity, that the bishop's revenues, which are considerable, arise from the sale of mount Ætna's snow; and he is said to draw £1000 a year from one small portion lying on the north side of the mountain. Great quantities of snow and ice are likewise exported to Malta and Italy, making a considerable branch of commerce. On the north side of this snowy region, Mr. Brydone was assured, that there are several small lakes which never thaw; and that the snow mixed with the ashes and salt of the mountain are accumulated to a vast depth. The quantity of salts contained in this mountain, with great probability, he conjectures to be one reason of the preservation of its snow.

ÆTNÆ SAL, a name given by some authors to the sal ammoniac, which is found on the surface and sides of the openings of Ætna, and other burning mountains, after their eruptions; and sometimes on the surface of the ferruginous matter which they throw out.

ÆTOLARCHA, in Grecian antiquity, the principal magistrate, or governor of the Ætolians.

ÆTOLIA, in ancient geography, (receiving its name from Ætolus, the son of Endymion), was a province of Middle Greece, bounded on the east by Locris, on the west by Acarnania, from which the river Achelous divided it, on the north, by the country of the Perrhœbi, and Athamanes, and part of Epirus, and on the south, by the gulf of Corinth. Its extent from north to south was about forty-eight miles; and from east to west, above twenty miles. Strabo says, (l. x. tom. ii. p. 691,) it was customary to divide Ætolia into two districts, the one called the ancient Ætolia, a level and fruitful country, which lay between the rivers Achelous and Calydon, on the Evenus; and the other, επικτητος, or the acquired, which was craggy and barren, contiguous to the Locrians, towards Naupactus and Eupalius; and extended northwards towards the mountain Oeta. The principal cities were Thermus, Calydon, and Pleuron, said to be named after sons of Ætolus. Their only sea-port was Oenias, on the Corinthian bay. Livy and other historians, describe the Ætolians as warlike, proud, and arrogant; and they are said to have fought with one shoe, whence the epithet μονοκρηπιδης, has been given to them. Turbulent, and accused by Polybius of faithlessness and treachery, so that the other states of Greece were obliged to consider and deal with them occasionally, as a horde of robbers, the people of this minor state, were tenacious of liberty, and exercised in their struggles for it, considerable influence over the general affairs of Greece. To oppose the projects of Philip of Macedon, they entered into a treaty of alliance with the Romans, before Christ 211, (confirmed, before Christ 213,) which was ordered by the Roman senate to be deposited in the capitol, as a monument of their first Greek alliance. The forces of Philip being employed in Macedon, the Ætolians entered Acarnania; but, though assured of assistance from Lævinus, the Roman general, they were intimidated by the resolution of the Acarnanians, returned home, and directed their arms against Anticyra, a city of the Locri, which, aided by the Romans, they compelled to surrender. They now marched into Achaia, to oppose the forces of Philip; but were twice defeated, near Lamia, a city of Phthiotis. After this, an embassy from Ptolemy Philopater prevailed upon Philip to grant the Ætolians a truce of thirty days, and they were finally under a necessity of concluding a very unfavourable peace with him; before Christ 204. An extraordinary diet being now held at Naupactus, in which the friendship of the Ætolians was solicited, not only by Philip, but also by the two powerful republics of Athens and Rome; the Romans prevailed, and Ætolia was again involved in war with the Macedonian prince. This new ally was nobly assisted by them in the battle of Cynocephalæ, in which, Philip was totally defeated. Peace, however, was afterwards concluded with Philip, before Christ 196, without their concurrence, and they turned their arms against Rome. Antiochus then became the leader of a formidable confederacy of the Greeks, but, becoming enamoured at Chalcis, with the daughter of one of the citizens, he spent an idle winter in feasting and rejoicing; of which the Romans availed themselves, and sent a powerful army into Greece, which drove him from the country. The Ætolian strength was concentrated at Heraclea, where they sustained a memorable siege of forty days, against one of the best disciplined armies of Rome. The town fell at length by stratagem; Lamia soon followed; and Amtracia, before Christ 189. Here the Ætolians invented a singular kind of machine, in order to drive the enemy out of a mine, which accidentally opened into one of theirs. It was a hollow vessel, with an iron bottom, bored with holes, and armed with spikes, for preventing the approach of the enemy. They filled this vessel with feathers, and having brought it to the place where the two mines met, set the feathers on fire; and, by driving with bellows the smoke on the besiegers, obliged them to quit the mine: by this stratagem, they gained time for repairing the foundations of the walls. After this event, the Ætolians sent ambassadors to Rome, and procured peace, on the humiliating condition of delivering to the magistrates of Corcyra all prisoners and deserters, both of the Romans and their allies, except those who had been taken twice, or during her alliance with Rome; paying

to the Roman general in Ætolia 200 Euboic talents, of the same value with that of the Athenian talents, and engaging to pay fifty talents more within six years; to secure which, they were to deliver to the consul forty hostages of his choice, none of whom should be under twelve, or above forty years of age; the prætor, general of the horse, and those who had been already hostages at Rome, excepted. After the conquest of Macedon by Paulus Emilius, the Ætolian republic was further reduced. Five hundred and fifty of the chief persons of the nation were assassinated by the partisans of Rome, under a suspicion of wishing well to Perses: while those who had openly espoused his cause, and others who had secretly favoured him, were sent to Rome, and never allowed to return to their native country. On the destruction of Corinth, and the dissolution of the Achæan league, Ætolia, with the other free states of Greece, was reduced to a Roman province, commonly called the province of Achaia. See ACHAIA.

The government of Ætolia was republican, controlled by the Pantæolium, a general council held as occasion required. The prætor, the general of horse, the public secretary, and the ephori, were the principal public functionaries. Livy states their cavalry was at one period esteemed superior to that of any other of the Grecian states.

ÆTOS, in architecture, of *αιετος*, an eagle, a name given by the Greeks, to the pediment or tympanum of an edifice. Winckelman suggests that the ancients originally placed a representation of the bird of Jove in this situation, as being the summit of their buildings, and therefore in the earliest periods dedicated to Jupiter. Several ancient medals have been seen with this bird on the roof, particularly the coins of Tarsus and Pergamos. Besides these authorities, in favour of the opinion that this custom gave this specific name to the pediment, may be added the authority of Shaw, who discovered the figure of an eagle on the pediment of a temple near Tunis, built in the time of the Antonines. Various basso relievos, which decorated the Ætos of temples, are described and delineated in the eighty-eighth plate of the fourth volume of the Museo Pio Clementino. The Corinthians seem first to have regularly formed this ornamented pediment, which some have imagined them to borrow from the Egyptians, who placed an extended hawk, in a similar position over their temples. See *Elmes' Dictionary of the Fine Arts.*

AFAR'. Adv: Afeppan, to lengthen. Faran, to go fare, to go. Gone hence, moved to a distance.

And the pupplican stood *afer*: and wolde not reise hise yghen to heuene, but smoot his breste and seyde: God be mersyful to me synner.

Wiclif. Luk. xviii.

We are carelesse of that which is neer us, and follow that which is *afarre* off.

Burton's Anatomy of Melancholy.

So shaken, as we are, so wan with care;
Find we a time for frighted peace to pant,
And breathe short-winded accents of new broils,
To be commenc'd in stronds *afar* remote?

Shaksp. Henry IV.

We hear better, when we hold our breath than contrary; insomuch as, in listening to attain a sound *afar* off, men hold their breath.

Bacon's Nat. Hist. No. 284.

Hector hastened to relieve his body.
Dismiss'd his burnish'd helm that shone *afar*,
The pride of warriours, and the pomp of war.

Dryden.

The rough Vulturnus, furious in its course,
With rapid streams divides the fruitful grounds,
And from *afar* in hollow murmur sounds.

Addison on Italy.

Much suspecting his secret ends, he entertained a treaty of peace with France; but secretly and *afar off*; and to be governed as occasion should vary.

Sir John Hayward.

Ah, who can tell how hard it is to climb
The steep where fame's proud temple shines *afar!*
Ah, who can tell how many a soul sublime
Has felt the influence of malignant star,
And wag'd with fortune an eternal war!

Beattie's Minstrel.

AFDELLES, in ichthyology, a name given by the Cretans to the fish called at Rome, donzellina and zigurilla. It is the julis of others; and according to the Artedian system, is a species of the labrus. Artedi distinguishes it from the others, by the name of palmar labrus, with variegated sides, and two large teeth in the upper jaw.

AFER, (Domitius,) a famous orator, was born at Nismes, and flourished under Tiberius, Caligula, Claudius, and Nero. He disgraced his talents, by turning informer against some of the most distinguished personages in Rome. Having upon a statue he had erected in honour of Caligula, declared that this prince was a second time consul at the age of twenty-seven, Caligula regarded it as a sarcasm upon his youth, and raised a process against him. Afer, instead of making a defence, repeated part of the emperor's speech with the highest marks of admiration; after which, he fell upon his knees, and begging pardon, declared, that he dreaded more the eloquence of Caligula than his imperial power. This mean flattery succeeded so well, that the emperor not only pardoned, but raised him to the consulship. He died in the reign of Nero, in the year of our Lord, 59.

AFFA, a weight used on the Gold Coast of Guinea. It is equal to an ounce, and the half of it is called eggeba. Most of the Africans on the Gold Coast give these names to those weights.

AF'FABLE, *adj.* } Ad: *fari*, to speak to.
AFFABIL'ITY, } Whence *affabilis*, easy to
AF'FABLY. } be spoken to, granting a facility of access, courteous; spoken of superiors,

He was prudent, comely, princely, *affable*, ientle, and amiable, he loued iustice, and punisshed the malefactors.

The Exposicion of Daniel, by George Joye, fo. 181.

He was *affable*, and both well and fair spoken; and would use strange sweetness and blandishment of words, where he desired to affect or persuade any thing that he took to heart. *Bacon.*

Her father is
An *affable* and courteous gentleman.

Shaksp. Tam. Shrew.

Hearing of her beauty and her wit,
Her *affability* and bashful modesty,
Her wond'rous qualities, and mild behaviour.
Shaksp.

He was of a most flowing courtesy and *affability* to all men; and so desirous to oblige them, that he did not enough consider the value of the obligation, or the merit of the person. *Clarendon.*

All instances of charity, sweetness of conversation. *affability*, admonition, all significations of tenderness, care, and watchfulness, must be expressed towards children. *Taylor.*

Gentle to me and *affable* hath been
Thy condescension, and shall be honour'd ever
With grateful memory. *Milton's Par. Lost*, b. viii.

A cheerful mind is not only disposed to be *affable* and obliging; but raises the same good humour in those who come within its influence. *Spectator.*

Distinguished as he [Euphrates, the philosopher] is by the sanctity of his manners, he is no less so by his polite and *affable* address.
Melmoth's Pliny, letter x.

AFFAIR, *n.* Fr. *affaire*, from *à faire*, to do; deduced, says Menage, from *ad facere*. Whatever is, has been, or may be, the object of attention or pursuit; business. Some of the Chroniclers have written *efferis*, *effers*.

Among monkes myght ich be. ac meny tyme ich spare
For þr beþ meny folle frekus. myne *afferes* to aspye.
Vision of Piers Plouhman, p. 95.

No man that warreth, entangleth hym self with the *affaires* of this life, because he wolde please him that hathe chosen hym to be a souldier.
Geneva Bible, 2 Tim. ii. 4.

O douchty men, quod he, worthy in weris,
The gretest parte of our werkis and *efferis*
Bene endit now, sa that in tyme cumming
All fere and drede ard passit of ony thing.
Douglas, b. xi. p. 359.

Bot than percace, gif they behald or se
Sum man, of grete auctorite and *effers*,
Thay ceise, and all still standand, giffis him eris.
Idem, b. i. p. 17.

Cæs. I have eyes upon him, and his *affaires* come to me on the wind: where is he now?
Shaksp. Ant. & Cleop.

I was not born for courts or great *affairs*;
I pay my debts, believe, and say my prayers. *Pope.*

A good acquaintance with method will greatly assist every one, in ranging, disposing, and managing all human *affairs*. *Watts's Logick.*

What St. John's skill in state *affairs*,
What Ormond's valour, Oxford's cares,
To aid their sinking country lent;
Was all destroy'd by one event. *Swift.*

The *affairs* of kingdoms, and the concerns of individuals are variegated alike with the checker work of joy and sorrow. *Cowper's Letters.*

AFFAIT′ *v.* Used by the Chroniclers for *Defeat.*

þo þe kyng hem adde *afayted* so, þat hyi ne kepte nanmore hym mete.
ȝut he þoȝte asayty þe Scottes, ar he hem lete.
R. Gloucester, p. 177.

My father ye shall well beleue,
The yonge whelpe, which is *affaited*,
Hath not his maister better awaited,
To couche. *Gower. Con. A.* b. i.

AFFAM′ISH, *v.* } See Famish. To starve
Affam′ishment, } with hunger.

But the only image of that heavenly ray,
Whereof some glance doth in mine eye remayne,
Of which beholding the idea playne,
Through contemplation of my purest part,
With light thereof I doe myself sustayne,
And thereon feed my love-*affamisht* hart.
Spenser. Sonnet lxxxvi.

What can be more unjust, than for a man to endeavour to raise himself by the *affamishing* of others!
Hall's Cases of Conscience.

AFFEAR′ *v.* See To Fear. Hence the participle *affear'd*, now considered a vulgarism, but used by Shakspeare and Ben Jonson, in the same sense as afraid; it is not however from the same root.

To Joppyn whan he cam, þe Soudan was not þere,
þe flom þe Soudan nam, Richard forto *affere*.
R. Brunne, p. 187.

With scalled browes blake, and pilled berd:
Of his visage children were sore *aferd*.
Chaucer. The Prologue. The Sompnour.

This wif was not *aferde* ne *affraide*,
But boldely she saide, and that anon;
Mary, I defie that false monk Dan John,
I kepe not of his tokenes never a del.
Idem. The Shipmanne's Tale.

A foole, where was thyne herte tho,
Whan thou thy worthie ladie sie?
Were thou *afered* of hir eie?
For of hir honde there is no dreade.
Gower. Con. A. b. iv.

Thauh ȝe come by fore kynges. and clerkes of þe lawe,
Beeþ nat *a ferd* of þat folke. for ich shal ȝeve ȝow tonge
Connynge and clergie. to conclude hem alle.
Vision of Piers Plouhman, p. 198.

Each trembling leafe, and whistling wind they heare,
As ghastly bug, does greatly hem *affeare*.
Sp. F. Q. 2. 3, 20.

Chin as woolly as the peach,
And his lip should kissing teach,
Till he cherish'd too much beard,
And made love or me *afear'd*.
Ben Jonson. Her Man Described.

Bleed, bleed, poor country!
Great tyranny, lay thou thy basis sure!
For goodness dares not check thee:
His title is *affear'd*. *Shakspeare's Macbeth.*

Be not *affear'd*, the isle is full of noises.
Shakspeare's Temp. 3rd. 2nd.

AFFECT′, *v.* & *n.*
Affect′ed,
Affect′edly,
Affecta′tion,
Affec′tion,
Affec′tioned,
Affec′tionate,
Affec′tionately,
Affec′tive,
Affect′er,
Affec′tuous,
Affec′tuously.

Ad: *Facio*, *factum*, to make to or towards. In a strict and philosophical sense, to produce a pleasing or painful impression, which, in mental operations, is more or less indulged by the object acted upon, so as to occasion a re-action or moving towards another object, generally with kindness, tenderness and love; to influence; also to pretend to; to assume; to arrogate; to manifest self-conceit, formality, preciseness, and hypocrisy. Affectation was formerly synonimous with affection, in the sense of love and benevolence. Affectuous and effectuous, as we now use both effectual and affectionate.

To þat sollempnite com lordes of renoun,
þat weddying for to se, for gret *affectioun*.
R. Brunne, p. 162.

Men schulen be louynge hemsilff, coueitouse, high of berynge, proude, blasfemeris; not obedient to fadir and modir, unkynde, cursed, withouten *affectioun*. (Ασοργοι.) *Wiclif.* 2 Tymo. c. iii.

Be mery with them that are mery. Wepe also with them yt. wepe. Be of lyke *affeccyon* one towardes another. *Bible*. 1539. Rom. xii.

Then gan the palmer thus: most wretched man,
That to *affections* does the bridle lend;
In their beginning they are weak and wan,
But soon through sufferance grow to fearful end.
Faerie Queene.

The duke of Brabande, named Antony, a man of great polycy and wysedome, forecastyng ye great shedyng of Cristen mannys bloode, with many other inconuenyencys lykely to haue ensuyd of this variaunce atwene theyse ii dukis, made such *affectuouse* labour, yt with great dyffycute he pacyfyed them agayn for that tyme. *Fabyan*. p. 561.

In things of their own nature indifferent, if either councils or particular men have at any time, with sound judgment, misliked conformity between the church of God and infidels; the cause thereof hath been somewhat else, than only *affectation* of dissimilitude. *Hooker*, b. iv. § 7.

These antick, lisping, *affected* phantasies, these new tuners of accents. *Shaksp. Romeo and Juliet.*

The passions that are enemies to the graces are, impudence, *affectation*, strong and harsh degrees of pride, malice, and austerity. *Usher.*

Certainly there be that delight in giddiness, and count it a bondage to fix a belief, *affecting* free-will in thinking as well as in acting.
Lord Bacon's Essays.

It seemeth that, as the feet have a sympathy with the head, so the wrists have a sympathy with the heart; we see the *affects* and passions of the heart and spirits are notably disclosed by the pulse.
Bacon's Nat. Hist. No. 97.

It is not possible a man should have any long conference with God, and be no whit *affected*.
Hall's Contemplations.

The sun
Had first his precept, so to move, so shine;
As might affect the earth with cold and heat,
Scarce tolerable. *Milton's Par. Lost.* b. x.

Didst thou pray with the same *affection* and labour as thou didst purchase thy estate?
Bishop Taylor's Sermons.

Some indeed have been so *affectedly* vain, as to counterfeit immortality; and have stolen their death, in hopes to be esteemed immortal.
Brown's Vulgar Errours, b. vii. c. 10.

Perhaps they are *affectedly* ignorant: they are so willing it should be true, that they have not attempted to examine it.
Government of the Tongue, § 5.

By talking so familiarly of one hundred and ten thousand pounds, by a tax upon a few commodities, it is plain, you are either naturally or *affectedly* ignorant of our condition. *Swift.*

As a thinking man cannot but be very much *affected* with the idea of his appearing in the presence of that Being, whom none can see and live: he must be much more *affected*, when he considers, that this Being, whom he appears before, will examine the actions of his life, and reward or punish him accordingly. *Addison, Spectator*, No. 513.

Say, would'st thou conquer, have thy conquest crown'd
By hands of seraphs; triumphed with the sound
Of heav'n's loud trumpet; warbled by the shrill
Celestial choir; recorded with a quill
Plucked from the pinion of an angel's wing;
Confirmed with joy by heaven's eternal king
Conquer thyself, thy rebel thoughts repel,
And chase those false *affections* that rebel. *Quarles.*

Among the numerous stratagems by which pride endeavours to recommend folly to regard, there is scarcely one that meets with less regard than *affectation*, or a perpetual disguise of the real character by fictitious appearances. *Rambler.*

We are forbidden to murmur, but we are not forbidden to regret; and whom we loved tenderly while living, we may still pursue with an *affectionate* remembrance, without having any occasion to charge ourselves with rebellion against the sovereignty that appointed a separation. *Cowper's Letters.*

AFFECTIO BOVINA, in agricultural affairs, a disease incident to black cattle, occasioned by a little worm bred between the flesh and the skin; which works its way over all parts of the body. This seems to be the same disease described by Mr. Loudon, in his excellent Encyclopedia of Agriculture, recently published (1825,) as the *wornals* or *puckeridge*; or humours on the backs of cattle, occasioned by a dipterous insect which punctures their skin, and deposits its eggs in each puncture; but which is erroneously attributed to the fearn owl, or goat-sucker, (caprimulgus Europeus, L.) When the eggs are hatched, and the larvæ or maggots are arrived at their full size, they make their way out, he observes, and leave a large hole in the back, to prevent which, the destruction of the egg should be attempted, by nipping the humour, or thrusting in a hot wire.

AFFECTION, in a philosophical sense, implies an attribute inseparable from its subject. Thus, magnitude, figure, weight, &c. are affections of all bodies; and love, fear, and hatred, are affections of the mind. Affection seems to express a settled bent of mind toward a particular being or thing, and occupies a middle space between disposition on the one hand, and passion on the other. According to some writers, it is distinguishable from disposition, which being originally seated in one's nature, must exist before there can be an opportunity to exert it upon any particular object, whereas affection can never be original, because, having a special relation to a particular object; it cannot exist till the object has once at least been presented. It is also distinguishable from passion, which, depending on the real or ideal presence of its object, vanishes with it; whereas affection is a lasting connexion, and subsists even when we do not think of the person. A disposition to gratitude, has thus been said to exist in a virtuous mind, which through want of an object, may happen not to be exerted; but the disposition, meeting with a kindly office, makes a man grateful to his benefactor. An intimate connexion is now formed between them, termed affection: which has a permanent existence, though not always in view. The affection for the most part lies dormant, till an opportunity offers for exerting it: in that circumstance it is converted into a passion of gratitude; and the opportunity is eagerly seized of testifying it in the warmest manner.

Dr. Cogan distinguishes between affection and passion; and discriminates between both these terms, and that feeling which is usually denominated emotion. The term affection, he says, has a different signification from either of the other two, and represents a less violent, and generally a more durable influence, which things have upon the mind. It is applicable to the manner in which we are affected by them

for a continuance; and supposes a more deliberate predilection and aversion, in consequence of the permanent influence of some prevailing quality. This distinguishes it from the transient impulse of passion; nor is it so intimately connected with any external *signs*, which distinguish it from emotion. The affections sometimes succeed to passions and emotions, because these may have been excited by something that becomes permanently interesting; or they may be gradually inspired, by a deliberate attention to the good or bad qualities of their objects. In this philosophic sense of the word, affection is applicable to an unpleasant as well as pleasant state of the mind, when impressed by any object or quality: it may be produced by any thing that torments or corrodes the heart, as well as by that which charms and delights it. Custom, however, chiefly appropriates the term to the kindly and benevolent affections. See *Philosophical Treatise on the Passions.*

Dr. Reid (Essays, p. 143, 167.) has applied in the same manner, the general name of affections to those various principles of action in man, which have persons for their immediate object, and which imply, in their very nature, our being well or ill-affected to some person, or at least, to some animated being; and whether they dispose us to do good or hurt to others. He observes, however, that the word affection seems, by custom, to be limited to good affections. Accordingly, when we speak of having affection for any person, it is always understood to be a benevolent affection. In the extensive sense above stated, our affections are very naturally divided into benevolent and malevolent, as they respectively imply our being well or ill affected towards their object. The characters of love and hatred, resulting from the infinitely various situations and circumstances upon which their developement and operations depend, entitle them to the denomination of primary or cardinal affections.

Our benevolent affections, whilst they differ in the feeling, or sensation, which is a common ingredient in all of them, and in the objects to which they are directed, agree in these two respects, viz, that the feeling which accompanies them is agreeable, and that they imply a desire of happiness to their object. The first of these affections is that of parents and children, and other near relations, commonly called natural affections: the second, is gratitude to benefactors: the third, is pity and compassion towards the distressed; a fourth is esteem of the wise and good: the fifth is friendship: the sixth, is love between the sexes: and the last, is patriotism or public spirit; that is, an affection to any community to which we belong. The malevolent affections, (commonly called passions) in the arrangement of Dr. Reid, are emulation and resentment.

AFFECTION, *affectus*, in medicine, denotes any disorder under which the whole body or any part of it suffers; and it is generally defined by some epithet, as—*Affectio colica*, the colic affection, or simply the colic.—*Affectio melancholica*, melancholy.—*Affectus implicatus*, a complicated affection or disorder, or that in which many parts are affected with different disorders. *Hippocrat. de Epidem. Gal. Comm.* 2. &c.

AFFER'ERS, } Affier; a kind of arbiters, or
AFFER'ORS. } referees appointed in courts leet, &c.

Afferors are such as are appointed in courts leet, &c. upon oath, to mulct those who have committed faults arbitrarily punishable, and have no express penalty set down by statute. *Cowel.*

AFFERERS, in law, *afferatores*; those who in courts-leet, settle and moderate the fines, upon oath. *Hawkins Pleas, C.* l. ii. c. 112.

To AFFERE, in law, signifies either 'as to affere an amercement,' to mitigate the rigour of a fine; or 'to affere an account,' i. e. to confirm it upon oath in the Exchequer.

AFFERI, in archæol, are cattle fit for husbandry, according to our old law writers.

AFFETTUOSO, *affetto*, Ital. in music, means affecting tender style; a term employed in music-books at the beginning of a movement; it denotes a movement, says Mr. Dannely, between the adagio and the andante.

AFFIDATUS, or AFFIDIATUS, a tenant by fealty. *Affidati*, are not properly vassals, but *quasi* vassals, or persons who vow fealty to, or put themselves under the protection of another. They are otherwise called *commendati* and *recommendati.*

AFFIDA'VIT, Law: Lat. *adfidare*, affidare, to pledge faith; a form of oath in writing, which can be administered only by persons qualified.

You said, if I return'd next size in Lent
I should be in remitter of your grace;
In th' interim, my letters should take place
Of *affidavits.* *Donne.*

Count Rechteren should have made *affidavit*, that his servants had been affronted; and then Monsieur Mesnager would have done him justice.
Spectator, No. 48.

AFFIDAVIT OFFICE, in law, is an office in the court of Chancery, for taking an affidavit, or oath in writing, sworn before a master in Chancery; and made use of, and read in court, upon motions; though not allowed upon trials.

AFFIDIARE, in law, to be enrolled for a soldier upon an oath of fidelity.

AFFIE', *v* or } *Affier, Affidare*; to give or
AFFY', } pledge faith; to trust, credit,
AFFI'ANCE. } confide in; to plight troth, or bind one's self to the performance of a promise, or particularly the marriage contract; to betroth.

Richard ansuered per tille, and said, "it is folye,
To schewe counseil and skille, pat not is to affie,
And phit per owen writte per dede dos certifie.
R. Brunne, p. 153.

————She is Fortune verely
In whom no man should *affy*,
Nor in her yefts haue *fiaunce*
She is so full of variaunce.
Chaucer. R. of Rose, fol. 141, col. 4.

At last such grace I found, and meanes I wrought,
That I that lady to my spouse had wonne;
Accord of friends, consent of parents sought,
Affiance made, my happinesse begoune.
Faerie Queene, b. iii.

The duke is virtuous, mild; and too well given,
To dream on evil, or to work my downfall.—

—Ah! what's more dangerous than this fond *affiance*? Seems he a dove? his feathers are but borrowed.
Shaksp. Henry VI.

Wedded be thou to the hags of hell,
For daring to *affy* a mighty lord
Unto the daughter of a worthless king.
Idem.

Marcus Andronicus, so I do *affy*
In thy uprightness and integrity,
That I will here dismiss my loving friends.
Shaksp. Titus Andr.

Religion receives man, into a covenant of grace; where there is pardon reached out to all truly penitent sinners, and assistance promised, and engaged, and bestowed, upon very easy conditions; viz. humility, prayer, and *affiance* in him.
Hammond's Fundamentals.

There can be no surer way to success, than by disclaiming all confidence in ourselves, and referring the events of things to God with an implicit *affiance*.
Atterbury's Sermons.

AFFILE', *v.* or AFILE'. } See FILE. To rub or smooth by filing.—Obsolete.

For wel he wiste, whan that song was songe,
He must preche, and wel *afile* his tonge,
To winne silver, as he right wel coude:
Therefore he sang the merier and loude.
Chaucer. Prologue. The Pardonere, v. i. p. 29.

For whan he hath his tonge *afiled*,
With softe speche, and with lesynge,
Forthwith his false pitous lokynge,
He wolde make a woman weene
To gone vpon the feire greene,
Whan that she fauleth in the myre.
Gower. Con. A. b. i.

AFFILIATION, ADFILIATIO, in writers of the middle age, is the same with ADOPTION. See ADFILIATION. Among the ancient Gauls, it was a sort of adoption practised only among the great, and performed with military ceremonies. The father presented a battle-axe to the person he was to adopt for his son, as an intimation that he was to preserve the effects he thus called him to succeed to, by arms.

AN ORDER OF AFFILIATION, in modern usage, is that which a magistrate issues on the oath of a woman to compel the father of an illegitimate child, to provide for its maintenance.

AFFINED', *part.* AFFIN'ITY. } Ad: *finis*, end. Affinis is primarily a relative by marriage; a relative of our relations; one who touches the boundary (finis,) of another's relationship;—distinct from consanguinity. Applied to things, it signifies a relation arising from neighbourhood, association, real or supposed similarity, or resemblance.

For I am sure that Fryth and al his felowes, with al the friendes that are of theyr *affiniti*, shal neither be able to quenche and put out that faith.
Sir Thos. More's Works, p. 903. c. 2.

Osway assemblyd his knyghtes, and made towarde hym: and for *affynite* of maryage that was atwene theyr children, Oswy offeryd to hym many great offirs to thentent to have had peace with hym.
Fabyan, p. 118.

If partially *affin'd*, or leagu'd in office,
Thou dost deliver more or less than truth,
Thou art no soldier. *Shaksp. Othello.*

The British tongue or Welsh was in use, only in this island; having great *affinity* with the old Gallick.
Camden.

All things, that have *affinity* with the heavens, move upon the centre of another, which they benefit.
Bacon. Essay xxiv.

They had left none alive; by the blindness of rage killing many guiltless persons, either for *affinity* to the tyrant, or enmity to the tyrant-killers.
Sidney. b. ii.

And Solomon made *affinity* with Pharaoh king of Egypt, and took Pharaoh's daughter.
1 *Kings* iii. 1.

The art of painting hath wonderful *affinity* with that of poetry. *Dryd. Dufresnoy*, Pref.

Man is more distinguished by devotion than by reason; as several brute creatures discover something like reason; though they betray not any thing that bears the least *affinity* to devotion.
Addison. Spect. No. 201.

A breach was made with France itself, notwithstanding so strait an *affinity*, so lately accomplished; as if indeed, (according to that pleasant maxim of state,) kingdoms were never married. *Wotton.*

AFFINITY, in law, preserving the sense of its etymology, *ad* to, and *finis*, a boundary, or limit, denotes the approach of two families by marriage to each other's boundaries: 'Quod duæ cognationes per nuptias copulantur, et altera ad alterius cognationes finem accedit.'

The Jewish law prohibits marriages with regard to affinity, which seem not prohibited by the law of nature. On its basis generally, our own civil law, and that of most European countries, has been established, 'No person,' says the ninety-ninth canon (1603), 'shall marry within the degrees prohibited by the laws of God, and comprised in a table set forth by authority, in the year 1563; and all marriages so made and contracted shall be adjudged incestuous and unlawful.' A table of these degrees is therefore commanded by the ecclesiastical law, to be hung up in all the churches of England. The statutes that contain them are 18 Henry VIII. c. 7, and 25 Hen. VIII. c. 12

The Mosaic law positively enjoined, in some cases, one particular marriage, the lawfulness of which has often been discussed in modern times, i. e. that between a man and his brother's widow. See *Deut.* xxv. 5.

Bishop Hall well remarks on this topic, 'I know no reason why you may not conclude it is not unlawful. The question of the expedience would require another debate. Doubtless, in all cases of this nature, it must needs be yielded that it were more meet and safe, since the world yields so large a latitude of choice, to look further off. A wise and good man will not willingly transgress against the rules of just expedience, and be as careful to consider what is fit to be done, as what is lawful.' *Works.* vol. 8. p. 493.

A question of affinity, real or pretended, it is remarkable, became the exciting cause, in England, of our final deliverance from the domination of the see of Rome.

The canon law distinguishes three species of affinity: The first, contracted between the husband and the relations by blood of his wife; and between the wife and the relations by blood of her husband. The second, between the husband and those related to his wife by marriage, and the wife, and those so related to her husband.

The third, between the husband and the relations of his wife's relations; and the wife, and the relations of her husband's relations. By the fourth council of Lateran, held in 1213, it was decreed, that none but the first kind was any real affinity: the two last being mere refinements, which ought to be set aside. The degrees are reckoned after the same manner in affinity as in consanguinity; and therefore differently in the canon law, from what they are in the civil law. Thus, whatever line or degree of consanguinity the kindred of one of the parties married, are in, they are in the same line and degree of affinity to the other. And again, in whatever line or degree of affinity persons are, in the first kind, they are in the same in the second and third kinds of affinity. Hence arise what we may call a direct and collateral, an ascending and descending line of affinity. Affinity does not found any real kinship; it is a kind of fiction, introduced on account of the close relation between husband and wife. It is even said, in law, to cease when the cause of it ceases. Hence a woman who is not capable of being a witness for her husband's brother, during his life, is allowed to be a witness, when a widow, because the affinity is dissolved. Yet with regard to the contracting marriage, affinity is not dissolved by death, though it be in every thing else; for a man is not allowed to marry the widow of his father, brother, or son; such connection being considered as incestuous, nearly as much as if they were formed with the blood relations of the the same degree.

The degrees and denominations of affinity are chiefly, First, father-in-law, i. e. husband's or wife's father, in Latin, socer; Second, step-father, i. e. mother's husband, vitricus; Third, mother-in-law, i. e. husband's or wife's mother, socrus; Fourth, step-mother, i. e. father's wife, noverca; Fifth, son-in-law, i. e. daughter's husband, gener; Sixth, daughter-in-law, son's wife, nurus; Seventh, step-son, i. e. husband's or wife's son by a former marriage, privignus; Eighth, step-daughter, i. e. husband's or wife's daughter by a former marriage, privigna; which two last, considered in relation to each other, are called com-privigni. These four last degrees are often confounded, and mistaken for each other; the step-son being called son-in-law, and the step-daughter, daughter-in-law, et vicê versâ, although no degrees of relationship are more distinct. Ninth, brother-in-law, i. e. husband's brother, sister's husband, levir, or wife's brother, uxoris frater; Tenth, sister-in-law, i. e. husband's or wife's sister, glos, or brother's wife, fratria. All these degrees are prohibited from intermarrying: to which may be added, Eleventh, the uncle-in-law, i. e. the aunt's husband; Twelfth, the aunt-in-law, i. e. the uncle's wife; Thirteenth, the nephew-in-law, i. e. the niece's husband; and Fourteenth, the niece-in-law, i. e. the nephew's wife, on either side.

Affinity, in chemistry, is a term which corresponds to attraction in mechanical philosophy, and denotes the tendency which the constituent parts of bodies have to unite, and the power by which they adhere when united. It has also frequently been called elective attraction. See Chemistry.

Other writers speak of compound affinity, the union of different bodies in one homogeneous mass. Intermediate affinity, an union by the help of a medium; as azote, with fixed alkalies, by the help of nitric acid.—Quiescent and divellent affinity; the former of these terms, expresses, according to Kirwan, the force exerted to preserve the old combination; and the latter, that which tends to destroy it.—Reciprocal affinity, when a separation is caused between two substances by a third, with which one of them is united, but afterward separated again by the influence of the separating principle.—Compound elective affinity, or double elective attraction, when there are more than four substances; as, if nitric acid be added to the sulphate of ammonia, decomposition takes place; but if nitrate of potash be added, then two new bodies are formed, that is, the potash attracts the sulphuric acid, and the nitric acid the ammonia.

Affinity, in civil law, is divided into civil, between free persons; and servile, between slaves.

Aefinity, Legitimate, is contracted by a proper and legal matrimony; or between slaves, by *contubernium*.

Affinity, Quasi, that subsisting either after the dissolution of a marriage, as between a husband and his wife's daughter, after divorce; or before the marriage is solemnized, as that between a father and a daughter-in-law, not married but only betrothed to his son.

Affinity, Spiritual, in the church of Rome, is contracted by the sacraments of baptism and confirmation; according to which, a god-father may not marry with his god-daughter without a dispensation.

Affinity, Keys of, or relative keys, in music, regular pieces being composed in keys properly fixed and determined, with which they begin and end, and which are occasionally resumed, they are called primitive or principal keys, major or minor; and these are, properly speaking, surrounded by five others, to which they bear a strong affinity, or relationship; for example:—

C major, primitive key.
D minor, first relative key;
E minor, second relative key;
F major, third relative key;
G major, fourth relative key;
A minor, fifth relative key.

A minor, primitive key;
C major, first relative key;
D minor, second relative key;
E minor, third relative key;
F major, fourth relative key;
G major, fifth relative key.

'These six primitive keys offer, in their combination,' says Mr. Dannely, '720 changes, and were those formerly used by the most celebrated composers, from the time of Palestrina to Sebastian Bach; but unfortunately for the cause of music, scarcely any mention is made of them in the present day. See Enchaining of Harmonies.

AFFION, in chemistry, a name given by the Arabians to opium; and also to an electuary, in which opium is an ingredient.

AFFIRM, *v.*
AFFIRM'ABLE,
AFFIRM'ANCE,
AFFIRMA'TION,
AFFIRM'ATIVE, *adj.*
AFFIRM'ATIVELY,
AFFIRM'ER.

Ad: *firmo*, to support; opposed to the word deny; to certify, declare positively, avouch the truth, assure, ratify; to *affirm* is a solitary, to *confirm* is an assisted asseveration.

pe pape set pat terme, for his hopyng was,
pe pes pei suld *afferme* for drede of hardere kas.
R. Brunne, p. 316.

And take this for a generall reule, that every conseil that is *affermed* so strongly, that it may not be chaunged for no condition that may betide, I say that thilke conseil is wicked.
Chaucer. Tale of Melibeus, vol. ii. p. 93.

Dame Pertelote I say you trewely,
Macrobius that writ the avision
In Affrike of the worthy Scipion,
Affirmeth dremes; and sayth that they ben
Warning of thinges that men after seen.
Chaucer. Nonnes Preeste's Tale.

To appease the multytude, the kynge toke the childe in his armys, and so bare hym into the place of th assemble of the people, and there shewed vnto theym, w^t^ *affirmance* of great othes, that his entent was oonly for the wele of the childe, and for defence of his countre.
Fabyan, p. 187.

Yet it is not euen so, so fieble as his owne, where he argueth in the negatiue, as I lay the sample for th *affyrmatiue*. *Sir T. More's Works*, p. 1131. c. 1.

For the *affirmative*, we are now to answer such proofs of theirs, as have been before alleged.
Hooker.

The common opinion of the Oestridge, struthiocamelus, or sparrow camel, conceives that it digests iron, and this is confirmed by the *affirmations* of many.
Brown's Vulgar Errours.

It is as gross a paradox to hold there are no antipodes, and that the negative is now as absurd as the *affirmative* seemed at first. *Howel's Letters.*

Whether there are such beings or not, 'tis sufficient for my purpose, that many have believed the *affirmative*. *Dryden.*

One may *affirm*, with all respect to the inspired writings, that the divine Spirit made use of no other words but what were intelligible and common to men at that time, and in that part of the world; and as Homer is the author nearest to those, his style must of course bear a greater resemblance to the sacred books, than that of any other writer. *Pope.*

AFFIRMATION, in law, signifies the ratifying or confirming a former law, or judgment: Thus we say, the house of lords, on an appeal, affirmed a decree of the lord chancellor, or of the court of Session. Affirmation is also a solemn form of attesting the truth, allowed to be used by the Friends or Quakers, instead of an oath, which they hold absolutely unlawful to take.

The Friends have, from the earliest appearance of the society, been very steady in their objections, and have submitted to all kinds of civil disadvantages and open persecution, on account of their repugnance to oaths. It is our plan to bring forward the opinions of all respectable parties, with their own way of stating them. The last, and one of their most respectable writers, Mr. Jos. John Gurney, says, that 'Such a line of conduct they deem to be both justified and required, first, by certain plain moral principles; and secondly, by divine commands of the most impressive and comprehensive character. For the moral principles concerned, he quotes James i. 12; Matt. v. 37; and adds, 'Since the law of truth in the verbal communications between man and man, a law strenuously supported even by heathen moralists, and obviously essential to the well being of all human societies, is very frequently enjoined in the records of God's revealed will; since it is plainly of universal obligation on the followers of Jesus; and since, on the other hand, there is nothing more decisively condemned than the false tongue: it follows, that with true Christians a deliberate and serious, yet simple *affirmation*, or negation, possesses a force so perfect in its kind as to be incapable of any real augmentation. Hence there arises a plain moral obligation in conformity with the precept of the apostle James, that our yea should be yea, and our nay nay—that is to say, that our affirmations and our negations should be naked and simple, and wholly unaccompanied by any form of oath. For if, on any particular occasion, a man swear in addition to his yea and nay, in order to render them more obligatory and convincing, their force becomes comparatively weak at other times, when they receive no such confirmation. If such an one be a believer in the Lord Jesus Christ, and especially if he be a serious professor of religion, it is plain, that by his conduct he gives countenance to the false and dangerous notion that the oath of a Christian is more binding upon his conscience, and *therefore more credible* than his deliberate word, and thus he invariably lowers the standard of the law of truth.'—*Gurney on the Religious Peculiarities of the Friends*, 8vo. 1824.

AFFIRMATION, in logic, a positive proposition alleging the truth or reality of something. In algebra, also, affirmative or positive quantities, terms introduced by Vieta, i. e. those which have their appropriate characters.

AFFIRMATIVE, in grammar. Authors distinguish affirmative particles, such as *yes*, from *negatives*, such as *no*. The term affirmative is also used substantively, because we say, the affirmative is the more probable side of the question; there were so many votes, or voices, for the affirmative, &c.

AFFIRMATIVE, in the Romish inquisition, is applied to such heretics as own the errors and opinions with which they are charged; and maintain them in their examination with firmness and resolution.

AFFIX' *v.* & *n.*
AFFIX'ION. *n.*

Ad: *figo, fixum;* to fasten to; to unite to the end; subjoin; attach; closely connect with.

Before that tyrantis zet of men, that dede is,
Affixit, studie mony dolorus hedis,
With visage blaiknyt, blude berun, and bla,
The laithlie odoure of filth still and therfra.
Douglas, b. 8. p. 247.

Her modest eyes, abashed to behold
So many gazers as on her do stare,
Upon the lowly ground *affixed* are.
Spenser.

Six several times do we find that Christ shed his blood; in his circumcision, in his agony, in his crowning, in his scourging, in his *affixion*, in his transfixion. *Bp. Hall.*

He, that has settled in his mind determined ideas,

with names *affixed* to them, will be able to discern their differences one from another. *Locke.*

If men constantly *affixed* applause and disgrace, where they ought; the principle of shame would have a very good influence on publick conduct; though, on secret villanies, it lays no restraint. *Roger's Sermons.*

The doctrine of irresistibility of grace, in working whatsoever it works; if it be acknowledged, there is nothing to be *affixt* to gratitude. *Hammond's Fundamentals.*

AFFIX, in grammar, a particle added at the close of a word, either to diversify its form, or alter its signification; in which sense affix is the same with *suffix*; though affix is sometimes, but less properly, applied more generally, so as to include prefix particles. We meet with affixes in the Saxon, the German, and other northern languages; but more especially in the Hebrew, and other oriental tongues. The Hebrew affixes are single syllables, frequently single letters, subjoined to nouns and verbs; and contribute not a little to the brevity of that language. The oriental languages are much the same as to the radicals; and differ chiefly from each other as to affixes and prefixes.

A-FLAT, in music, is the ninth diatonic-chromatic note of the scale of C.

A-FLAT MAJOR, one of the twenty-four keys in modern music, requiring a signature of four flats.

A-FLAT MINOR, one of the twenty-four keys in modern music, requiring a signature of seven flats.

AFFLATUS. Ad: *flo*, to breathe upon; a divine influence communicating to the receiver supernatural powers, particularly the gift of prophecy.

The prophets and teachers, in those times, are reckoned as men who exercised those offices by a spiritual *afflatus*, and were enabled to perform them by the miraculous gifts of the Holy Spirit then vouchsafed to them. *Whitby on the New Testament, Gen. Pref.*

The poet, writing against his genius, will be like a prophet without his *afflatus*. *Spence on the Odyssey.*

AFFLATUS. Naturalists sometimes speak of the afflatus of serpents. Tully uses the word figuratively, for a divine inspiration. In which sense, he ascribes all great and eminent accomplishments to a divine afflatus. The Pythian priestess being placed on a tripod or perforated stool, over the sacred cave, received the divine afflatus, and fell into phrenetic agitation; during which, she pronounced, in hollow groans and broken sentences, the will of the deity. The afflatus is supposed by some, to have been a subterraneous gas, or exhalation, wherewith the priestess was literally inspired; and that, it had the effects of a real physical disease; the paroxysm of which was so vehement, that Plutarch observes, it sometimes proved mortal. But Van Dale, with more probability, supposes the pretended enthusiasm of the Pythia to have arisen from the fumes of aromatics, or perhaps of intoxicating liquors.

AFFLICT', *v.* AFFLIC'TION, AFFLIC'TIVE, AFFLIC'TIVELY. Ad: *fligo*, to throw to the ground; to cast down; d ject; throw into a state of consternation, grief, sorrow, calamity; to undo; trouble, disquiet, distress, torment.

Abbay and priorie, and oþer religions,
For vs salle pray and crie in per *afflictions*.
R. Brunne, p. 202.

For as Salamon sayth: the hope that is differred and delaied, paineth and *afflicteth* the soule. *Sir T. More's Works*, p. 1080. c. 2.

For as the *affliccions* of Christ are plenteous in vs, euen so is oure consalacion plenteous by Christ. *Bible*, 1539, 2 *Cor.* i.

To the flesh (as the apostle himself granteth) all *affliction* is naturally grievous; therefore nature, which causeth fear, teacheth to pray against all adversity. *Hooker*, b. v. § 48.

We'll bring you to one that you have cozened of money; I think, to repay that money, will be a biting *affliction*. *Shakspeare.*

If a man be gracious and courteous to strangers, it shews he is a citizen of the world; and that his heart is no island cut off from other lands, but a continent that joins to them. If he be compassionate towards the *afflictions* of others, it shews that his heart is like the noble tree, that is wounded itself, when it gives the balm. *Lord Bacon's Essays.*

Nothing does so powerfully call home the conscience, as *affliction*. *Hall's Contemplations.*

Yet in the middes of this *afflicciō*, and to make an end of the same, God of his ineffable goodnes, lookyng on this countrey, with his iyes of pitie and aspect of mercie hath sent me in the truth to restore again this decayed kyngdō to his auncient fame and olde renoune. *Hall*, p. 247.

What! when we fled amain, pursued and struck
With heaven's *afflicting* thunder, and besought
The deep to shelter us? This hell then seem'd
A refuge from those wounds.
Milton's Paradise Lost, b. ii.

And because *affliction* is of such a nature as to try the temper, disposition, and intentions of men, therefore temptation often is used for *affliction*. *Barrow.*

God deals with his children as a merciful father; he does not, as he himself tells us, *afflict* willingly the sons of men. *Cowper's Letters.*

AF'FLUENCE, *n.* AF'FLUENT, AF'FLUX, AFFLUX'ION. Ad: *fluo*, to flow to; a metaphor derived from the flowing of water, which announces speedy abundance: hence, affluence is the forerunner of prosperity, and denotes wealth, plenty, exuberance.

As they lived in great *affluence* and ease, we may presume that they enjoyed such pleasures as that condition afforded, free and uninterrupted. *Sydney's Criticism on Pastoral Writing.*

External or worldly prosperity, consists in an accomodate condition of man in this world, as health of body, comfort of friends and relations, *affluence* or at least competency of wealth, power, honour, applause, good report, and the like. *Hale's Contemplations.*

An inflammation, either simple, consisting of a hot and sanguineous *affluxion*; or else denominable from other humours, according unto the predominancy of melancholy, phlegm, or choler. *Brown's Vulgar Errours.*

Though an unwieldly *affluence* may afford some empty pleasure to the imagination; yet, that small pleasure is far from being able to countervail the unbittering cares that attend an over-grown fortune. *Boyle's Occasional Reflections*, § 4. dis. 11.

The cause hereof cannot be a supply by procreations; ergo, it must be, by new *affluxes* to London out of the country. *Graunt.*

The infant grows bigger out of the womb, by agglutinating one *afflux* of blood to another.
Harvey on Consumptions.

An animal that must lie still, receives the *afflux* of colder or warmer, clean or foul water, as it happens to come to it. *Locke.*

AFFLUX, in electricity, is opposed to efflux; it was a term in general use previously to the discovery of positive and negative electricity. It was apprehended that in all electrical operations, there was both an afflux of electrical matter to the globe and the conductor, and an efflux of the same matter from them. Dr. Watson soon corrected this opinion; but the Abbé Nollet was more tenacious; and was confirmed in his attachment to this theory, by observing, that bodies not insulated, plunged in electric atmospheres, showed signs of electricity; not perceiving, that the electricity of such bodies was in its nature and effects different from, and directly opposite to, that of the electrified body, in the atmosphere of which they were involved. See ELECTRICITY.

AFFORAGE, in the French customs, before the revolution, was a duty paid to the lord of a district, for permission to sell wine, or other liquors, within his seignory.

AFFORARE, in old law, to set a value on any thing.

AFFORCEMENT, or AFFORCIAMENT, in ancient charters, a fortress, or work of fortification and defence.

AFFORCIAMENTUM CURIÆ, in law, the calling a court on any extraordinary occasion.

AFFORCIARE, in law, to add, increase, or strengthen; as in the case of a jury, cum in veritate dicenda sunt sibi contrarii; i. e. when they are not agreed on their verdict.

AFFORD', *v.* The etymologies given of this word are unsatisfactory. It signifies to yield, produce, grant, give; also, to furnish for a certain price.

So soon, as Maurmon there arriv'd, the door
To him did open, and *afforded* way.
Faerie Queene.

MOWB. The purest treasure mortal times *afford*,
Is spotless reputation; that away,
Men are but gilded loam or painted clay.
Shakspeare's Richard II.

This is the consolation of all good men, unto whom his ubiquity *affordeth* continual comfort and security; and this is the affliction of hell, to whom it *affordeth* despair and remediless calamity.
Brown's Vulgar Errours.

KING. Why speakest thou not?
HIER. What lesser liberty can kings *afford*,
Than harmless science? Then *afford* it me.
Spanish Tragedy, 2nd edit, act v.

They fill their magazines, in times of the greatest plenty; that so they may *afford* cheaper, and increase the public revenue, at a small expence of its members. *Addison on Italy.*

AFFORESTING, part. turning ground into forest. William the Conqueror, and his successors, continued afforesting the lands of the subject for many reigns; till the grievance became so notorious, that the people of all degrees and denominations were brought to sue for relief; which was at length obtained, and commissions were granted to survey and perambulate the forest, and separate all the afforested lands, and re-convert them to the uses of their proprietors, under the name and quality of purlieu or pouralle land.

AFFRAP' *v.* Ital. *affrapare*; Fr. *affrapper*, to strike; to make a blow at; encounter; strike down.—Obsolete.

He gan to encounter him in equal race,
They beene ymet, both ready to *affrap*,
When suddenainly that warriour gan abase,
His threatned speare, as if some new mishap
Had him betide, or hidden danger did entrap.
Faerie Queene, b. ii. c. 1.

I have been trained up in warlike stowre,
To tossen speare and shield, and to *affrap*
The warlike rider to his most mishap.
Idem. b. iii. c. 2.

AFFRAY', *v.* & *n.* } *Effrayer*, Fr. to frighten.
AFFRAID'. }

The verb is obsolete; the noun signifies a tumultuous assault upon one or more persons in public.

pe stones were of Rynes, pe noyse dredefulle & grete
It *affraied* pe Sarazins, as louen pe fire out schete.
pe noyse was vnride, it lasted alle day,
Fro morn till euentide, per of had many *affray*.
R. Brunne, p. 174.

Me met thus in my bed al naked,
And loked forthe, for I was waked
With small foules a great hepe,
That had *afraied* me out of my slepe,
Through noise, and swetnesse of ther songe.
The Dreame of Chaucer, fol. 241, c. 1.

I was out of my swowne *affraide*,
Wherof I sigh my wittes straide,
And gan to clepe hem home ageyne.
Gower. Con. A. b. viii.

Thys wourthy knycht the commen wele Romane,
In grete *affray* perturbit to rest agane
And quiet sall restore.
Douglas. b. vi. p. 196.

God so *affrayed* me w^t^ so terrible a dreame, that all things beganne to be to me suspecte, ferefull, unsauory and redye to fall fro me.
The Exposicion of Daniel, by George Joye, f. 50. c. 2.

Be not youre herte *afrayed*, ne drede it: ye bileuen in God, and beleeue ye in me. In the hous of my fadir, ben manye dwellingis.
Wiclif. Jon. c. xiv.

And lightly started vp as one *affray'd*,
Or as if one him suddenly did call.
So, oftentimes he out of sleep abrayd,
And then lay muzing long, on that him ill apay'd.
Spenser's Faerie Queene, b. iv. cant. 5.

To be *afraid* to die, or wish for death,
Are words and passions of despairing breath;
Who doth the first, the day doth faintly yield,
And who the second basely flies the field.
Quarles

A goddess arm'd
Out of thy head I sprung. Amazement seiz'd
All the host of heaven; back they recoil'd *afraid*
At first, and call'd me Sin, and for a sign
Portentous held me.
Milton's Par. Lost. b. ii.

Be not of us *afraid*,
Poor kindred man! thy fellow-creatures we,
From the same parent-power our beings drew,
The same our Lord, and laws, and great pursuit.
Thomson.

AFFRAY, in English law, from the French, *effrayer*, to affright, formerly was defined, to be,

'a public offence to the terror of the king's subjects,' as where persons appeared with armour or weapons, not usually worn, to the terror of others. *Stat.* 2 *Edw. III.* cap. 3. Its legal description is still best contained in the words of that statute: 'That no man of what condition soever, except the king's servants in his presence, and his ministers in executing their office, and such as be in their company assisting them; and also upon a cry made for arms to keep the peace, shall come before the king's justices, or other of the king's ministers doing their office, with force and arms, nor bring any force in *affray of peace*, nor go nor ride armed, by night or day, in fairs or markets, or in the presence of the king's justices, or other ministers elsewhere; upon pain to forfeit their armour to the king, and their bodies to prison at the king's pleasure. And the king's justices in their presence, sheriffs, and other ministers in their bailiwicks, lords of franchises and their bailiffs in the same, and mayors and bailiffs of cities and boroughs within the same, and borough-holders, constables, and wardens of the peace within their wards, shall have power to execute this act. And the judges of assize may punish such officers as have not done their duty therein.' But it now also implies a skirmish or fighting between two or more, in some public place, to the terror of his majesty's subjects; and there must, it is said, be a stroke given or offered, or a weapon drawn, otherwise it is not an affray; for if the fighting be in private it is no affray, but an assault. 3 Inst. 158. It is inquirable in the courts-leet, and punishable by justices of peace in their sessions, by fine and imprisonment.

An affray differs from an assault, in that it is a wrong to the public; whereas assault is of a private nature. Lamb. lib. ii. Affrays may be suppressed by any private person present, who is justifiable in endeavouring to part the combatants, whatever consequences may ensue. But a constable, or other similar officer, may break open doors to suppress an affray, or apprehend the affrayers; and he may either take them before a justice, or imprison them by his own authority for a convenient time, till the heat is over; and may then, perhaps, also make them find sureties for the peace. 3 Inst. 158. 1 Hawkins P. C. 134. 136. 138.

Affrays admit of several degrees of aggravation, as when two persons deliberately engage in a duel, though no mischief has actually ensued; or when the officers of justice are disturbed by an affray, in the due execution of their office, or where it occurs in the king's court and such places. All affrays again in a church or churchyard are deemed heinous offences; and therefore it is enacted, by Stat. 5 and 6. Edw VI. c. 4. that if any person shall, by words only, quarrel, chide, or brawl, in a church or churchyard, the ordinary shall suspend him, if a layman, *ab ingressu ecclesiæ;* and, if a clerk in orders, from the ministration of his office, during pleasure. And, if any person in such church or church-yard proceed to smite or lay violent hands upon another, he shall be excommunicated, *ipso facto;* or if he strike him with a weapon, or draw any weapon with intent to strike, he shall, besides excommunication (being convicted by a jury,) have one of his ears cut off; or, having no ears, be branded with the letter F. in his cheek. Blackst. vol. iv. p. 146.

AFFREIGHTMENT, AFFRETAMENTUM, from the French fret, in law, signifies the freight of a ship.

AFFRET', *v.* See FRET.

A trumpet blew; they both together met
With dreadfull force and furious intent,
Careless of perill in their fierce *affret*.
Spencer's Faerie Queene, b. iv. c. 3.

AFFRIEND', *v.* See FRIEND.

Where when she saw that cruel war so ended,
And deadly foes so faithfully *affrended*,
In lonely wise she gan that lady greet,
Which had so great dismay so well amended.
Spencer's Faerie Queene, b. iv. c. 3.

AFFRIGHT', *v.* & *n.* A. S. Afyrhtan, or Afærhan, to frighten; to affect with sudden fear; to terrify.
AFFRIGHT'ER,
AFFRIGHT'EDLY,
AFFRIGHT'FUL,
AFFRIGHT'MENT.

William was oglyft, his helm was fulle of myre,
William was not paied, pat falle mad him *afright*
He stode alle dismaied *R. Brunne*, p. 70.

By God me mette I was in swiche mischefe
Right now, that yet min herte is sore *afright*.
Chaucer. The Nonnes Preeste's Tale, v. ii. p. 178.

When now the genius of this woeful place,
Being the guide to his *affrightful* ghost,
With hair dishevell'd, and a ghastly face,
Shall haunt the prison where his life was lost.
Drayton. Baron's Warr.

As one *affright*
With hellish fiends, or furies mad uproar,
He then uprose. *Faerie Queene*, b. ii. cant. 5.

As the moon, cloathed with cloudy night,
Does shew to him, that walks in fear and sad *affright*.
Idem.

K. JOHN. Nay, but make haste, the better foot before,
O let me have no subjects enemies,
When adverse foreigners *affright* my towns
With dreadful pomp of stout invasion.
Shakspeare's K. John.

Thy name *affrights* me, in whose sound is death.
Shakspeare's Henry VI.

Ev'n those who dwell beneath its very zone,
Or never feel the rage, or never own,
What happier natures shrink at with *affright*,
The hard inhabitant contends is right.
Pope. Essay on Man.

AFFRONT', *v.* & *n.* Ad: *frontem*, stare: *ad frontem contumeliam allidere*, to insult a man to his face; to present a hostile front to a person like opposing armies; to meet face to face; to face; to encounter; to offer an insult; to offend designedly; to treat contemptuously or rudely.

For ich ne wiste wher to ete. ne in what place
And neyhede ny pe noon. and with neode ich mette
That *afrontede* me foule. and faitour me calde.
Vision of Pier's Plouhman, p. 392.

In this meane whyle king Philip and the French king with two more puyssaunt armies, *affronted* eche other neere vnto the water of Some, eyther of them being obstinately bent to driue the other out of the fielde, for which cause they entrenched their campes.
Grafton, v. ii. p. 565.

He highly leapt out of his place of rest,
And rushing forth into the empty field,
Against Cambello, fiercely him addrest;
Who him *affronting*, soone to fight was ready prest.
Faerie Queene, b. iv. c. 3.

Skilfull captaines in arraunging of their battailes, place first in the vantguard, thicke and strong squadrons to *affront* the ennemie, then light armed souldiors, afterwards the archers and darters, and last of all in the rereward, the companies of succours.
Holland's Trans. of Ammianus Marcel.

He would often maintain Plantianus, in doing *affronts* to his son *Bacon's Essays.*

I neer attempted aught against thy life,
Nor made least line of love to thy loose wife,
Or in remembrance of thy *affront* and scorn,
With clowns and tradesmen kept thee clos'd in horn.
Ben Jonson. Execration of Vulcan.

Did not this fatal war *affront* thy coast?
Yet sattest thou an idle looker on *Fairfax*, i. 51.
But harm precedes not sin; only our foe,
Tempting, *affronts* us, with his foul esteem
Of our integrity. *Par. Lost*, b. ix.

Ah! spare your swords, where beauty is to blame;
Love gave th' *affront*, and must repair the same.
Waller.

I would learn the cause, why Torrismond
(Within my palace walls, within my hearing,
Almost within my sight,) *affronts* a prince,
Who shortly shall command him.
Dry. Span. Friar.

This brings to mind Faustina's fondness for the gladiator, and is interpreted as satire: but how can one imagine, that the fathers would have dared to *affront* the wife of Aurelius? *Addison.*

——Yea, often plac'd
Within his sanctuary itself, their shrines,
Abominations; and with cursed things
His holy rites, and solemn feasts profan'd,
And with their darkness durst *affront* his light.
Milton.

AFFRONTEE, from *ad*, to, and *frons*, the forehead, in heraldry, an appellation given to animals facing one another on an escutcheon; a kind of bearing which is otherwise called *confrontee*, and stands opposed to *adossee*.

AFFUIAGE, AFFUIAGIUM, from *affoer*, q. d. *affocare*, to make a fire, of *ad* and *focus*, in ancient customs, a right of cutting fuel in a forest, for domestic fire.

AFFUSE', } Ad: *fundo*, *fusum*; to pour
AFFUS'ION. } one thing on another.

I poured acid liquors, to try if they contained any volatile salt or spirit; which would probably have discovered itself, by making an ebullition with the *affused* liquor. *Boyle.*

Upon the *affusion* of a tincture of galls, it immediately became as black as ink. *Grew's Museum.*

When the Jews baptized their children in order to circumcision, it seems to have been indifferent to them whether it was done by immersion or *affusion*.
Wheatley on the Com. Prayer, p. 362.

AFGHAUNISTAUN.

AFGHAUNISTAUN or AFGHANISTAN, a kingdom of Asia, situated between Persia and Hindostan, and forming a considerable portion of Caubul, bounded on the E. by the river Niblab or Indus, on the N. by Hindoo Coosh and the Paropamisan range of lofty mountains, separating it from Bulkh and Budukhshan, on the W. by Persia, on the S. by Baloochistan. It lies between 29 and 36 degrees of N. Lat. and 61 and 71 E. Long. including the ancient kingdoms of Zabuliston, (Ghizne and Kandahar) and Kabuliston. All that lies west of the parallel of Mooklor, 68°, 30′, is comprehended in the extensive province of Khorassaun. The mountains are considerable. The peaks of Hindoo Coosh are said to be higher than the Andes. Lieutenant Macartney estimated one of the summits of this range of mountains at 20,493 feet. The elevation must be very great, since the Honourable Mountstuart Elphinstone could perceive no diminution of snow on any part of this lofty range in the midst of June, although in the plain of Peshawer, the thermometer was 113°. The course of these mountains is W. from the Indus to L. 71°, beyond which their direction is not accurately known.

The lower ranges are clothed with woods, and adorned with flowers. The range of Solimaun commencing from Suffaid Coh, or White Mountain, runs S. S. E. through Janjee, and then striking off afresh in a southerly direction, forms the country of the Jadrauns, extending as far as 31° N. Lat. It is accompanied by two minor ranges of beautiful hills in a parallel direction along its eastern side, reaching as far as latitude 32° 20′, every where diversified with valleys, and intersected with rivers, beside several minor hills, which running E. and W. divide and beautify the landscape on both sides of the great chain. The first and loftiest range is chiefly composed of black stone; the two less chains consist, one of red stone, and the other of a friable grey sand stone. The Suffaid Coh is always covered with snow. The Paropamisan chain runs 350 miles E. and W., and extends 200 N. and S. the whole forming one rude mass of barren mountains, the interior of which has never been explored by Europeans.

Of the rivers, the Indus is the most important, which, although it has been traced 1350 miles, its entire course is not known. The desolate condition of the country has prevented its springs from being correctly ascertained. It receives many rivers in its source, and fifty miles from Mullau, flows along an open country, and spreading upon the plain near the fort of Attock, forms a multitude of islands, receives the river Caubul, and then suddenly contracting, rushes through a narrow opening into the branches of the Solimaun. At the distance of fifteen miles from Neelaub, it is said to be only a stone's throw across, but very deep and rapid. It afterwards winds among the hills, passes through the Salt range in a clear quiescent stream, and then widening to its full extent, it flows along in grand and beautiful magnificence, till receiving the

river Punjund, it takes a south-west curve across the country of Sind, where it forms an island, dividing itself into two streams, the principal of which again divides, till at last the whole river disembogues itself by many mouths into the Arabian gulph.

The Helmund or Etymander, rises on the eastern side of the Parapamisan range, a few miles west of Caubul, after a course of 200 miles among mountains, enters the plain of Dooraunes, then enters a desert, and terminates in the lake of Seestaun, the whole length being about 400 miles. There are many other rivers, but of comparatively little importance.

The climate of Afghaunistaun is very various, in consequence of the different degrees of elevation, direction of the winds, &c. The higher parts are hot, the middle temperate, and the lower cold. The average heat is inferior to that of India. The cold in the winter is not great, and when Mr. Elphinstone was at the plain Peshawer, snow had been seen but once in the memory of the oldest inhabitants. Some Indian plants are in leaf all the year, and early in April the barley was in ear, which was cut the first week in May. The heat was often intense, but attained its height by the 23d of June; and in the middle of July, a cool wind set in from the east, which was succeeded by cool cloudy weather. The greatest height of the thermometer, during the year, was 120°, its greatest depression 25°.

The summer in Hindostan is intensely hot, so much so, that the inhabitants wet their clothes before they go to sleep, but south of the valley of Turnuk, the cold is as great as in any part of the country. Western winds are common, and generally bring rain. The easterly winds are hot and dry. In the warmest parts of the kingdom, the pestilential simoon is common. Although the climate is on the whole favourable to longevity, fevers and agues are common, and the small pox is extremely prevalent, notwithstanding the almost universal practice of inoculation. Opthalmia is also frequent, and the diseases of Afghaunistaun have been generally observed to be much more fatal than those of India.

The monsoon is attended with less violence than in the latter kingdom, and is exhausted near tne sea. In the N. E. however, it is more violent; and what is most remarkable is, that it comes from the east. What the Indians call the S. W. monsoon, commences on the Malabar coast in May; but is later in Mysore, and in the north commences in June. The rains diminish toward the west, while the winter rains extend as far as the Hellespont. The spring rains are, generally speaking, short; in some places not more than a fortnight.

The animals of Afghaunistaun are not numerous. There are, nevertheless, tygers, lions, wolves, and bears, in the woods. The antelope is found in the plains. Buffaloes, dromedaries, and sheep, are in great abundance. The dogs are similar to those of England, and the cats are so valuable as to be exported. Hevant and some other districts have been long celebrated for beautiful horses, and deer with long, curiously twisted, branching horns.

The birds are, generally, similar to our own. There are however three kinds of eagles. The shauheen is taught to attend the falconer, and to strike the quarry in its attempt to escape. The chirk strikes on the antelope, and holds it till the greyhounds arrive.

Scorpions are found; but their bite is seldom fatal. Bees and mosquitoes abound in every part of the empire. The locusts, which are the most terrible, come up over the face of the whole country, bringing famine and desolation. The chief fish are turtles and tortoise.

The trees greatly resemble those of Europe; they are, however, much finer, and more numerous: our finest fruits grow wild. Oaks, cedars, and cypresses, are common; also the mulberry, tamarisk, willow, plane, and poplar. One species of pine flourishes here, called jelgoozeh; the cones of which are larger than artichokes, and contain seeds resembling pistachio nuts.

Gold is found in the rivers, especially those which flow from Hindoo Coosh. Silver is found in the country of Caufirs. In the country of Afreedes and Hazaurehs, and other places, are lead and antimony. Iron and copper are found in the country of Vizeeres; alum in the clay of Callabaugh; orpiment in the country of Hazaurehs and Bulkh; salt-petre is made from the soil all over the kingdom; and sulphur is found in Bulkh and Seeweestaun.

The Afghauns trace their descent from Afghaun and Usbec, grandsons of Saul, king of Israel, whom they represent as the forty-fifth in descent from Abnah, raised from a shepherd to a king, because his stature was exactly the length of a reed which the angel Gabriel gave Samuel, by which to try the man who should be king of Israel. Afghaun is also described as an extraordinary character.

Sir W. Jones, in his Asiatic Researches, thinks the chronology of the Afghauns highly probable. He argues that the Afghauns are, by the best Persian writers, said to be descended from the Jews. 'We learn,' says he, 'from Esdras, that ten of the Jewish tribes came to Arzareth, where they settled. The Pushtoo language has a resemblance to the Chaldaic; and a district under their dominion is called Hazareh, or Hazaret, which is perhaps the very word intended by Esdras.'

This theory is overturned by the fact, that the Hazarehs have but recently occupied a part of Afghaunistaun. The Persian historians, it is true, grounded their histories upon the traditions extant; but nothing is more uncertain than the mere rumours of an uncivilized people, respecting their origin and chronology. The most ancient names bear no resemblance to the Jews, and the probability is, that they derived their name from the Arabs, in common with all other Mahomedan tribes. Some historians, nevertheless, contend that they were descended from the Egyptians; whilst others, refer them to the Hun or Scythian tribes. They are divided into numerous toomaus or clans, whose names are probably derived from the chief of the family at the time of their settlement. The principal in history are, Khulijy, Soory, Lody, Roh or Rohilla—Ghilja or Gilyauce, Bunguish, Abdaly, and Hazareh, although the latter are said to be

Persian origin. Their national name is lkai; but by the Persians they are called fghauns, and by the Hindoos Pataus. Kyse bdoreshed, whom they acknowledge as their under, is said to be the thirty-seventh from aul.

The government consists of an assemblage of ommonwealths, or tribes, each being a subordinate government, formed into one state through ne supreme authority of one common sovereign. Their principal distinctions are said to spring rom the four sons of Kyse Abdoreshed. A tribe s called *ooloos*, and is placed under the jurisdiction of a chief, called a khaun, chosen from the oldest family, by an election of the people. The ttachment is, however, rather to the community han to the chief. The fighting men receive no pay; but if a horse is killed, the owner receives he value of him from government.

The general law of the kingdom is that of Mahomet; and, in most of the oolooses, is adopted in civil cases; but the criminal code is the Pooshtoonwulle, or usage of the Afghauns; and in some oolooses, the parties are compelled to submit to arbitration, or to quit the ooloos. Trifling offences are also settled occasionally by the jeerga of the sub-division. When the jeerga meet, they take their seats on the ground, and utter a short prayer before they proceed to business. A penalty is annexed to every offence among the Afghauns, with the exception of the Berdooraunees. It always includes a public submission and acknowledgment; and frequently a number of young women are consigned over in marriage to the injured party and his relations. After the prisoner has been delivered up to the accuser, the parties are directed to salute each other with the usual address of Salaum alaikum: 'Peace be unto thee.'

If a division quits its ooloos it is readily received into another, and the king is the head of the tribe Dooraune. One or two tribes are entirely independent.

The Afghaun language is called the Pushtoo, the alphabet is Persian and the Nushk character is generally employed in writing. The chief words relative to science, religion, &c. are derived from the Arabic through the Persian. They have several authors in poetry, law, and theology; and some of the kings have not only written poems themselves, but have given great encouragement to letters generally.

Ahmed Shauh held an assembly of the learned once a week, which practice is still continued. They study the sciences and read their books in methodical order, so that if one person asks another what books he has read, he answers 'up to so and so,' and the other perfectly understands him. Rehmaun is the most popular poet. Khooshhaul is, however, the best; having spent his life in struggles against the Great Mogul, his intellectual associations have given a martial air and spirit to his composures.

In childhood the Afghauns commit the education of their children to a moollah or priest, by whom they are taught passages from the Koran, &c. Every village and town has its own schoolmaster, who is supported by certain lands and contributions. At Peshawer and other places are establishments for finishing the education of youth for the higher professions, &c.

They grow barley, corn, turnips, melons, cucumbers, pumpkins, gourds, rice, Indian corn, arzem, nukhod, peas, beans, &c. The assafœtida plant runs wild in the western hills, and the palma christi, or castor oil-plant, commonly called budaugeer, is every where found. The lands are usually watered by irrigation through the means of embankments, channels, &c. and, except in the colder districts, they have two harvests in the year. They have five classes of cultivators; proprietors who cultivate their own lands; tenants who rent lands; buzgurs, or farmers, like the metayers of France; hired labourers; and villains, who cultivate their lord's land without wages.

The Afghauns keep no shop, and follow no handicraft or trade. There are bankers, merchants, artizans and labourers. The Hindoos are the chief bankers, owing to the prohibition in the Koran, which forbids Mussulmen taking interest. There are some considerable merchants who are divided into thirty-two trades, each having its cudkhoda to manage all transactions with government; for though not taxed, they are nevertheless liable to exactions, when the king, for instance, marches to any considerable city, he sends to the cudkhodas to find a shop of each trade to attend him to the next considerable city, town, &c., sending presents to the merchants, instead of regular payments by which means they sustain considerable loss.

They trade chiefly with India, Persia, and Toorkistaun, and from Tibet they obtain a cloth called ussul toos, manufactured of shawl wool. Their exports are horses, furs, shawls, Mooltaun chintz, madder, assafœtida, fruits, &c. Their imports are cloths, muslins, indigo, ivory, sandal wood, wax, spices, silk, cottons, gold and silver. Their internal trade is considerable.

The people are generally divided into the inhabitants of houses, and the inhabitants o. tents. Their furniture commonly consists of a coarse woollen carpet, and pieces of felt to sit upon, which they usually do cross-legged; and in case of ceremony the person kneels and then sinks back on his heels. They converse freely, and are fond of taking snuff. When a visitor is introduced, he salutes the party, by saying, 'Assalaum, Alaikoom,' peace be to thee. The company answer, 'O Alaik Assalaum,' and unto thee be peace. The master of the house then takes the stranger's hands and says, 'Shu Rauglee, &c.' you are welcome, may you often come; to which the reply is, 'Shupucheiree,' may you prosper. After dinner they sing songs and play music.

They are fond of the chace. Races are frequent, and at a wedding the bridegroom commonly gives a camel to be run for. The higher ranks also tilt with lances, practise firing at a mark, with guns, bows and arrows, &c. They have a great passion for the sail, or the enjoyment of fine prospects; dancing, and a game called khossye or cubuddee, in which two men advance, each holds his left foot with his right hand, and hops forward to upset his adversary.

They commonly bathe twice a week, and always on the Friday. The shops on that day are shut. The Afghaun goes to the bath, has his skin scrubbed till it is quite clean, his beard dyed, and superfluous hair burnt from off his body for an hundred dinars, or threepence-halfpenny; after which, on leaving the bath, he joins a party for the day to some favourite hill or garden, defraying the expences by subscription; and for a trifling sum at the entrance, each person takes what fruit he pleases.

Their dress is not unlike the Persian, especially in the upper classes of society, and consists of loose cotton trowsers, a low cap of black silk or satin, crowned with gold brocade, half boots reaching to the calf, a large frock shirt, with sleeves reaching below the knee, to which is superadded a large cloak reaching to the ancles, either of sheepskin tanned with the wool inside, or soft grey felt. The dress of women is not much unlike that of the men. Their shirts, however, are larger and of finer materials. They have a cap of silk interwoven with gold thread, to which is annexed a large sheet thrown over their heads, with which, in the presence of strangers, they cover their faces. They wear pendants in the nose, rings in their ears and on their fingers. They also wear tight trowsers commonly white; and those that are unmarried have their hair loose.

The people are less debauched than the Asiatics are in general, although their virtues are said to be on the decline. They have the same tendency to imitate the manners of the Persians, as European nations have to imitate the French. They are, however, at present laborious, generous, brave, and temperate, their chief vices being envy, revenge, and obstinacy.

Amongst the common people it is customary to rise before twilight, and go before breakfast to pray at the mosque. They lunch upon vegetables, curds, and flesh, but the shaumee, or great meal, is after the last prayers.

Sun-rise is the time when the great commonly rise, and after having read the Koran for an hour, and been at court, where there are apartments for their use and in which they receive communications, and transact business; they lunch and sleep; and in the evening receive company and amuse themselves till a late hour.

Wives are purchased, and may be divorced at pleasure. The brother of a deceased person marries his widow, except she have children, in which case she commonly remains single. Those who cannot purchase a wife remain in a state of celibacy. The rich marry early, seldom exceeding twenty years of age in the man, and sixteen in the woman. Before marriage, the arrangement of all preliminary circumstances is managed by the relations on both sides, for after a lover has intimated his wishes, a deputation from his parents wait on the parents of the girl, and make the necessary provisions, sometime before the ceremony. Polygamy is allowed, but seldom practised, owing to the common poverty of the people: and the middle class consider two wives and two concubines a large establishment. The women in general are not very cultivated, since it is thought immodest to write, as by that means a woman might correspond with her gallants and admirers.

The Afghauns are hospitable, and the greatest affront you can offer a man is to carry off his guest. If a man become noted for want of hospitality, he is reproached with having no *poosh toonwulle*, 'Nothing of the customs of the Afghauns.'

They have a custom called *nannawautee*, in English, 'I have come in.' When a man has to ask a favour he goes into the house of his friend, and refuses to take any refreshment or even to sit on his carpet till the request is granted, nor is it honourable to refuse it. A man in danger often goes nannawautee to another's house, who must then take up his quarrel, especially if a woman sends her veil and implores assistance, the claim in that case, is thought irresistible. The Afghauns, notwithstanding their hospitality often rob the stranger after his departure, the rites of hospitality being considered as over. So that the only way to pass the country with safety is to agree with the chiefs, and procure an escort for the journey.

In religion they are confirmed Mahommedans of the Soone sect, who hold the first three caliphs as the legitimate successors of Mahomed and believe their traditions. They consider that no infidels can be saved, but nevertheless they cherish no feelings of asperity toward them. They never speak of any thing they expect without adding *Inshaulla*, 'please God,' and often say 'please God I am so many years old.' They often count their beads in conversation; and before they enter on any undertaking repeat the Fauteheh, or the commencement of the Koran. Their prayers are repeated five times a day, and every Mussulman prays with his face turned toward Mecca, to which every person performs a pilgrimage at least once in the course of his life. The hour of prayer is announced from the tops of the minarets by the shout of *Allaho Akbar*, 'God is most great.' The man who hears it, though in the midst of business, instantly withdraws. The first part of the prayer is said standing, the rest sitting on the heels, often bending forward and touching the ground with his forehead. Their oaths are very solemn, as 'I swear by God and his prophet:' 'may I go an infidel out of this world if it is not true:' but the most solemn is the name of God, Allah, three times repeated in different forms 'Wullah, Billah, Tillah.'

There is an officer called Mooshtesib, who superintends the public morals, sometimes they inflict forty blows with a leather thong, and often send the culprit round the town on an ass, with his face toward the tail. The Moollahs, who have the title of Ulima, or learned, are greatly venerated; they profess great austerity, and have the care of youth, the practice of the law, and the administration of justice. When two oolooses are about to meet in battle, they often rush between them holding out the Koran, and attempt a reconciliation, in which from their great sanctity, they commonly succeed. A Moollah cannot be injured with impunity; they are in general capable of taking sufficient revenge by excommunicating, suspending worship, refusing to bury, &c.; but when this does not succeed,

they take the green standard of the prophet, and parade the country with drums, uttering the war cry and inciting the people to take up arms in their cause. They are always known by a large loose white or black gown, and a peculiar sort of large turban. Their wives have nothing remarkable in their dress to distinguish them from other women.

Besides regular clergy, they have other orders, as Sijuds, the supposed descendants of Mahomet, Fuheers, Dervises, &c. One particular sect is exceedingly venerated, even the places where they are buried are sacred, and in war time the women are placed there during the absence of the tribe as a place of security. The people generally believe in ghosts, alchemy, magic, &c., reverence burial grounds, called 'cities of the silent'; consider every mountain and cavern inhabited by a dæmon called the goule, or spirit of the waste. They believe the power of talismans, &c.

With respect to their history, the most early accounts we have, represent the Afghauns as inhabiting the mountains of Ghore, in or about the ninth century, when they were established in all the north-east territories, although a considerable part of the nation was subject to the Arabians. The people who still dwelt in Ghore had their own kings. Their prince Mahomet was taken by Mahmood king of Ghazni, by whom the people also were greatly oppressed. They rebelled in the twelfth century, dethroned the king, burnt the capital, and reduced alike Bulkh, India, Budukhshaun, part of Kharassaun, and the kingdom of Caubul. They held India for the most part during the three following centuries, and even the provinces that were wrested from them, were retaken from the king of Khwarizm, by Jengheez Khaun, during whose government, and also that of his son Tamerlane, they maintained their independence. After his death Bauber, the father of the great Mogul, subdued Caubul, and made it his capital, in which one of his sons succeeded him. Sheer Shauh founded an Afghaun dynasty in India, and succeeded in driving the other son of Bauber entirely from the peninsula. The house of Timour, the father of Bauber, was at length established, and all Afghaunistaun, excepting the mountains, divided between Persia and Hindostan.

About 1720 the two tribes of Ghiljie shook off the Persian yoke, and extended their empire as far west as the confines of Russia and Turkey. The Afghauns considered their authority an usurpation, and in 1737, Nadir Shauh conquered them, and annexed the greater part of the kingdom to the Persian dominions. The present Afghaunistaun monarchy was founded after his death.

AFIELD'. In or into the field.

Tho was peers ful proude. and putte hem al to werke.
In daubyng and in delvyng. in donge *a feld* berynge.
Vision of Piers Plouhman, p. 138.

We drove *afield*; and both together heard,
What time the grey fly winds her sultry horn;
Batt'ning our flocks, with the fresh dews of night.
Milton.

Afield I went, amid the morning dew,
To milk my kine, for so should housewives do.
Gay.

Oft did their harvest to his sickle yield,
His furrow oft the stubborn glebe hath broke;
How jocund did he drive the team *afield!*
How bowed the woods beneath his sturdy stroke!
Gray's Elegy.

AFINE. On fine. See FINE.

For no man at the first stroke
Ne may not fell doune an oke
Nor of the reisins haue the wine,
Till grapes be ripe and well *afine*
Before empressed, I you ensure
And drawen out of the pressure.
Chaucer. R. of R. fol. 133. col. 3.

AFIRE'. On fire.

While there is oyle for to fire
The lampe is lightly set *afire*.
Gower. Con. A. b. viii.

Of Deiphobus the palace large and great
Fell to the ground, all ouerspred with flash.
His next neighbour Ucalegon *afire:*
The Sygean seas did glister all with flame.
Surrey. Æneis, b. ii.

Powder is ready, and enough to work it,
The match is left *afire*.
Beaumont and Fletcher's Island Princess, ii. 1.

AFLAT'. On the flat.

When you would have many new roots of fruit trees, take a low tree; and bow it, and lay all his branches *aflat* upon the ground, and cast earth upon them, and every twig will take root.
Bacon's Natural History.

AFLIGHT'. A word in use till the time of Elizabeth; applied to the want of courage, &c. at the approach of danger. See FLIGHT.

Upon this worde hir herte *aflight*,
Thynkende what was best to doone.
Gower. Con. A. b. ii.

And yet were they all in case safelye to escape; whereas Judas on the other syde which nothing feared at all, but tooke a speciall pleasure to see them so *aflyghted*, lost hys lyfe for euer, and that in fewe howres after. *Sir T. More's Works*, p. 1389. col. 2.

AFLOAT'. On float.

Now er alle *ōn flote*, God gif þam grace to spede,
With douhty fo to note, whan þei com to dede.
R. Brunne, p. 169.

There is a tide, in the affairs of men;
Which, taken at the flood, leads on to fortune;
Omitted, all the voyage of their life
Is bound in shallows and in miseries:
On such a full sea, are we now *afloat*;
And we must take the current when it serves,
Or lose our ventures. *Shaksp. Julius Cæsar.*

His legions, angel forms, who lay intranced
Thick as autumnal leaves that strow the brooks
In Vallombrosa, where the Etrurian shades,
High over-arch'd imbower; or scatter'd sedge
Afloat, when, with fierce winds, Orion arm'd
Hath vex'd the Red-sea coast. *Par. Lost*, b. i.

Take any passion of the soul of man, while it is predominant and *afloat*; and, just in the critical height of it, nick it with some lucky or unlucky word; and you may as certainly over-rule it to your own purpose, as a spark of fire falling upon gunpowder, will infallibly blow it up. *South.*

There are generally several hundred loads of timber *afloat*; for they cut, above twenty-five leagues up the river, and other rivers bring in their contributions.
Addison's Italy.

Whatever is *afloat* in the stream of time, may, when it is very near us, be driven away by any accidental blast which shall happen to cross the general course of the current. *Rambler.*

AFOBA, in botany, a name given, by the natives of Guinea, to a kind of plant, of the phaseolus genus, or kidney-bean. They use it pounded and mixed with oil, to cure cutaneous disorders. It is more hairy than the common kinds, and its leaves are very small.

AFOOT'. On foot; implying action.

And thei sayen hem go awey and manye knewen and thei wenten *a foote* fro al citees and runnen thidir and camen bifore hem.

Wiclif. Mark vi.

I see you stand like greyhounds in the slips,
Straining upon the start. The game's *a foot:*
Follow your spirit; and upon this charge,
Cry, God for Harry, England, and St. George.

Shakspeare's Hen. V. act ii.

The king [Harolde] himselfe stoode *afoote* by the standarde, and his brethren Girthe and Leofwine with him, to the ende that in such a common perill and ieopardy no man should once thinke to flie or run away. *Stow's Chronicle.*

AFORE', *ad.* & *prep.* On the fore part; much used in composition. It has respect to time and place.

I meane this, that trespace hight
But reason conceiueth of a sight
Shame of that I speake *aforne.*

Chaucer. R. of R. fol. 130. col. 3.

He, back returning by the yuorie dore,
Remounted up as light as cheerfull larke,
And on his little winges the dreame he bore
In haste unto his lord, where he him left *afore.*

Spenser's Faerie Queene, b. i. c. 1.

Approaching nigh, he reared high *afore*
His body monstrous, horrible, and vast.

Faerie Q.

Whosoever should make light of any thing *afore* spoken or written, out of his own house a tree shall be taken, and he thereon be hanged.

Esdras, vi. 22.

If he never drank wine *afore,* it will go near to remove his fit. *Shakspeare. Tempest.*

Æmilia, run you to the citadel;
And tell my lord and lady what hath hap'd:
Will you go on *afore?* *Shakspeare. Othello.*

AFORE, in maritime affairs, avant, Fr. fore Sax. all that part of a ship which lies forward, or near the stem; it likewise implies *farther, forward,* or nearer the prow; as, the manager stands afore the foremast, i. e. farther forward, or nearer the stem. In both these senses *afore* is used in contradistinction to *abaft.* See ABAFT.

AFRA, in natural history. See PINTADO.

AFRANIUS, a Roman comic poet, who lived about the 170th Olympiad, and wrote comedies in imitation of Menander. He is commended by Tully and Quintilian.

AFRESH'. On fresh.

But when ye remnāt of the wicked shal attempt *afresh* to raise vp again such abhominatiōs, the Lord shal sodainly without warning fal vpō them with his most fearfull tirrible last iudgment.

Bale's Image, second part, R. 5.

Never was there any thing more pitiful than to hear my master blame the dog for loving his master's murtherer, renewing *afresh* his complaints with the dumb counsellor. *Sidney's Arcadia.*

The faction still defying Edward's might,
Edmond of Woodstock, with the men of Kent,
Charging *afresh,* renew the doubtful fight
Upon the barons, languishing and spent.

Drayton. Barons' Warr.

The Germans, serving upon great horses, and charged with heavy armour, received great hurt by light skirmishes; the Turks, with their light horses, easily shunning their charge, and again (at their pleasure,) charging them *afresh,* when they saw the heavy horses almost weary.

Knolles's History of the Turks.

When once we have attained these ideas, they may be excited *afresh* by the use of words.

Watts's Logick.

Bleat out *afresh* ye hills; ye massy rocks,
Retain the sound: the broad responsive low,
Ye valleys raise; for the great Shepherd reigns,
And his unsuffering kingdom yet will come.

Thomson.

AFRICA.

AFRICA, one of the great divisions, commonly called, 'the four quarters,' of the earth, the third in magnitude and population, is rising in importance, though probably less known to Europeans than any other. It forms an imperfect triangular peninsula, of which the north is the base, and is separated from Europe by the Mediterranean Sea, the eastern side from Asia, by the Isthmus of Suez, the Arabian gulph, and the Indian Ocean, whilst the Atlantic and Pacific wash the west and south. The length of Africa, calculated from Cape Serra to Cape Aguilhas, is about 4320 geographical miles, and its greatest breadth 4140, including an area lying between the 37th degree of north, and the 35th of south latitude, and the 18th degree of west, and 51st of east longitude.

NAME.—The present name of this continent, among the ancients, was exclusively applied to *Africa Propria,* a small province in the northern part. Its origin has been traced by the learned to different sources. Bochart deduces it from the Punic word *feric,* an ear of corn; and supposes it employed to express the great fertility of those parts that were known to the ancients. Others derive it from the Phœnician word *Havarca* or *Avreca,* anciently applied to the country of Barca. Servius derives it from the Greek privative *α* and *φριξη,* cold, considering it to express the great heat of the climate. It has been also, with great probability, traced to the Hebrew 'phreka,' broken off, or separated, describing its geographical figure, as detached from the continent of Asia.

DIVISIONS.—Africa, under the name of Lybia, was divided by the ancients into Africa Propria, and Africa Interior. AFRICA PROPRIA, commonly called the territory of Carthage, had various limits assigned to it. Mela and Ptolemy comprehended in this division, all the kingdoms situated between the river Ampsaga, and the borders of Cyrenaica, inhabited, according to

Pliny, by twenty-six different nations, Numidia and Regio Syrtica inclusive. Its true limits, however, were the river Tusca, or boundary of Numidia on the west; the Mediterranean or African Sea, on the north; the frontiers of Garamantes and the deserts of Libya interior, on the south, with the Lesser Syrtis and the Mediterranean, on the east. This portion of Africa was divided into two great provinces, Regio Zeugitana and Byzacium, with which the summer and winter circuits of the kingdom of Tunis, as exhibited in the travels of Dr. Shaw, nearly correspond. It was remarkable for the ancient lakes Hipponitis, Palus Sisara, Palus Tritonis, Palus Pallas, and Palus Libya; for the famous river Bagrada, and for the contiguous islands of Cossyra, Tarichiæ, Lopadusa, Ægusa, Dracontia, Galatia, Ægimurus, and Larunesiæ. Africa Interior, comprehended those more remote southern countries, little known to the Greeks and Romans, otherwise than by report. 'Libya Interior,' the western point of this division was inhabited by the Hesperian Æthiopians, Nigritæ, Gætuli, and Garamantes; whilst the eastern part was denominated by Ptolemy, 'Æthiopia sub Ægypto,' including several countries, too well known to need any specification. Restricted as the Romans were, both in their conquests and commerce by the tropic of cancer, they acquired scarcely the names of the more retired and southerly kingdoms; whilst with Numidia, Gætulia, and Mauritania, they were more immediately connected.

The modern divisions of Africa, are,

1. *Northern Africa*, a term which best expresses perhaps, the Barbary states and their dependencies, (exclusive of Egypt, which is principally an eastern country of this continent,) includes all that portion of the globe, extending from the great 'Desert of Sahara' to the Mediterranean, and from Egypt to the Atlantic. It is inhabited by different nations, hostile to each other, but being overrun by the Mahommedans during the first æra of their power, has ever since retained the religion, government, and manners, then impressed upon it. The configuration of the deserts S. and E. of this division, have led some historians to imagine that they were formerly covered with sea; and that Barbary, thus rendered insular by the rolling of the wide ocean wave over the deserts east and west of the Atlas, constituted the island of Atlantis, so often mentioned by the ancients. The states of this territory are those of Morocco, Fez, Tafilet, Algiers, Barca, Tunis, Biledulgerid, and Sahara.

2. *Western Africa*, including a spacious territory and many countries, imperfectly known to Europeans, which may be arranged under three divisions. 1. Those lying between the southern limits of Sahara and the mountains of Khong, refreshed by the magnificent streams of the Senegal and Gambia. 2. The coast of Guinea, widening from the heights of Kong to the Equinoctial line. 3. The wide region stretched on both sides of the Zaire or Congo, with the included kingdoms of Congo, Loango, Angola, Metamba, Benguela, &c. extending from the equator to 15° of S. latitude, from which, down as far as the southern promontory, the internal geography is unknown.

3. *Southern Africa*, or Caffraria, is a term given to that division of the African continent which immediately surrounds the Cape of Good Hope, projecting more than 30° south of the equator. On the south-east coast are the kingdoms of Inhambane, Sabia, Manica, Sofala, and Monomotapa, or Mocaranga; but the inhabitants, especially those in the immediate vicinity of the Cape, are very low in point of civilization.

4. *Eastern Africa*, in its approach to the vertex of the peninsula, is much less known than the western coast, being colonized only by the Portuguese. It includes Zanguebar, Ajan, and Adel, with their tributary kingdoms. In the higher regions, the kingdoms of Egypt, Ethiopia, and Abyssinia, are well known.

5. *Central Africa*, stretching on both sides the Niger, almost across the Continent, is an immense tract of country, including the interior of the peninsula; of which, vast regions remain undiscovered. The nations commonly included in this division, are Tombuctoo, Cassina, Houssa, Bornou, Wangara, Darfûr, Bergoo, Asben, Kordofan, &c.

6. A sixth division may include the numerous islands with which Africa is in a manner encircled, lying both in the Atlantic and Pacific oceans. These are commonly arranged in groups, as the Cape de Verd isles, the Canary isles, Porto Santo, and Madeiras. Madagascar is 840 geographical miles in length, and one-fourth that distance in breadth. St. Helena is famous as the late residence of Buonaparte. The St. Matthew, Ascension, and St. Thomas's islands, together with Zanzibar, Pemba, Mauritius, Bourbon, Monifa, and others, are included in this division.

Gulfs and Straits.—The gulfs belonging to Africa, are those of Guinea, Sofala, Sidra, Goletta, France, &c. The straits are those of Gibraltar, Babelmandel, and the Mozambique channel.

Capes.—The capes are those of Good Hope, Bona, Spartel, Gibraltar, Geer, Bojador, Blanc, Verd, Guardafui, and others.

Mountains.—The mountains of Africa run in chains, and are scarcely inferior to any others in the known world. The Atlas mountains, fabled by the ancients to be the pillars of heaven, have in some places an elevation of more than 13,000 feet from the level of the sea, and stretch over more than half the Continent. This, which is the only African range fully explained, has been described by M. Desfontaines as running forward in two grand divisions; of which, the one toward the Desert is called the great Atlas, and the other toward the Mediterranean, the less. Their course is parallel from east to west, and the intervening space broken by hills and mountains, forms a number of deep and beautiful vallies, watered by numerous rivers and streams. The whole range is of primitive granite, and attains its loftiest height towards the western extremity, where it towers above the sultry plain of Morocco; but even there, notwithstanding the heat of the climate, it is covered with perpetual snow. The Mountains of the Moon supposed to ex-

tend across the entire Continent, between the seventh and eleventh degrees of north latitude, must be of still more formidable magnitude, if we may judge of them by their fame throughout the Peninsula, and those mighty rivers, of which they contain the source.

The highest and most celebrated portions, are those immediately south of Abyssinia, and the country of Nigritia. On the opposite side of the Continent, and nearly in the same parallel, are the mountains of Kong, running in a course from west to east, and stretching from near the point of Cape Verd, as far as the meridian of Tombuctoo, where they are supposed to connect themselves with the Mountains of the Moon, and so to form one entire range, reaching across the whole breadth of the African Continent. Abyssinia is almost entirely a country of mountains, intersected by deep and extensive vallies. The southern shores of Africa are also overlooked by lofty mountains. Those of Lupata surround the kingdom of Mocaranga. The Crystal mountains, the kingdoms of Congo, Angola, and Benguela. The numerous and large rivers that water Mozambique on the one side, and Congo on the other, indicate some extensive ranges intervening between these two regions, and accordingly, such have been reputed to exist; but, as they have never been laid down with geographical accuracy, their directions and magnitude appear to be unknown.

Rivers.—The rivers of Africa are numerous and interesting, more remarkable perhaps, than even its mountains, and their course wrapt in deeper mystery. The innumerable and vast streams poured down from the Atlas, and other lofty ranges, are many of them lost in the sands of the desert; others, circumvolving through the unknown interior, at last empty themselves into the ocean.

The Nile is the largest river at present entirely discovered; the source of this celebrated stream, after much speculation, is now satisfactorily ascertained to be the mountains of the Moon, some hundred miles south of Darfûr. The immense mass of waters poured down from those celebrated heights, swelled by large tributary accessions from Abyssinia, forces its way across the sands of Nubia, divides the vale of Egypt, and at last empties into the Mediterranean. It is at first called Bahr el Abiad or White River, and in the sixteenth degree of latitude forms an union with the Bahr el Azrek or Blue River, the latter of which, although mistaken by the Portuguese and other geographers, for the Nile, was well known to the ancients as a mere auxiliary. The whole course of this river is estimated at 2000 miles, abounding with magnificent cataracts, and exercising an unparalleled influence on the ferility of the surrounding country.

The Niger has, however, excited a much deeper feeling of interest among the learned, and seems to be involved in deeper mystery. Its source, as also those of the Senegal and Gambia, is now fixed in the mountains of Kong on the western side of the Continent. The last run in a westerly direction to the ocean, but the Niger directs its course towards the east, and after spreading itself upon the plains of Bambarra, where it receives numerous accessions, rolls down into the depth of interior Africa. Its subsequent course and ultimate issue form the grand problem of modern geography, which neither theory nor experiment has been able to solve. A few unsuccessful efforts at this will be noticed in the historical part of this article. The Zaire or Congo, is the next in interest and importance to those already named, and pours into the ocean so extraordinary a mass of waters, and with such unparalleled impetuosity, that it has been thought by some the long sought termination of the Niger. In consequence of which, an expedition lately sent out into Interior Africa, was directed to ascend the Congo, in the hope of meeting another that was sent in descending the Niger; this however failed. Of the rivers that flow into the Indian Ocean, may be mentioned the Zambeze, the Quillimanci, and the Magdasho, whose source and early flow are involved in equal obscurity. The last two are supposed to arise from the same source as the Nile. With respect to the first, although it has been ascended some hundreds of miles in search of gold, nothing satisfactory has been ascertained.

Deserts.—One of the most striking features of Africa, is the immensity of its deserts. The great desert of Zahara alone reaching from the shores of the Atlantic, to the confines of Egypt; and covering a superficial area of more than 2500 miles in length, by 700 its average breadth. Over this immense world of desolation are scattered numerous oases, of which Fezzan is the most remarkable. These beautiful islands of verdure, rendered doubly delightful from their pointing up from such wide oceans of sand, furnished some of the most happy pictures of the ancients; and formed their Hesperian gardens, the Fortunate islands, and the islands of the Blest. Besides the great desert above mentioned, there are several smaller ones still of very considerable magnitude and *geographical* importance. Some of these lie near the European settlements; and modern travellers have supposed another wide wilderness lying between the eastern and western ranges of mountains, inhabited by a people called Jagas.

To cross these immense deserts is an undertaking attended with great danger and difficulty; hence travellers commonly go in caravans, each consisting of a number of persons seldom fewer than 2000, for the purpose of mutual safety. They travel by means of camels, which are eminently fitted to journey in those dreary regions; and in their route stop at regular stations for refreshment, these are commonly about fifty miles apart, but sometimes much farther. They have no track to direct them; and as the shifting sands soon obliterate any impression, they are guided by the sun and stars, a few rocks of peculiar form, heaps of stones piled up, &c. and so great is the aridity of the climate, that should they miss their calculation, with respect to one of these stations, they frequently perish for want of water. So late as 1805, a whole caravan, consisting of 2000 persons, was lost in consequence of the drying up of a well, on which they depended for a supply. Water is carried

from station to station in skins, by means of camels, the same as other goods. A certain portion of their beasts of burden being set apart for that purpose; the load of a camel is about three or four hundred weight, and the expence of carriage a farthing a mile for every hundred weight.

The heat of the climate arises from its being almost equally intersected by the equator; and is so intense that Mr. Park lying in his hut of reeds in the dry season, could not endure to hold his hand against the hot wind that blew through the crevices, and even the negroes, when the wind blew from E. or N. E. could not bear to touch the ground with their feet; nevertheless, owing to a different elevation and other circumstances, the climate is in some parts agreeable. The southern side of the equator is milder than the north, though at an equal distance; but near the Mediterranean, even the north is not disagreeable to Europeans refreshed as it is by its sea-breezes, and rendered cool by its vicinity to the mountains.

Quadrupeds.—The beasts of Africa are numerous, and are considered amongst the most extraordinary in the world, for strength, size, and ferocity. They reign undisturbed in the vast deserts of this amazing peninsula, fostered by the sultry heat of the climate, which seems more suitable to them than to any other of its productions. The majestic lion roams at large, and there are but few tracts where the traveller is safe from his dreadful incursions. The tiger is seldom seen; but the panther, the leopard, and the hyæna, are almost peculiar to this division of the globe; as is also one species of the rhinoceros, distinguished by two horns on the nose; and one of the elephant, remarkable for a round head, convex forehead, large ears, and only three toes on the hind feet. Baboons, apes, and monkies, leap in myriads through the woods, and many of them grow to an astonishing stature.

The simia troglodytes chimpansè, or ourang-outang, in appearance greatly resembling the human species, commonly running to the height of from five to six feet, is a native of Africa. Crocodiles and hippopotami abound in the rivers; the black bear is a native of Barbary; horses and asses run wild. The zebra and quagga are seen commonly by travellers: and there are no fewer than thirty kinds of antelopes, celebrated for their fleetness and beauty. The great Caffrarian buffalo is very ferocious, and is said to be a species peculiar to Africa. The dromedary is emphatically called 'the ship of the desert;' and is the most useful animal in that part of the world. His large flat hoof, the power of carrying water for himself and his master, together with his great strength to support burdens, render him almost the only animal capable of travelling in the burning sands, and without him, many of these deserts would be totally impassable. The camel dromedary is more lightly formed than the camel, and is used when extraordinary swiftness is required. He will walk fifty miles a day, with ease, and when made to gallop will travel 200 miles for many days in succession, and frequently, in cases of extreme exigence, has been known to travel 300 miles in twenty hours. Dromedaries are trained by the Moors for the purposes of war and plunder. South of the Niger, the ass is commonly employed for travelling; the ground being so irregular and mountainous, that the camel would not be of any service. But elephants are perhaps the most numerous of all the larger animals of Africa: they roam in vast herds, through the forests of the interior, and have been thought a species quite distinct from those of Asia. The inhabitants, when they see an elephant, hunt him down, feast upon his flesh, make sandals of his hide, and sell his teeth to Europeans. Their mode of attacking them is by fire-arms; as soon as they have discharged their pieces at one of them, they fall flat on the ground to avoid the first effects of his resentment; but no sooner is he become faint with the loss of blood, than they rise and make a second discharge, which commonly terminates his life. In some parts of Africa, elephants are caught in pits, in a manner similar to that practised in the island of Ceylon.

Birds.—There have been calculated 642 species of birds, of which nearly 500 are peculiar to Africa; and of eighty-seven genera, six or eight are peculiar. Parrots are generally scarce in Africa; but insectivorous and frugivorous birds are very numerous. The guinea fowl, of which there are three species, is a native. The ostrich commonly rising to the height of six or eight feet, abounds in the sandy deserts, and is remarkable for swiftness. They flock together in large troops, at a distance resembling an army of soldiers, and in swiftness exceed the fleetest horse. The eggs of the ostrich frequently exceed three pounds in weight; and these the bird deposits in the sand to be hatched by the heat of the sun. The didus or dodo, formerly known in some parts of the continent, is supposed to be now entirely extinct, none of the species having been seen for a great length of time.

Insects.—Africa swarms with the most beautiful insects. The migratory locust is the most formidable, marching forth in myriads, and spreading its ravages over the most fertile provinces; they have been known to cover an area of 2000 square miles; and hitherto no means have been able to prevent their progress. The ant is also numerous, building nests, each from ten to twenty feet in height; not only destroying every thing in the houses, but even cutting through the trunks of trees in a few weeks. The tsaltsalya is a dreadful scourge, particularly in Abyssinia. The scorpion is a native: of spiders there are two kinds, the tarantula, which abounds in Barbary; and the tendaraman, a native of Morocco, whose bite is fatal. The great centipede is found in every part of the interior regions.

The conchologist meets innumerable varieties of the most beautiful shells, on the borders of all the coasts and rivers; where are also found many species of zoophytes, in some places constructing reefs and islands of immense magnitude and extent. The guinea worm is frequently met with; and the famous nautilus of the ancients, is found in the African seas.

Reptiles.—Africa is full of reptiles and serpents of every description; of these the larger ones belong to the Python tribe. Crocodiles

abound in the large rivers; but happily for the people, one species of tortoise, called tyrsé, devours the young crocodiles in great numbers, the moment they are hatched. The ouaran of the Nile also, a species of lizard from three to six feet long, greatly venerated by the ancient Egyptians, devours the crocodile's eggs. The boa constrictor is one of the most terrible serpents in Africa, both from its prodigious size, and habits. The haje, which the ancients called aspic, is taught by the Egyptian jugglers to dance; this animal, from its practice of erecting itself on being approached, was adopted by the ancients as the emblem of protection, and sculptured as such on the portals of their temples. The cameleon is a native of Egypt and Barbary.

PLANTS, &c.—The vegetable kingdom opens to the botanist a field untraversed, at present, by the foot of science; containing a beautiful variety of all those plants that charm the eye, and adorn the fair face of nature. The baobab, or calabash tree, exhibits the most extraordinary dimensions. Its height, though commonly reaching sixty or seventy feet, bears no proportion to the trunk. Adanson is said to have found one in the island of Senegal, which measured seventy-four feet in circumference; the branches of which, spreading in all directions, were as large as common trees; thus constituting, of itself, a species of forest. The mangrove, which grows on the banks of rivers, strikes root in its bed, forming a platform above the water, and a little arcade below the stream. The shea, or vegetable butter-tree, is curious and important to the natives; whilst, on the borders of the desert, is found the celebrated lotus tree, the fruit of which, (a farinaceous berry,) when prepared, becomes very nutritious, and equal in taste to the sweetest gingerbread. The flora of Africa is not yet half explored: although it has already added to botany many new and interesting species, a great harvest yet remains in the interior.

MINERALS.—Various metals have been found in Africa, but none of them characteristic, excepting gold. This metal is found on every part of the central mountains, occurs frequently in an alluvial soil, and is also found in the rivers. That which is brought to Egypt, Fez, Algiers, Morocco, &c. is commonly brought from Bambouk, north-west of the Kong mountains. Pure gold is said to be found in veins in the district opposite Madagascar. Africa produces besides the jasper, agate, emerald, topaz, numerous other precious stones. Copper is found in the Western Atlas; also in the adjacent region about Fertit, Abyssinia, Mozambique, Congo, and the mountains beyond the Orange river. Mines of silver are found in the territory of Tunis: iron abounds in Morocco and other places.

INHABITANTS.—Africa is considered to have been first peopled by Ham and his immediate descendants. Mizraim peopled Egypt, (Gen. x. 6, 13.) The Pathrusim, Naphtalim, Casluhim, and Ludim, took possession of other parts, but their relative situations are not accurately known. The Lehabim have been supposed to have settled in Libya; Phut, between Numidia and Libya, along the Mediterranean; and that many of the Canaanites retired into Africa when driven from their own country by Joshua. The Ausei whose chief city was Auza, the Maxyes, and Machlyes, (Libyan nations) the Zaueces, and Zygantes, are supposed all to have been a mixture of the old Libyans and Phœnicians. The Garamautes, Gætuli, Hesperiani, Æthiopians, &c. inhabited the western regions. The Astacuri, Dolopes, Blemmyes, Cadupi, Ichthyophagi, Lotophagi, Elephantophagi, &c. are feigned to have inhabited the southern regions. The present inhabitants of this peninsula are commonly divided into Moors and Negroes. The former supposed to be the descendants of the ancient Arabs, blended with numerous other nations, who have settled in Africa. These have, for the most part, occupied the habitable parts and driven the negroes into the southern regions or beyond the great rivers. The Moors are piratical, treacherous, unsettled, roaming like their ancestors, from place to place; and being superstitious Mahommedans, are generally very hostile to Europeans. The term is, however vaguely applied, since, during the middle ages all the Mahommedans were called Turks and Moors; and all who were not of the former, were considered of the latter. At present the name is chiefly restricted to the inhabitants of the cities of Barbary. Their general character is rudeness and austere superstition. Their towns are gloomy, having narrow streets. Their houses have walls of earth, and are destitute of windows; and even their internal splendour is barbarous. Compared with the Turks, the Moors are generally an inferior race. Jews exist in great numbers in Barbary, where, as they exhibit their peculiarities and political distinctions, they are the objects of derision and contempt. The inhabitants of Egypt are chiefly foreigners. The Copts are of a yellow dusky complexion; the females elegant and interesting. They are said to be the only race descended from the original natives. The proper Arabians chiefly occupy the country districts, residing in tents woven of camels hair and the fibres of the palm; forming a sort of moveable towns and villages. The government is under a sheik and emir, or patriarchal chiefs, tributary to the sovereign of the Moors. The mountains are occupied by independent tribes. The negroes are gentle, hospitable, and affectionate; but, withal, improvident, thievish, and superstitious. They are divided into two classes, Foulahs and Mandingoes. The former hold Mahommedanism, divested of some of its gloomy features, and are esteemed one of the most respectable tribes in Africa. Their original country is situated east of Bambouk, and is denominated Fooladoo; but their principal kingdom is that behind Sierra Leone, of which Temboo is the capital. Amidst all the different tribes and kingdoms occupying this great peninsula, the forms of government are almost infinitely diversified.

AGRICULTURE.—Agriculture and the arts are in a very imperfect state amongst all the native tribes of this continent. In none, with the exception of Whydah, is landed property at all recognized, nor have they the means of applying

the advantages which have resulted from European skill, or even European implements to the cultivation of the earth. The hoe is the only instrument with which the ground is tilled; and Park mentions it as a surprizing instance, no where else seen in Africa, that for a mile round Kirwanny the country was entirely cleared of wood. The labour of cultivating the earth is common to a whole village during two short seasons, seed time, and harvest, when all the inhabitants go out headed by their chief, while their musicians attend and cheer the toil by the conjoined harmony of their different voices and instruments.

Manufactures and Commerce.—Manufactures are in a still less advanced state, the most extensive department of which is cotton cloths, and this is mostly carried on by each family for its own use. Dressing of leather alone, of all African manufactures, forms an article of export to Europe.

Meantime, commerce, except on the coasts of the Mediterranean and Red Sea, has never been in a flourishing state; the west of Africa having nothing but an immeasureable waste of ocean before it, wanted an opposite coast with which to trade. Inland commerce has, however, been more extensive, and has overcome the mightiest obstacles ever presented to mutual communication. Deserts full of shifting sands, where wide desolation seemed fatal to every thing endued with life, are traversed by large and numerous caravans. In these the camel, called 'the ship of the land', is almost exclusively employed; and by his means the commercial Arabs have penetrated even to the depths of Interior Africa.

Caravan Routes.—The number of camels composing a caravan is various, but generally from 500 to 2000. They travel at the rate of three miles an hour, and for six or seven hours in the day, from station to station till they have completed the entire route. The party are supported by the milk of the camel, barley meal, Indian corn, dates, &c.; and on arriving at the different stations commonly remain a few days to recruit their stock of provisions, and refresh themselves and cattle. Without professing to enumerate all the caravan tracts which stretch across the vast deserts of Africa, we shall specify the principal points from which they set out, and some of the places where they stop for refreshment, occasionally making a short stay of two or three days. The points whence they generally set out are three, Morocco, Fezzan, and Egypt. The caravans from Morocco are very large, and proceed to Soudan, or Tombuctoo, chiefly the latter. The principal stations being the rendezvous Akka or Tatta, Tegazza, Taudeny and Arawdu or Arodu. The whole journey occupies 129 days, sixty-five of which are spent in rest. Another route to the same point is by Wedinoon, Cape Bojador, and Gualata, although many travellers prefer directing their course to Bambarra, and the banks of the Senegal. Of late, a negro state has been established on the borders of Morocco, forming a species of entrêpot for the commodities of Soudan, which prevents many Moorish merchants crossing the deserts. Mourzouk, the capital of Fezzan, is a sort of central point for the trade of Interior Africa, and has several caravan routes of considerable importance; one to Cairo which requires about forty days. The halting places being Seivah, Augila, and Temissa; another leads to Bornou, through the deserts of Bilma and Tibesti, a journey of fifteen days. The principal halts of which are Temissa, Dourboo and Kavem. A third leads to Tombuctoo by Gadamis. Its longest, and perhaps most important route, is to Cashna through Héatts, Ganatt and Agades, a journey of sixty days, although the caravan frequently crosses the Niger, and turning westward proceeds over the mountains of Kong to Ashantee. Egypt sends out three caravans for the general rendezvous at Cairo, one to Sennaar, another to Darfûr, and a third to Fezzan; the latter is annual, the two former once in two or three years, The caravan, with which Mr. Browne travelled, consisted of 500 camels, but the number often amounts to as many as 2000.

Internal Commerce.—Salt, the chief article of commerce from North Africa, is an article of luxury in the interior regions, where the inhabitants suck it as children do sweetmeats. It is sold in its rocky state, in slabs of twenty-four feet long, each worth £2 or £2 10*s*. and is exchanged by the caravans for the gold of Nigritia.

Dr. Shaw assures us that the western Moors carry on a trade with the barbarous nations bordering upon the Niger, without ever seeing the persons they trade with. 'They make this journey,' says he, 'in a numerous caravan, carrying along with them coral and glass beads, bracelets of horn, knives, scissars, and such like trinkets. When they arrive at the place appointed, which is on such a day of the moon, they find in the evening several different heaps of gold dust, lying at a small distance from each other, against which the Moors place so many of their trinkets as they judge will be taken in exchange for them. If the Nigritians the next morning approve of the bargain, they take up the trinkets and leave the gold dust, or else make some deductions from the latter. In this manner they transact their business without seeing one another, or without the least instance of dishonesty or perfidiousness.' The antiquity of this custom is at least as high as Herodotus, as appears from the following passage. 'It is their custom,' speaking of the Carthaginians, 'to unload their vessels, and dispose their goods along the shore. This done, they again embark, and make a great smoke from on board. The natives seeing this, come down to the shore, and placing a quantity of gold, by way of exchange for the merchandize, retire. The Carthaginians then land a second time; and if they think the gold equivalent take it and depart, if not they go aboard their vessels again. The inhabitants return and add more till the crews are satisfied. The whole is conducted with the strictest integrity, for neither will the one touch the gold till they have left the value in merchandize, nor the other remove the goods till the Carthaginians have taken the gold.' '*Herod. Melp.* 196.'

The articles furnished for the internal commerce of Africa, are chiefly sashes, silk handkerchiefs, carpets, woollen caps, and leather furnished by the Mediterranean states, gold, ivory, gums, hides, oil, skins, woods, &c. are derived from all parts of the peninsula, together with arms, agricultural implements, and ornaments for the chiefs and the women.

Early Geography.—Little of the geography of this vast section of the earth was known to the ancients, and of what information they had acquired respecting it we are but imperfectly informed. Many voyages made in the early ages were never written; and others have perished in the lapse of time. Geography rose like the morning sun, first breaking through the clouds of the east, and brightening most of all, that division of the hemisphere; but, as it arose, it widened its influence, and seemed to pour its broad sun-beams upon every portion of the world. Early attempts were made to explore the region of Africa, as is evident from facts and evidences recorded in history. Eratosthenes notices the first division of the old world into continents. This began in the islands of the Cyclades, and was, no doubt, intended originally to distinguish between the opposite shores of Greece and Caria. The latter of these, including a small district denominated Asia, has since given its name to that division of the globe. The coast of Lybia was called Africa, or Southland, from its position with respect to Greece. The north coast was known early to the European nations of the north, whose several districts are frequently mentioned in their writings; and along the western coast, discovery proceeded with a more advanced step than on that directly opposite; but all expeditions to effect its circumnavigation are considered to have failed.

Herodotus says, that Necho, king of Egypt, having desisted from his attempt to cut a canal from the Nile to the Arabian Gulph, fitted out an expedition under the direction of Phœnician navigators, to sail round this Continent. Their directions were, to take their course down the Red Sea, to sail down the Southern Ocean, to double the Columns of Hercules, and return by way of the Mediterranean. The navigators are said to have succeeded; but Herodotus himself avows a degree of scepticism, because they said, that having sailed round Lybia, they had the sun on their right hand. Such, however, must have been their actual observation during their voyage down the regions south of the equinoctial line, according to the subsequent demonstrations of astronomy. The great and numerous obstacles they must have encountered in that rude period of navigation, have always rendered the long voyages of the ancients suspicious, especially those which relate to the circumnavigation of Africa. The Portuguese experienced innumerable difficulties in doubling the Cape Bojador, and effected it at last only by means of the compass, which enabled them to stand out to sea: destitute of that instrument, M. Gosselin thinks they never could have succeeded. Huet, (*Commerce et Navigation des Anciens*, 34, 275,) the Abbe Paris, (*Academie des Sciences*, vii. 79,) Montesquie, (*Esprit des Lois*, b. xxi. c. 10,) contend that it was really performed, while Vossius (in his *Notes to Pomponius Mela*,) D'Anville, and others, are very unbelieving. A discussion of the question has taken place between Major Rennell on the one side, and Dr. Vincent and M. Gosselin on the other. In the opinion of the last two gentlemen named, Gibbon, in an essay written upon that subject, appears to concur, viz. that such an expedition exceeds all the means and resources of ancient navigation. Whatever disputants may advance with respect to this voyage, one fact is certain, viz. that Africa was circumnavigated by the Phœnicians, all their discoveries have entirely perished. Subsequent to the attempt of Necho, Sataspes made an attempt to sail round Africa. He was a Persian nobleman, whom Xerxes had condemned to be crucified; but afterwards altered the sentence to that of making a voyage round Africa. He commenced his undertaking, and passed the straits; but sailing for months together down the western coast, and having no prospect before him but immense deserts on the one hand, and a trackless ocean on the other, his courage failed him, and he returned. Eudoxus, a native of Cyzicus, who made the next attempt, procured from surrounding states a pretty large expedition, with a view to the same object, but his intimidated crew, compelling him to keep near the shore, the ship ran aground. He then constructed a new vessel out of the old materials, and set out afresh, but was obliged to return, the vessel being too small to effect any useful purpose. Bocchus, king of Mauritania, afterwards engaged to send him out afresh; but doubting the sincerity of his patron, he retired to Iberia, where he fitted out an expedition superior to the former; but the narrative, which was written by Strabo, closed about the time the expedition sailed, and we have nothing further of its success.

Other voyages were undertaken with nearly the same success. Sixty vessels were sent out by the Carthaginians, containing 30,000 persons, under the conduct of Hanno, for the purposes of the better discovery and colonization of Africa; they doubled the promontory of Lybia, erected the celebrated temple of Neptune, and crossing the bay, came to the great river Lixus, and landed on the island of Cerne, where they planted a colony. They afterwards proceeded along the coast, and saw numerous islands; but discouraged perhaps at the greatness of the undertaking, returned to Cerne. How far they went is not distinctly known. M. Gosselin considers they proceeded along the coast of Morocco, to the river Nun; but Major Rennell thinks they went beyond Sierra Leone, whose mountains are the identical ones which they denominated the Chariot of the gods. Their descriptions correspond with the present features of the coast about the Gambia and Senegal. The Periplus of Hanno, containing the journal of this voyage, has given rise to much learned and elaborate discussion, and was opposed by numerous objections by Dodwell, in the Oxford edition of the Minor Greek Geographers. The authenticity of this celebrated document, is now, nevertheless, acknowledged; and the work itself thought one of the most curious and valuable memoirs of antiquity. As

to the portion of coast sailed over, different opinions are entertained; and upon the detail of the voyage, three different systems have been advanced by Bougainville, Gosselin, and Rennell. The earliest voyages to the east, are those mentioned in Bible history, viz. to Tarshish and Ophir. These evidently extended a considerable distance along the coast of the Indian Ocean. With regard to the interior, remote antiquity is almost silent upon well attested facts of geographical exploration. Herodotus mentions an adventurous journey of five young Nasamonians, who penetrated the great sandy Desert, and were taken by some little dark-coloured men, and carried to a city inhabited by people like themselves. This city is supposed by Rennell to be a city of Central Africa, and a river mentioned by the same author, to have been the river Niger. To the countries watered by the Niger, the knowledge of the ancients was in a great measure confined. A distinction stated by Herodotus between Ethiopians and Africans, appears to correspond with the modern division of Moors and Negroes. He appears to have adopted the error still popular in Africa, viz. that of confounding the Niger with the Nile. He supposed the river just mentioned to have been the western part of the Nile. But by his tracing the Nile four months sail from the lower extremity of Egypt, and considering it as flowing from the south-west, that he was acquainted with the true source of that river, to say the least, is probable. The expedition of two divisions of the army of Cambyses, (to the south and west of Egypt,) the latter of which is supposed to have perished in the desert, constituted the next effort to explore the interior of Africa. Alexander, when at Memphis, visited the temple of Jupiter Ammon, but lost a great part of his troops in the attempt. War and commerce, however, gradually opened a way into these regions. Under the Ptolemies we may suppose many efforts were made, and by the Romans, expeditions were sent under Septimius Flaccus and Julius Maternus, as intimated by Ptolemy, b. i. c. 8. The best ancient description of interior Africa is to be found in Ptolemy. Though unacquainted with the extent of Sahara, and the geographical scite of Nigritia, he has shown himself acquainted with the whole course of the Niger, and the general geography of the African rivers. His description of the Niger is, that it 'joins together Mount Thala and Mount Mandrus,' lib. iv. c. 6. His predecessor, Eratosthenes, who is said to have formed the first regular geographical system, evinced considerable knowledge of the African rivers. His theory respecting the Nile is curious. Placing, in common with Strabo, Mela, and other writers, the southern extremity of Africa, on this side the equator, they supposed beyond the equator a great antichthonos or balancing continent, and convinced that the true source of the Nile must be beyond what they then imagined the limit of the southern extremity of Africa, they placed the source of the Nile in the southern continent, and supposed its early course to be under the ocean till it emerged on the southern shore of Africa. The Arabians have given some little information, which is correct and valuable, with much that is poetic and fabulous. The most copious of their writers is Edrisi. Nubia was little known to him. The Nubians and Egyptians being of different religions, even the merchants of each country, instead of travelling into the territories of the other, brought their commodities to the opposite side of the great cataract; where, as soon as they had landed and made the exchange, they immediately re-embarked. In the absence of this medium, the Arabians opened for themselves another. They had penetrated at a remote period, across the great Desert, to the eastern shores of the Niger; and through the fertility of its banks and the richness of its golden sands, they formed settlements. Emigration and revolution swelled the tide, till, in the course of two centuries, several great Mahommedan kingdoms were established on the Niger. Of these new establishments Ghana or Gana, stood pre-eminent, bordering upon the Wangara, where the overflowings of the Niger impregnated the soil with gold. A regular system of commerce was established with other Mussulman states; and caravans were seen in all directions, traversing the vast expansive deserts. The position of Ulil, described by Edrisi as an island situated in the sea at one day's sail from the mouth of the 'Nile of the negroes,' or Niger, is not positively determined. It is highly probable that this sea must have been an inland lake, which, supposition has extended much to the west of Tombuctoo. East of Gana lay Wangara, the celebrated 'country of gold,' represented by the Arabs as nearly surrounded with the branches of the Nile, by which it is inundated during the rainy season; and as containing two lakes near the cities of Semegonda and Reghehil. The Tocrur, and several other kingdoms being founded, the Arabs extended themselves westward through Barbary. Flourishing settlements were also formed on the coast, colonized by Arabians. These were mostly at Melinda, Monbaza, and Sofala, called commonly the Golden Sofala, Vakvak, or Ouac; Ouac forms here the indistinct limit of knowledge. The Arabians had no idea of the existence of Good Hope Cape. It appears by the curious map of Edrisi, on the contrary, that, like Ptolemy, he extended it to the east till it became conterminous with India and China: hence his placing the island Vakvak in the sea of China, which so perplexes Hartmann.

Subsequent to the flourishing æra of Arabian science, extending from the tenth to the fourteenth century, geographical discovery has been the exclusive boast of Europeans. In the fifteenth century Africa was circumnavigated, its figure was ascertained, its country colonized. The Portuguese one of the most insignificant states of Europe, influenced by curiosity, avarice, and a desire to detect, in the person of a rumoured Christian sovereign on the eastern coast, that real Prester John, whose abode they were most anxious to ascertain, penetrated at the two opposite points of Abyssinia and Congo; but, instead of making fresh discoveries, only darkened and perplexed what had been known before. The Nile for instance, was said to rise in Abyssinia. Abyssinia itself was immensely extended,

even beyond the southern frontier of Congo and Monomotapa. Lake Zambre was placed 2000 miles south of its real position, and made the common source of the Nile, Congo, and Zambezi. The Niger was thought to be a mighty river, emptying itself into the ocean by two mouths, the Gambia and Senegal. It is true they were divided in their opinions; some fixed its source in the lake Dembea; others, in a lake south of Bornou; others thought it one of the branches of Gion, which took its sweep in this direction immediately after it issued from Paradise; but the conjectures were no satisfaction to geographers.

John I. equipped a powerful armament to attack the Moors on the coast of Barbary; and several vessels appointed to precede it, in exploring the western coast, advanced as far as Bojador Cape, but were deterred from attempting to double it, by the tremendous aspect of the sea at that point.

In the year 1415, Don Henry fitted out a vessel, under the command of Gonzalez Zarco, and Tristan Vaz, for the purpose of extending the line of maritime discovery. In this, the expedition failed; but, being driven back by the squalls from their intended course, they fell in with the island since called Porto Santo. In the following year, a fresh expedition under the command of the same persons, deputed to take possession of the island, fell in with Madeira, so called from its being covered with wood; and in 1432, Gilianez, one of the prince's commanders, venturing on a bolder navigation, pushed beyond Bojador in the open sea, and saw the Continent stretching down to the south. From this period the Portuguese continued advancing from place to place, till they had explored the whole line between Cape Blanc, and Cape Verd. At one inlet of the sea, finding a few Moors with a small quantity of gold, they named the place 'Rio d'Oro,' the golden river. The island of Arguin, Cape Verd, Senegal, and Gambia, were shortly after colonized; a settlement was formed at Elmina, on the Gold Coast, the present capital of the Portuguese dominions in Africa; the castle of Mina became the central point of fresh discoveries; and the king assuming the title of 'lord of Guiana,' directed his commanders in future to erect pillars of stone, dignified with the arms and escutcheons of Portugal, accompanied by appropriate inscriptions, to mark the limit of their discoveries.

From Mina was sent Diego Cam, who soon after his departure fell in with a powerful current from the land, which led to the discovery of a river which, from the country through which it flowed, was called the Congo, by the Portuguese, and by the natives the Zaire. Sailing up the river he saw multitudes of black natives, and after having enticed some of them on board, he set sail for Portugal. In a few months he returned, and proceeded along the coast as far as 200 leagues. John II. successor of Alphonso, sent out a large fleet, which after discovering the kingdoms of Benin and Congo, sailed 1500 miles beyond the equinoctial line: in the course of which voyage, negociations were entered into, colonies planted, and forts erected. Covillan and Payna being sent on an embassy to the court of Abyssinia, received orders to explore the Red sea, and the coasts of the Indian Ocean. Bartholomew Diaz was directed to proceed to the southern extremity of the peninsula, and to explore his projected passage to India; and after having discovered a thousand miles of new country, he at length saw the lofty southern promontory he called Cabo Tormentosa, or Storm Cape, which the king from the conviction that it was the prelude to more noble and interesting discoveries, afterwards changed to the Cape of Good Hope. Covillan visited Hindostan, sailed to Sofala, and proceeded northward along the eastern coast of Africa, and the favourable accounts he transmitted from Abyssinia induced the king once more to fit out a powerful squadron under the command of Vasquez de Gama. To this and the preceding voyage, is ascribed the discovery of the real form of the African continent.

Interior Africa.—During all these important discoveries, the interior was little known, the peninsula being chiefly visited for the purpose of procuring slaves; but in the eighteenth century, the French penetrated into the interior. Claude Jannequin in 1637, represented himself as having ascended the Senegal seventy leagues. Queen Elizabeth granted a patent to certain merchants of Exeter, enabling them to carry on trade with the Senegal and Gambia. The latter created at the time a little jealousy with the Portuguese.

In the seventeenth century a report of the extreme riches of Africa, induced a number of English gentlemen to form themselves into a company, for the purposes of exploration and commerce. Several voyages were accordingly undertaken, in one of which, made by Jobson in 1620, an African king made a cession of Tendo and its vicinity for some bottles of brandy. Captain Stubbs went out by request of the Royal African Company, to ascend the Gambia, and ascertain the truth of the reports respecting the great quantity of gold found there. Other expeditions followed; but little information was brought to England till the deputation of Mungo Park of whom we shall speak hereafter.

African Institution.—In 1788, was formed the African Institution, and Ledyard was deputed to that great continent, to ascertain if possible the geography of Interior Africa. He was of an enterprising spirit, had sailed round the world with Captain Cook, had formed the design of crossing the continent of America from the Atlantic to the Pacific; and having laid down a plan for travelling by land to Kamschatka, had proceeded by Denmark and the Sound to Stockholm, and attempted to cross the Gulph of Bothnia, the middle of which being unfrozen he was prevented. His expedition to Africa produced much valuable knowledge respecting Egypt, and would no doubt have been equally successful in the central regions, but the delay of caravans, together with other difficulties and disappointments, operated so on his mind as to produce a bilious fever, of which he died.

Mr. Lucas, who was afterwards deputed by the same society, resided three years in Morocco, but made very little progress in the object of his mission; and Major Houghton, the next geographical missionary, was alike unfortunate.

About this time the society turned their attention to the celebrated Mungo Park, a native of Scotland. He had been educated for the medical profession, and was all that the society could have desired. He sailed from Portsmouth, on the 22d of May, 1795, and reached Jillifree, on the Gambia, on the 21st of June, where he devoted himself to the study of the Mandingo language, in the house of Dr. Laidley, of Pisania; and at the commencement of the dry season, 2d of December, 1795, proceeded towards the interior. He advanced into the kingdom of Walli, and on the 5th, reached Medina, the capital. The chief earnestly prayed him not to attempt so dangerous an expedition; but, nevertheless, offered him a guide if he resolved to proceed. On the 11th, he reached the frontier town of Woolli, and hired three elephant hunters as companions through the wilderness. On the 18th, he reached Tallika, the frontier town of Bondou, and found an open fertile country, reaching to Koorkarany, in latitude 13°, 53′, north. On the 21st, he reached Fatteconda, the capital of Bondou, where he conversed with the very king who ordered the plunder of Major Houghton, and presented to him the blue coat which he wore, for which he received in return, five drachms of gold. The ladies of the seraglio derided the whiteness of his skin and the prominence of his nose; and he complimented them on the glossy jet of their skins, and the lovely depression of their noses. On the 24th he reached Joag, the frontier town of Kajaaga. The house of the judge in which he slept, was, shortly after his arrival, surrounded by horsemen, who demanded duties for the king, which they said he ought to have paid on entering the kingdom, and having helped themselves to about half his property, departed. Shortly afterwards, he arrived at Teessee, where he was plundered of half his remaining property by his friend Demba. At Kooniary, the capital, N. lat. 14°, 34′, and fifty-nine and a half geographical miles east of Joag, he was favourably received by the king, and afterwards proceeded through Ludamar, and on the 27th of February, arrived at Deena. From this place he proceeded to Sampaka, and thence to Dalli and Goomba, where he was seized by a party of Moors, whom Ali ordered to convey him to Benown, that his wife Fatima might see a white man. At the latter place, he was treated with great brutality; the people shut him up with a wild hog, and amused themselves with worrying and teazing him. They examined very curiously, his person and his clothes: some of them proposed putting him to death. The king's brother proposed putting out his eyes, which he said resembled those of a cat: the queen alone compassionated his distress, and sent him provisions; at length however he effected his escape, and the next day arrived at Foulah, and on the 5th of July, at Wawra beyond Ludamar, and the kingdom of Ali. From this place he went to Dingyee, then to Moorja, and on the 21st, reached Sego, where he saw the long sought Niger, as broad as the Thames at Westminster, rolling its magnificent stream from west to east; its banks crowned with the four townships which compose the city, including a population of 30,000 people. The king would not allow his entrance into the city; but a poor woman took him to her hut and treated him with great kindness; she and her daughters sung an extempore song on the occasion: 'The winds roared and the rains fell, the poor white man faint and weary sat under our tree; he has no mother to bring him milk, no wife to grind him corn.'—Chorus, 'let us pity the poor white man: no mother has he.' The next day, Park was presented with 5000 cowries, 250 of which are worth one shilling, and ordered to quit the vicinity.

Africa has supplied many striking proofs of female kindness and hospitality. Ledyard's 'Praise of Women,' is well known to have been derived from facts that occurred in his African journeys. Mr. Park's testimony was equally decided on this subject. The above simple expressions of kindness to a stranger have been formed into verse by the late duchess of Devonshire, and set to music by Ferrari; the song is as follows:

I.

The loud wind roar'd, the rain fell fast;
The white man yielded to the blast;
He sat him down, beneath our tree;
For weary, sad, and faint was he:
And ah! no wife or mother's care,
For him, the milk or corn prepare:

CHORUS.

The white man shall our pity share:
Alas! no wife no mother's care,
For him the milk or corn prepare.

II.

The storm is o'er; the tempest past:
And mercy's voice has hush'd the blast;
The wind is heard in whispers low,
The white man far away must go:—
But ever in his heart will bear
Remembrance of the negro's care.

CHORUS.

Go, white man, go;—but with thee bear
The negro's wish, the negro's pray'r:
Remembrance of the negro's care.

Leaving Sego, he then advanced to Sansanding, containing 10,000 inhabitants; thence to Sibili, Negara, Nyaneebo, Modiboo, Kea, and thence in a canoe to Moorzan; after which, he crossed the Niger to Silla, nearly 1100 miles east of Cape Verd. Here, being exposed to violent tropical rains, and finding his advance would be attended with imminent peril, he returned by the same route, and after innumerable difficulties and privations, arrived at Pisania. In one part of his journey, he was robbed and stripped of his clothes, and left alone in the wilderness, in

the heavy rainy season, almost 500 miles distant from the nearest European settlement. The king of Bambarra had also sent a canoe in pursuit of him, to bring him back to Sego. He nevertheless cheered up his spirits, and proceeded through swamps, bogs, and marshes; sometimes swimming over creeks with his horse's bridle between his teeth, and his papers in his hat, and frequently subsisting on nothing else but the corn intended for his horse. This was, however, an important journey, during which, he fixed the boundaries of the Negroes and Moors; traced the resources of the Senegal, Gambia, and Niger; confirmed the ancient accounts relative to the course of the last river, illustrated the history of the ancient Lotophagi, the mode of propagating the Mahommedan religion by proselytism, and established a number of geographical positions in a direct line of 1100 miles from Cape Verd.

About this time Mr. Browne entered Darfûr, with a view of crossing the entire continent from east to west; but he could not proceed, and all his effects were seized for the use of the sultan. He nevertheless learned while at Darfûr, that the sources of the White river, Bahr el Abiad, or Western Nile, are forty hills called Kumbri, or the Mountains of the Moon, that the stream flows north-west, exactly coinciding with the Gir of Ptolemy, and Nile of the Negroes; that Azran west of Bornou, abounds with silver, the inhabitants having literally such an abundance of that metal, as to apply it to the most common purposes.

Dr. Blumenbach, in 1795, recommended to the African society, a person well qualified to undertake another expedition into Africa. He was the son of a clergyman, and had studied divinity at the university of Gottingen. Such was the recommendation, that Sir Joseph Banks in making a reply, said, if Mr. Horneman is the person you describe, he is the identical person we are in pursuit of. In one night he laid out the plan of his entire journey, and after studying the oriental languages, in 1796 he went to London in the February of the following year, and immediately embarking, arrived on the 10th of September, in the bay of Caroubé; and taking with him from Alexandria, an aged monk who spoke Arabic, went to Cairo, where he studied the language of the Western Arabs. Buonaparte, who had just landed in Egypt, offering him every assistance, he set off with a caravan, on the 5th of September, and arrived shortly after at the borders of the Libyan desert, passed Ummesogeir, and came to Siwah, where he saw the ruined temple of Jupiter Ammon. He proceeded from this station to the territory of Fezzan, 300 miles in length, and 200 in breadth; here he visited Tripoli; and in a letter addressed to the society, intimated that he was about to proceed in a caravan for Bornou; but unhappily this was the last intelligence they ever heard respecting him.

Next to him the society sent out Mr. Nicholls, whose career terminated fatally; and a young German deputed as his successor, shared the same fate.

Burckhardt, a Swiss, came to London at about this time, on a similar recommendation from Gottingen, and proceeded on the 2nd of March, 1809, to Aleppo. In Syria, he devoted himself to the attainment of an intimate acquaintance with the Arabic language and manners, visited Palmyra, and Baalbec, returned to Cairo through Arabia Petræa, and across the great desert of El Ty. He afterwards made excursions to Mecca and Medina, obtaining a full account of the powerful Mahommedan sect of Wahabees; and to Mount Sinai, and the deserts passed by the Israelites in their journey from Egypt. Here studies and travels occupied him until the summer of 1817; and his papers, which have not yet been published, are spoken of highly by Mr. Salt, who gives an interesting account of his death, at Cairo, of a dysentery, in October of that year.

Mungo Park was shortly after sent out by government with an expedition; and accordingly departed from Pisania, the 4th of the following May, and reached Medina on the 11th, from which point he shortly after entered the woods of Simbani. Having crossed the woods, they approached the Gambia, 100 yards in breadth, entered the Tenda wilderness, and crossed Falemé, where they were overtaken by a tornado. The ground was shortly covered with water three inches deep, and half the men were sick. They ascended the neighbouring hill with great difficulty, the natives following and plundering them all the time; but when they reached the top, they found a serene atmosphere, and a sweep of prospect highly grand and romantic. Departing from this place they reached Kemmoon, or Maniakarro, the best fortified town on the continent; on the 19th, crossing the Ba Woollina, they came to Bangassi, four or five times the extent of Maniakorro; and shortly having ascended a ridge of mountains, they beheld the Niger rolling its vast stream along the plain nearly two miles in breadth.

Two days afterwards, he obtained a canoe for present convenience, and embarked with Mr. Anderson on the way to Sego through Bambarra. He received permission to build his boat any where in the country, and assurances of protection. While he remained at Sansanding, collecting intelligence, and building a vessel, his friend and relative Mr. Anderson, died; and his whole party consisted, at that time, of only four Europeans. Still, in writing to Lord Camden, his spirits seemed as ardent as ever; 'I shall set sail,' says he, 'for the east, with the fixed resolution to discover the termination of the Niger, or perish in the attempt;' and perish he did. In consequence, however, of the uncertain rumours that agitated the public mind respecting him, lieutenant colonel Maxwell, then governor of Senegal, obtained permission from government to engage a proper person to institute an enquiry into the probability of Mr. Park's death. By this means he learnt that from Sansanding, our traveller went to Silla, and thence proceeded with his party, nine in number, towards Ginne: but as they passed Sibbie, or Dibbie, they were attacked by three canoes full of armed men, which they repulsed. Afterwards they had to oppose sixty canoes, after defeating which, they passed Kaffau and Gourman, where they suf-

plied themselves with provisions, and entered the kingdom of Haoussa; but the king having learnt that the white men left without giving presents, sent an army to oppose them at a village called Boussa, situated on a rock, in which there was a large opening that admitted the water to pass in a strong current; in this place, therefore, Mr. Park, on his attempting to pass, was attacked with arrows and lances; and after fighting for some time, overpowered with numbers, and unable to keep up the canoe against the current, Mr. Park, and a Mr. Martyn, leaped into the water, to escape by crossing the stream, but were drowned in the attempt. This journey was full of adventures, and the unhappy manner in which it terminated will be long remembered.

Tombuctoo had long excited the attention of modern travellers, none of whom had been able to give any accurate description of it. Some interesting intelligence of it was about this time obtained by means of an American sailor. The American ship, Charles, on a voyage to the south of Africa, was wrecked near El Gazie, south of Cape Blanco, and the crew swam safe to land, but were shortly surrounded by Moors, stripped naked, and carried to the east, forty day's journey, as far as the village of Soudenny, north of Bambarra; whence they were afterwards sent as slaves to Tombuctoo. A sailor of the name of Adams was taken as a curiosity to the palace, where he was well treated, and had every opportunity of enquiry. He thought the city about the size of Lisbon, although the houses were more scattered. The palace stands in a square of half an acre, encompassed by a mud wall. The houses of the higher classes are built with wood; those of the lower orders with branches of trees overlaid with the palmetto, and covered with earth. It seemed altogether a negro city, from which Moors seemed to be excluded. The government is despotic but mildly administered, the chief punishment being slavery. The people can neither read nor write, but keep their accounts by notching sticks, &c. Marriage is performed in a very simple manner; concubines are kept, and illicit intercourse prevalent among all classes. They hunt slaves once a month; and exchange slaves, gold-dust, and ivory, with the Moors for tobacco, tar, nankeens, and other articles. About 200 yards S. E. of the town, flows a river called La mar Zarah, three quarters of a mile wide. Such are the general statements of this American sailor.

Mr. Jackson also gives a description of Tombuctoo, as he derived it from native Africans; but he has evidently committed a perfect anachronism in stating, that, in 1800 it was subject to Woolo king of Bambarra; since it appears from Park, that in 1796, and also in 1805 the king of Bambarra was Mansong, and Tombuctoo was independent. Isaden's journal, noticed by the editor, it is true, mentions that Woolo, predecessor to Mansong, was a celebrated warrior; so that it is not unlikely that at a certain period he might have possessed the sovereignty; still this could not have been in 1800. The same gentleman also mentions an excellent police, managed by a divan of twelve Alemma, subject to an election every three years. He mentions the countries of Lamlam, and Melli, in the geographical scite assigned them by the Arabs, and not in the position fixed by Leo. These countries are said to be inhabited by one of the lost tribes of Israel, who fled from the arms of the Saracens.

With respect to the Niger, Mr. Jackson seem of opinion that it loses itself in an inland lake, or sea, in the interior of Africa. He states that fifteen day's journey east of Tombuctoo, there is an immense lake, called the Bahar, or sea of Soudan, inhabited by a race of people who navigate it with large decked vessels, containing from 100 to 150 men. Mr. Park received no intelligence of any lake beyond the Dibbie during his first journey; but in his second journey obtained the following intelligence at Sansanding: 'One month's journey S. of Baedoo, through the kingdom of Gotto, will bring the traveller to the country of the Christians, who have their houses on the banks of the Ba Sea Feena, which is incomparably larger than the Dibbie, and flows sometimes one way, and sometimes another.' Now from Sansanding to Silla two days, thence to Tombuctoo fourteen, thence to the sea of Sandan fifteen, makes up Park's month, being in all thirty-one days. Amidst all the opinions at present given respecting the termination of this river, none appear satisfactory. Some have supposed it to enter the Nile, others the sea of Sandan. The Congo, the Atlantic, Sands, Absorption, have been alike assigned, as the solution of the mysterious problem. Sidi Hamet, in Riley's Narrative of his Captivity, gives some interesting observations respecting the eastern part of this river. The above gentleman visited Tombuctoo; and while he remained there, the shegan, or king of the state sent a caravan to the city of Wassanah, and compelled him to accompany it. The journey was fifty-seven days to the south east; sometimes on the banks, and at others in sight of the river in question, which about 1140 miles opposite Wassanah is called Zadi, and is so broad that a man can scarcely be seen on the opposite bank. 'The king's brother told one of my Mooselmin companions,' says he, that, 'he was going to set out in a few days, with sixty boats to carry 500 slaves down the river, first to the southward, and then to the westward, where they should come to the great water, and sell them to pale people, who came there in great boats, and brought muskets, and powder, and tobacco, and blue cloth, and knives, &c. He said it was a great way, and would take him three moons to get there, and he should be gone twenty moons before he could get back by land, but should be rich.' 'We saw,' he continues, 'a great many of these people who had been down the river, to see the great water, with slaves, teeth, &c. They said the pale people lived in great boats, and had guns as big as their bodies, that made a noise like thunder, and would kill all the people in a hundred negro boats, if they went too near them.

Since the spirit of African exploration has been excited, and so effectively patronised by government, many valuable accessions have been made annually to our knowledge of this continent. The adventures of Riley, who, after encountering

a series of hardships, penetrated to Tombuctoo, confirmed the previous intimations of Adams respecting that place and its inhabitants; but are, from his total illiterateness, necessarily defective in all scientific information.

In 1816, Captain Tuckey sailed on an expedition to the Congo, but unhappily perished with most of his party, after ascending that river considerably beyond the first rapids. The general information which the survivors brought home, may be thus stated.—This river commences about Point Padran, and runs to Inga, about forty miles distant; its breadth at that place not exceeding 400 yards. It afterwards leaves the mountains, and expands to the breadth of from two to four miles, around which the kingdom of Congo extends itself indefinitely; and is divided into chenooships, or petty states, held under some personage, real or fabulous, supposed to be in the interior. The population increases as the traveller advances towards the central regions: vegetables and fruits are both numerous and excellent, the winter being as mild here as the spring in Italy. The inhabitants are said to be the lowest of the Negro class; distinguished, on the male side by indolence, on the female, by degradation. The component parts of a tribe are, first, the chenoo, or chief; second, the branches of his family; third, mafooks, or collectors of taxes; fourth, foomos, who are the yeomanry, having houses and land of their own; fifth, fishermen, and the labouring classes. The saleable slaves are those taken in war, or kidnapped in the interior. Every man has a charm or *fetiche*, which he carries with him, as a horn, a hoof, a shell, &c. as a protection from lions, alligators, thunder, &c. The chief crimes are poisoning and adultery.

Major Peddie commanded a military expedition, which started from Senegal in October, 1816; but this gentleman died at Kacundy, on the river Nunez, and Lieutenant Campbell succeeded to the command, who proceeded up the country, by the head of the Rio Nunez, to a place called Pangettoe, on the road to Labay and Teembo, a hundred and fifty miles beyond Kacundy. Here he was detained for three months, in consequence of a war between the foulahs, (whose chiefs would not allow him to proceed,) and a neighbouring tribe. His horses, camels, and the greatest part of his asses, being lost at this place, our traveller felt disheartened at the prospect of proceeding; and returning to Kacundy, is said to have died there of a broken heart.

In April 1817, the African company dispatched a party, consisting of Mr. James, Mr. Hutchinson, Mr. Bowditch, and Mr. Tedlie, with other persons, amounting in the whole to 130, consisting chiefly of natives of Cape Coast, to Coomassie, the capital of Ashantee. Their route was through Annamaboe, Abrah, and the Fantee territory. A formal treaty of perpetual 'peace and harmony' was made between Sai Tootoo Quamina, king of Ashantee and its dependencies; Boïtinnee Quama, king of Dwabin and its dependencies, (his intimate ally;) and the British government; a resident was left at Coomassie; and both the kings agreed to send their sons to Cape Coast castle for education. The conductor of this mission, T. E. Bowditch, Esq. has given the world an ample account of 'Ashantee, with Geographical notices of other parts of the interior of Africa,' in one vol. 4to. price 3*l.* 3*s.* which is now before us.

Ashantee, according to the information thus obtained, extends beyond the kingdoms of Fantee, Akim, Assin, and Wassaw, from about 0°, 45′. to 3°, 0′ W. long.; and from about 7°, 20′. to 6°, 8′ N. lat.; commanding a population of one million, and including an area of about 14,000 square miles. The line of Ashantee authority on the Gold Coast, is marked from the Assinee to the Volta, including the once powerful state of Aguamboo. The capital, Coomassie, stands in N. lat. 6°, 30′., and W. long. 2°, 0′. and contains about 50,000 regular inhabitants. It has daily markets, which are well supplied with provisions; and regular streets, named after the European manner, from fifty to a hundred yards wide, and from half to three quarters of a mile long. See ASHANTEE.

In the latter end of the year 1818, Mr. Ritchie, accompanied by Captain G. F. Lyon, arrived at Tripoli, for the purpose of proceeding from that place into the interior of Northern Africa, under the protection of the Bey of Fezzan. The party took a preparatory journey, (until the Bey was prepared to proceed to Benioleed,) over the Gharian mountains. Captain Lyon, on this occasion, assumed the dress, and endeavoured in every way to qualify himself for passing as a good Mussulman. He even ventured into the streets of Tripoli in his new character, and on occasion of a solemn Mahommedan procession, when no person of another religion can with safety show himself. In March 1819, Mukni Bey, with a caravan of about 200 men, and camels, were ready to depart for the interior; and again arriving at Benioleed, Captain Lyon had the honour of an introduction to the wife of Sheik Barood, a chief manager of the Bey's affairs. She had the reputation of being the most beautiful woman in this part of Africa. Captain Lyon found her so fat that she could scarcely walk, and gives the following account of her appearance.

'On my entrance, she so veiled herself as to exhibit to advantage her arm, with all its gay ornaments; and on my requesting to be favoured with a view of her face, she, with very little reluctance, gratified me. Her chin, the tip of her nose, and the space between her eyebrows, were marked with black lines; she was much rouged, her neck, arms, and legs, were covered with tattooed flowers, open hands, circles, the names of God, and of her numerous male friends. She had a multitude of gold ear-rings and ornaments, set with very bad and counterfeit jewels, and weighing altogether, I should think, two or three pounds. Her shirt was of striped silk; and she had a rich purple silk barracan, or mantle, gracefully thrown round her, and fastened at the breast by a gold pin, with ornaments of the same metal suspended from it: all the other articles of finery which she possessed were displayed round the tent, whilst a multitude of poor ill wretches, resembling witches, sat round her in

astonishment, never having in their lives seen such a paragon of perfection. Like all other Arabs, they touched whatever pleased them most; one admiring this object, another something near it, so that our poor belle was sometimes poked by a dozen fingers at once; all, however, agreeing on one point, that she was beautifully and excessively fat; and, I must say, I never before beheld such a monstrous mass of human flesh. One of her legs, of enormous size, was uncovered as high as the calf, and every one pressed it, admiring its solidity, and praising God for blessing them with such a sight. I was received most graciously, and invited to sit close to her, when one of the first questions she asked me was, if in my country the ladies were as fat and handsome as herself. For the plumpness of my countrywomen, I owned, with shame, that I never had seen one possessed of half such an admirable rotundity, which she took as a great compliment; but I did not attempt to carry the comparison farther, though she was really very handsome in face and features. She amused herself, while speaking, with playing on a kind of drum made of clay, called derbooka, by beating with one hand, and playing with the fingers of the other; and perceiving that I was amused by it, she ordered an old man to get up and dance. The females sang and clapped their hands in good time, and the dancer went through a variety of figures, all equally indelicate. A woman then succeeded him, and in this respect quite threw him into the shade; but as I knew it to be the general mode of dancing in this part of Barbary, I of course applauded it. Lilla Fatma herself then thought proper to honour us with a few graceful attitudes in the same style; but Mr. Ritchie's entrance into the tent soon put a stop to the exhibition, and the ceremony of veiling took place in the same manner as before.'—p. 62.

Their advance was now into a dreary country, and on the frontier of Fezzan they experienced one of those dreadful eastern storms called the sirocco, of which our traveller observes, that in addition to their excessive heat and dryness, they are so impregnated with sand, that the air is darkened by it, the sky appears of a dusky yellow, and the sun is barely perceptible. The eyes become red, swelled, and inflamed; the lips and skin, parched and chopped; whilst severe pains in the chest are very generally felt, in consequence of the quantities of sand unavoidably inhaled.

The country of Fezzan is, for the greater part a vast desert, extending from about 30°, 30′. to 24°, north latitude; and from 13° to 20°, east longitude; being about 450 miles in length, by 370 broad, and containing a population of about 75,000 souls; of which Mourzouk, the capital, contains 2500. It stands in latitude, 25° 54′ north; longitude, 15° 52′ east; and, is surrounded by walls of mud, about 15 feet in height, having round buttresses, with loop-holes for musketry, rudely constructed. There are seven gates, four of which are built up in order to prevent the people from escaping when required to pay their taxes; and the other three are guarded. The houses are mostly of one story; and those of the poorer classes, have no other light than they receive from the doors, which are so low as to require stooping nearly double to enter them. The streets are narrow; but there are many open spaces. The castle, compared with the other buildings, may be called immense, rising to the height of eighty or ninety feet, with battlements on the walls, which at the foundation are fifty or sixty feet in thickness. The rooms are small and mean; the best of them are occupied by the women, of whom the number may be from fifty to sixty, half a dozen of which are considered superior to the rest. They are watched by five eunuchs, who have the privilege of beating them, if necessary, to support their authority.

The burying-places are without their walls; but many of the graves are so little below the surface, that in a strong wind the sand is dispersed, and the bodies exposed; such, however, is the dryness of the air, that no bad smell or putridity ensues. Within the town are sixteen mosques; some of them, however, are very small. The Cadi is the head of the whole, but each has its own imaum; captain Lyon thus describes the dress of the Fezzan ladies.

'The dress of the women here differs materially from that of the Moorish females, and their appearance and smell are far from being agreeable: they plait their hair in thick bobbins, which hang over their foreheads, nearly as low down as the eyebrows, and are there joined at the bottom, as far round to each side as the temples. The hair is so profusely oiled, that it drops down over the face and clothes; this is dried up by sprinkling it with plenty of a preparation made of a plant resembling wild lavender, cloves, and one or two more spices, pounded into powder, and called Atrïa; it forms a brown, dirty looking paste, and, combined with perspiration and the flying sand, becomes in a few days far from savoury in appearance or odour. The back hair is less disgusting, as it is plaited into a long tress on each side, and is brought to hang over the shoulders; from these tresses, ornaments of silver or coral are suspended. Black wool is frequently worked in with these back locks, to make them appear longer. In the centre of the forehead, an ornament of coral or beads is placed, hanging down to the depth of an inch or two. A woollen handkerchief is fastened on the back of the head; it falls over behind, and is tied by a leather strap under the chin. Each ear is perforated for as many rings as the woman possesses, some wear even six on one side; the largest, which is about five inches in diameter, hanging lowest, supported by a string from the head. Round the neck, a tight flat collar of beads, arranged in fancy patterns, is worn with coral necklaces, and sometimes a broad gold plate immediately in front. A large blue shirt is generally worn, the collar and breast ornamented with needle-work: the women also wear white shirts, and striped silk ones, called shāmi, which are brought from Egypt;—a jereed and red slippers complete their dress.'—p. 170, 171.

On the 20th of November, Mr. Ritchie died at Mourzouk, after a protracted illness; and captain Lyon, and his only companion Belford, were in an extremely weak state. 'And now for the

first time,' says captain Lyon, 'in all our distresses, my hopes did indeed fail me. At daylight I went out and informed our kind friends, Yussuf, and Hadje Mahmoud, of our misfortunes; at which, they were much affected, and offered us all the assistance in their power. Belford, as well as he was able, hastened to form a rough coffin out of our chests; and, a sad and painful task it was. The washers of the dead came to us to perform their melancholy office, and Mr. Ritchie's body was washed, perfumed, and rubbed with camphor; and I procured some fine linen, with which the grave-clothes were made. During our preparations for the burial, the women, who are always hired to cry at the death of persons whose friends are able to pay them, proposed to perform that disgusting office in our house; but I would not allow it, and very unceremoniously shut the door against them. While I was out of sight, either our servant, or some of our officious visitors, stole several of our effects, and I clearly saw that we were now considered as lawful plunder. The coffin being completed, I hired men to carry it with ropes, but one of them having suddenly gone away, poor Belford was obliged to take his place; when, attended by our small party of Mamelukes, we proceeded at a quick pace to the grave, at about ten o'clock. The clay below the sand was white, which was considered as a good omen; and, Belford and myself threw the first earth into the grave. During the night we had, unknown to the people, read our protestant burial-service over the body: and now publicly recited the first chapter of the Koran, which the most serious Christian would consider as a beautiful, and applicable prayer, on such an occasion.'

When recovered a little from the effects of this dispiriting scene and his own illness, Captain L. proceeded under protection of the sultan's taskera or order, on his journey southward; and passed through Traghan and Zuela to the eastward. The springs at the former place, Captain Lyon says, are the pride of Fezzan. They consisted of four ponds of brackish water, each thirty or forty feet in diameter, covered with a green crust, and swarming with frogs. Near Zuela, Captain Lyon observed a blacksmith burning the side of a patient with a red hot iron for the cure of the liver. Our travellers reached Gatrone or Kattron, on the 30th of December; and on the 2d of January, arrived at Tegerry, which has a ruined mud castle, surrounded by several pools of stagnant water. It stands in latitude 24° 4′ N. being situated on the borders of the great Desert, is a sort of resting-place for all the caravans from Soudan, Bornou, and Waday; and was once, in consequence, a flourishing place. The inhabitants here were found to speak the language of Bornou: and here terminated Captain Lyon's travels southward. He was himself much exhausted by the climate, and Belford had fallen from his camel from excessive weakness.

At Mourzouk, Captain Lyon availed himself of the constant arrival of caravans from other parts of northern Africa, to obtain many notices respecting the countries to the southward and eastward, which singularly agree with the information collected by Horneman, Burckhardt, &c. There was almost an unanimity among the natives respecting the identity of the Niger and the Egyptian Nile. He thus sums up the information he obtained on this subject:

'The Nil, Goulbi, Joliba or Kattagum, runs from Tombuctoo, through Melli, in the country of the Fellata; thence to Kebbi, which is three days north of Nooffy: past this place or country, it runs to Yaowri, which is seven days east; from thence to Fendah, a Fellata country, S.W. of Kashna, which latter kingdom it passes at thirteen days south of the capital. It again makes its appearance at Kattagum, four days W. S. W. of the capital of Bornou, where it runs into a lake, called the Tsaad. Beyond this lake, a large river runs through Baghermee, and is called the Gambarro and Kamadakoo; the word Nil being also used for the same stream. Thus far are we able to trace the Nil, and all other accounts are merely conjectural. All agree, however, that, by one route or other, these waters join the great Nile of Egypt, to the southward of Dongola.'—p. 148.

Coffles or caravans, conducting slaves from the interior, are frequently seen at Mourzouk. One of them conducting 1400 slaves, the greater part females, entered the place during Captain L.'s stay. They are said to remain here for some time to be fattened, when they are said to be sent off for Tripoli, Benghazi, and Egypt: thus marching about for 1800 or 2000 miles before they can be settled, and frequently passing through the hands of eight or ten masters, most of whom refuse to consider them as human beings. Yet, says Captain Lyon,

'In justice to the poor unenlightened creatures whom they make their prey, I must say that I never witnessed such innocence, tenderness, and mildness as most of them evince when brought to Mourzouk, particularly at the death of any of their companions in adversity. On these occasions, they do not, like their persecutors, scream and make an insincere wailing; but sit silent and in tears, and often refuse to take their little allowance of food. Should one of the females fall sick, the others nurse, feed, comfort, and very often give up the whole of their scanty meal to the sufferer. I speak merely of the women, for the men are not blessed with very kind hearts; and it would be considered by them as disgraceful to betray any soft and tender feeling. Should a woman have an infant belonging to her, each of her companions in turn will carry and endeavour to amuse it. The women very seldom become sullen, and are lively without being at all boisterous or noisy; they are clean in their persons, very fond of ornaments, tractable, and easily taught; but in acquiring knowledge they unfortunately lose much of their native simplicity.'—p. 140.

Our traveller describes the young Tibboo girls as of light and elegant forms, with expressive eyes, aquiline noses, fine teeth, and lips like those of Europeans; the colour of their skin is of the brightest black; their gait graceful and elegant; their feet and ankles are delicately formed, and ornamented generally with copper or silver

anklets and neat red slippers. Their hair is plaited in a peculiar manner, and decorated with gold, silver, coral, agates, cowries, &c. according to the taste and ability of the wearer. They are fond of dancing, and sing and keep time remarkably well; some of their dances are not unlike those of the ancient Greeks. The men have intelligent countenances; are very active, but too slight in their make to be much esteemed as slaves, being unable to perform hard labour. These people are distributed over Bornou, Waday, Borgoo, and Bhagarmie, and many of them live in a free state in the southern parts of Fezzan: numerous camels, horned cattle, asses, sheep, and goats, are found amongst those to the eastward.

Major Laing, who in the former part of the year 1822, penetrated into Africa, from Sierra Leone, as far as Soolimana, has published an interesting volume of travels. This gentleman describes the Timannee country, into which he first entered, particularly that part of it which is under the jurisdiction of Ba Simera, as populous and fertile, intersected by numerous rivers, and navigable creeks; and possessing a soil, which with a little attention would raise its inhabitants to opulence. It is bounded on the east by Kooranko, on the west by Sierra Leone, part of Bullom and the ocean, on the north by the countries of Mandingo and Limba, and on the south by Bullom and Kooranko. Its length from east to west may be computed at ninety miles, and its breadth from north to south about fifty. At Toma, which is only sixty miles from Sierra Leone, no white man had ever before been seen; and a woman who first descried the party, stood fixed like a statue in admiration of them, until they had passed;—then 'she gave a loud halloo of astonishment, and covered her mouth with both her hands.' The natives generally have very little clothing, and many of them none at all: but the dress of the females, near the water side is peculiar; the young women wear 'a narrow piece of cloth, called a tutunge, or a covering of beads called a patie,' fastened to a few strings, or a narrow strip of cloth wrapped round their loins; whilst the married women adopt the more decent attire of two yards of blue baft, wrapped round the body like a petticoat. Amongst other superstitions, those connected with the burial of their dead, are the most remarkable: when a death takes place, various methods are adopted to appease the wrath of the evil spirits, supposed to have been the agents in the decease, and much pagan ceremony is exhibited. Whilst our traveller was at Bung, a girl died suddenly; immediately upon the decease, a loud yell was uttered from about a hundred people assembled upon the occasion; after which, several hundred women, some of them beating small drums, sallied through the town, confiscating every moveable article that they could find out of doors. The elders and Greegree men assembled a few hours afterwards, in the palaver hall, to ascertain, if possible, the cause of her death. They enquired whether any one had threatened her life; afterwards they queried whether she had been killed by witchcraft; and at last, after a consultation of three days, concluded, that she died by the agency of the devil. The first two nights, during the time of this consultation, large parties of the inhabitants paraded the town, clapping their hands, yelling and shouting, to avert the wrath of the greegrees; and on the third, the night of interment, presents of rice, palm wine, cassada, and cloth, were deposited at the greegree houses, to satisfy the evil spirits that they might not kill any more people. Five or six men, strangely dressed, appeared about midnight, intimated that the evil spirits were satisfied, took away the presents, telling the people that no other death should happen in the town for some time. The joy which this assurance diffused among the people, was celebrated by dancing and revelry, till after day break. The Timannees in common with numerous other tribes of Africa, before eating or drinking, consign a portion to the dead, by throwing it upon the ground; 'Charnel houses' says our traveller, 'in which the remains of the kings or head men are deposited, are never opened; but small apertures are left in the walls, through which cooked provisions and palm wine, are at times introduced.' These the Timannees imagine, are needful for the dead; 'of whose spiritual existence they seem to be satisfied.' Small houses containing skulls, images, &c. are to be found generally near the entrance of the towns; the supposed residences of the greegees, and 'almost every house has its protecting spirits, who are often invoked in a manner that is calculated to excite the commiseration of the European spectator.'

The Purrah, so much dreaded in this country, is an institution, or rather a confederation, whose power supersedes that of the head man of the districts, and whose deeds of darkness are as little enquired into in Africa, as were those of the inquisition in Europe. Its origin our traveller was not able to ascertain; the head quarters of the Purrah are in enclosures, situated in the woods, and any man approaching them is apprehended, and seldom heard of after; single travellers, and even whole parties are frequently carried off in the same way, and there is reason to believe that a great number of the slaves sold at the Gallinas are supplied by this association. On some occasions they make incursions into towns by night, and carry off every thing valuable, dead or alive. 'One night' says our traveller, 'the town in which we slept, was visited by the purrah, and my sentinel remained firm at his post; when the purrah came up an attack was made upon him, but the application of the bayonet, kept them at a distance, until I made my appearance, when the purrah uncertain of their power over a white man, scampered off; they were mostly naked and unarmed, but a few had knives. The outward distinguishing marks of the purrah, are two parallel tattooed lines round the middle of the body, inclining upwards in front towards the breast, and meeting in the pit of the stomach.' As a proof, however, that the slave trade is not entirely carried on by the rapacity of the purrah, major Laing was twice offered children for sale by the mothers themselves, and might have bought them for ten bars, or about thirty shillings sterling.

The country of Kooranko from its mountains and picturesque appearance, as beheld from Ma Boom, excited in our traveller considerable interest. At Ma Biss, about two hours walk from the town of Ma Boom, to the north-west he found the river Rokelle flowing in a W. by S. direction, at the rate of nearly three miles an hour. The banks of the river were composed of argillaceous schist, or clay slate, interspersed with stupendous blocks of granite, lifting their rugged heads on either side to the height of thirty or forty feet. The channel of the river appeared about three hundred feet across, and was deep in the centre. Down this river he was informed the inhabitants floated their canoes to Rokou, during the rains, in the space of four days; but respecting the source of it, could obtain no intelligence.

The Mandingoes scattered over this district, are described by our author as a shrewd and well made people, superior to any who inhabit the western parts of Africa. Their costume is plain and neat; the width of the trowsers is a considerable mark of distinction, so much so, that 'Korté Abooniato,' i. e. *large trowsers*, a common expression amongst them, is synonymous with 'great man.'

At Kooloofa, on the frontiers of Kooranko, our traveller was again hailed by the natives as the first white man who had ever set foot in these parts; and making enquiries respecting the Kabauka Pampana, he learned that it was not more than three miles to the southward; after walking which distance he 'fell in with it, meandering along a deep channel about 200 feet in breadth in a mean direction from N. E. to S. W.' He describes the banks as lofty and picturesque, beautified with trees of luxuriant and various foliage in which he particularizes the camwood. On leaving Kooloofa the day following, he traversed a delightful country opening fine views of the picturesque hills of Kooranko, streaked down their sides with the courses of numerous rivulets tributary to the Kabauka Pampana. The soil here is extremely fertile where properly cultivated, resembling in many parts the soil of Ma Boom and the circumjacent region, being a rich black loam, mixed with a little clay and fine sand, the debris of granite washed from the Kooranko hills. 'In many places,' says our traveller, 'we met with extensive beds of granite intersected with veins of quartz, and in others the rock was found in a rapid state of decomposition.' The civility which Major Laing received at Nyiniah reminds us of some features of the classic page, and at the same time shews that the embers of humanity are not quite extinguished in the native African. The head man of Nyiniah forced him by civility to remain at his town one day longer than he intended, and visited him early in the morning attended by his chiefs and principal griot, the latter of whom entertained him for some time, by vociferating (or as he considered it singing) the praises of his master. Then he sung 'of the white man who came out of the water to live among the Kooranko people; the white man ate nothing but fish when he lived in the water, and that was the cause of his being so thin. If he came among black men he would get fat, for they would give him cows, goats, and sheep to eat, and his thirst should be quenched with draughts of milk.' The song being concluded, our traveller was presented with a fine young bullock, which being thrown down, was encircled by a crowd of people. 'Those nearest the animal placed their hands upon him, and joined in a short prayer which a Mahommedan repeated aloud; the purport of which,' said our traveller, 'was, that I might get safe to my journey's end, and home again among the white men, and that God might long preserve my life.' The Moslem immediately took the knife and repeating aloud, 'Bissim Alla Hi,' i. e. '*May God enable you to bear what is going to happen to you*,' severed with one cut the wind pipe of the victim. Every knife being now drawn and employed, so much execution was displayed that in the course of ten minutes the animal was cut up and portioned off. On these occasions the maraboo, who kills the animal, is entitled to the head, neck, and feet; the guarauge expects the hide, liver, and other parts of the inside; the head man of the town receives the right hind leg for his portion, and the blacks with fimo, and jelle, all come in for their share by right of ancient usage, so that the breast is all that is reserved for the person to whom the present is made. On leaving Nyiniah our author was charmed with the country, which he describes with a luxuriance and beauty characteristic of his volume. he passed two rapid streams traversing the plain nearly in a N. E. direction, and at a short distance fell in with the source of another, the spring of which forms a bason of ten yards diameter, embanked in masses of granite, and becomes one of the tributary accessions to the Kamaranka. The contiguous mountains appeared to consist of micacious granite and mica slate, the strata running from E. to W. In the valleys were found pebbles of red and white quartz, and flat stones of various dimensions, so strongly impregnated with iron as to draw and repel the needle at the distance of several inches. A few miles N. by E. from Neta Koura flows the river Ba Jafana, about fifteen yards in breadth. This river springs about three miles distant from this spot in the Belakonko mountain; and after running about eighteen miles to the N. W. unites with the Rokelle. Between Foodayia and Kaniagama is a rapid stream, about thirty yards broad, tributary to the same river. After passing the source of the Tongolelle, and overcoming considerable danger from the treachery of his carriers, our traveller arrived at Kania. He was not very much pleased here with the conduct of the women. Before he left the town their husbands returned from the war in which they had engaged, and the evening previous to his departure, dancing commenced, which was accompanied by the songs of the females. 'They sung of the white man who had come to their town; of the houseful of money which he had, such cloth, such beads, such fine things as had never been seen in Kooranko before.'

their husbands were men and wished to see their wives well dressed, they ought to take some of the money from the white man!' It was with difficulty and artifice that this was avoided. Tamba, one of his attendants, mixed with the singers, and 'sung of Sierra Leone, of houses a mile in length filled with money, that the white man who was here had nothing compared to those in Sierra Leone; if therefore they wished to see some of the rich men from that country come into Kooranko they must not trouble this one; whoever wanted to see a snake's tail must not strike it on the head.' The Koorankos, generally, greatly resemble the Mandingoes both in language and costume. The women adorn each other's head with great skill, file their teeth to a point, and are ornamented on the breast and back with various devices burnt into the skin. The principal vegetables produced in the country of Kooranko are rice, plantains, yams, white spinage, ground nuts, cassada, delicious pines, and bananas.

Komato is the frontier town of the Kooranko country towards Soolimana; and here, on the 4th of June, our traveller was met by a party from Falaba, with horses sent by the king of Soolimana, to conduct him to Falaba, his capital. Leaving the town, he crossed a river not far to the east, the Rokelle, upon what was called a Nyankata, a species of suspension bridge, which he thus describes. 'From the branches of two stupendous trees, which growing in an inclined direction, nearly embraced one another across the river, were suspended to numberless stays, composed of vine and twisted bark of trees, three strong ropes of well twisted figs, one to support the feet, and the other two (attached to the third by cords of bark) to enable the passenger to balance himself by holding on with both hands, who in this manner by cautious steps is enabled to gain the opposite side; the twigs are not drawn tight, but are permitted to hang in a sort of curve, so that the effect is like that of walking on a slack rope, a ladder of cross branches is affixed to the trees at the extremities, so that the traveller mounts about forty feet before he steps upon the Nyankata, but when he reaches the centre of the river, he is not more than ten feet above its level. This Nyankata, for I must call it by its native name, having none of my own, was the first indication I had met with since I had left Sierra Leone of co-operation in works of public utility, and I hailed it with pleasure as a symptom of progressive improvement.' p. 214.

Major Laing thus describes his entrance into Falaba. 'About ten o'clock we came in sight of this long-looked for town, which covered a large extent of ground in a beautiful valley, hemmed in on all sides by gentle acclivities. We descended upon it by the south, but were conducted along to the northern gate, through which we were ushered into the capital of the Soolima nation. We passed along a street, or defile, of about half a mile in length, to a spacious piece of open ground, which stands nearly in the centre of the town, in one corner of which we found seated upwards of 2000 men, armed with muskets, bows, and spears; on my entrance I was saluted by a heavy and irregular discharge of musketry, which, unfortunately, put my horse on his mettle, and as I had neither whip nor spur to teach him good manners, I was obliged to resort to jerking him with the curb, of the severity of which I was as yet ignorant; in consequence he backed among the armed assemblage, who were, by this retrograde movement, thrown into some confusion, and certainly not impressed with much opinion of my horsemanship. Being recovered from the awkwardness of my first appearance, I ordered the salute to be returned with three rounds from my party, and then alighting, shook hands with his majesty, who put into my hand two massive rings of gold, and made a motion for me to sit down beside him. I found him a good-looking man, about sixty years of age; his countenance mild, agreeable, and inoffensive in its expression; he is rather taller than the generality of Soosoos, being about five feet eleven inches in height; and his plain loose garment of black country cloth became him well. I was scarcely seated when my old friend, Yarradee, (habited in rather a more costly manner than when I first beheld him at the camp in the Mandingo country,) mounted on a fiery charger, crossed the parade at a full gallop, followed by about thirty warriors on horseback and 2000 on foot, the latter making a precipitous rush, and firing in all directions. After a lapse of a few minutes, the party on horseback returned, and performed various movements and evolutions for about half an hour, much to the amusement and admiration of my party, several of whom had been with the late unfortunate Major Peddie, and subsequently with Major Gray in Boondon; and who declared it to be a show passing any thing they had ever witnessed. Yarradee now alighted from his horse, and seizing his bow, pulled the string to the full extent, affecting to shoot an arrow at some distant object; he appeared to watch it on tiptoe with eager expectation till it reached its destination, when he gave a leap and a smile of satisfaction; then striking his breast with his right hand, and distorting his naturally ugly visage into a most hideous grin, he beckoned his war-men to follow, which they did, with a shout that rent the skies: after advancing a few paces they stopt short, and watching Yarradee, who, with the eye of a hawk, was intent on the motions of the supposed enemy, waited his direction to discharge their arrows; and having done so, each individual appeared to trace the flight of his own arrow, and betrayed signs of satisfaction or disappointment at its supposed execution or failure; a discharge of musketry followed the flight of arrows, after which the spears and cutlasses were put in requisition to hack and cut in pieces the discomfited foe; while those warlike movements were going forward, another set of people were by no means idle; there were above one hundred musicians who playing upon divers instruments, drums, flutes, ballafoos, harps of rude workmanship, with many other kinds, which it would be tedious to enumerate, kept up a din sufficient almost to crack the tympanum of ordinary ears, and which compelled me to fortify mine with a

little cotton; two fellows, in particular, with crooked sticks, kept hammering with provoking perseverance, and with the violence of blacksmiths at the anvil, upon two large drums which stood about four feet high, in shape similar to a chess-castle turned upside down; their only desire appeared to be that of making a noise, and in that I suppose the chief art consisted, for the harder they beat, the more applause they obtained. A nod from the king at length put a stop to this clang of steel and din of drums, and I was flattering myself with the hope of being permitted to retire to the apartment allotted to me, but my motion was interrupted by the king who said I must hear something more. Being again seated, a jelle, or singing man, elegantly attired in the Mandingo costume; his wrists and elbows ornamented with bells, and beating on a sweet-toned ballafoo, the notes of which he ran over with taste and velocity, stepped out, and after playing a sort of symphony, or prelude, commenced a dialogue in song with some persons who were to be invisble at first, but who afterwards joined him.'—p. 228—233.

During the residence of major Laing at the capital of Soolima, he frequently mentioned his solicitude to visit the source of the Niger, which he felt convinced was at no great distance. The king shook his head and said, 'White man, it is impossible, I am at war with the people of Kissi, the country from which the river comes; and if they were to know you came from me they would that moment kill you.' Numerous obstacles were at different times thrown in his way, but he expresses the fullest confidence that had his time been at his own disposal, a longer stay would have enabled him to accomplish the desirable object. He held some conversation with a caravan of merchants who came to Falaba from Kowia, a town on the banks of Falico, a branch of the Niger, who gave him much information respecting the source of that celebrated river, assuring him that it might be reached from Falaba in three days. He ascended a sugar-loaf hill, called Konkodoogore, he states, four miles south of Falaba, from which he saw the hill Loma, *whence the Niger springs*; also the source of the river Mungo, originating in three hills which stretch to the westward. The source of the Rokelle he visited, tracing its diminished stream to the foot of a hill where 'springing from under a rock, and shaded by a thick foliage of date trees, it bubbles up and scatters itself over a wide surface of red clay, in appearance like a stream formed by the bursting of a water pipe in the streets. About a hundred yards or more below the source, the water collects into a channel of about a foot in breadth, and runs off rapidly to the S.S.E.' Afterwards it makes a circuitous sweep, shaping its course in a south-westerly direction, between Setacolia and Tigiatamba, where receiving considerable accessions, it widens and deepens, till it assumes the magnificence of a noble river.

Our author lays down the source of the Niger from the best information he could obtain, as being in lat. 9° 25'. N. and long. 9°, 45. W. It is at its source, he says, called Tembie, and that it runs due north to Kang Kang, a distance of many miles, its course being marked by a ridge of hills breaking off at right angles from the chain, running easterly from Sierra Leone. Of this northerly branch, Loma forms a part; and the continuance, in the opinion of our author, of the mountains of Kong, the position of which has long been a subject of much speculation. On reaching Kang Kang, the river assumes an easterly direction, and exchanges the name Tembei, for Ba Ba, and Joli Ba, synonymous with each other, and signifying, '*Large River*,' which it carries to Sego, Jinne, and Tombuctoo, after which the name Joliba is lost amid a multiplicity of designations.

Numerous traditions are found amongst the negroes, respecting it, one particularly is remarkable; 'that although not more than half a yard in diameter at its source, if any one was to attempt to leap over it, he would fall into the spring, and be instantly swallowed up; but that a person may step over it quietly without any apprehension of danger.' Another of these fictions relates, 'that it is forbidden to take water from the spring; and that any one who attempts it, will have the calabash wrested from his hands by an invisible power, and perhaps lose his arm.'

The limited success of preceding African expeditions, did not deter his majesty's government from again (1821) endeavouring to extend the knowledge of the British name and character in this direction. We follow a species of demi-official account of the last expedition, dispatched into the interior of Africa, from a respectable periodical journal.

'The bashaw of Tripoli had signified to the British consul his readiness to escort as far as Bornou, with the sultan of which he was in strict alliance, any British travellers who might be accredited by their government. Of so good an opportunity Lord Bathurst readily availed himself; and three gentlemen, volunteers, were appointed for this service—Doctor Oudney, a well informed North Briton, and a navy surgeon; Mr. Clapperton, a lieutenant in the navy, and lieutenant (now major) Denham, who was educated at the Royal Military College, and served in the Peninsular war. To these was added a carpenter from the dock-yard at Malta, by name John Hilman. From the private correspondence of these gentlemen with their friends, we are able to glean some little account of their proceedings. They were kindly received by the bashaw; and, after the usual delay in preparing for the journey, set out with an escort for Mourzouk. They had been advised by the bashaw to clothe themselves, as all former travellers had done, in Moorish or Arab dresses; but this disguise is so easily seen through, that they determined to wear their own dress, and openly to avow themselves Englishmen and Christians wherever they might go; and the result has been, that they have never experienced the slightest insult or inconvenience among any of the numerous tribes with whom they have had intercourse. Another tedious delay of a whole year at Mourzouk had at least one good effect, that of inuring them to a still warmer climate; while their frequent journeys

to various parts of Fezzan brought them acquainted with the manners, the language, and the disposition of the natives. During their long residence here, they experienced no ill effects either from climate, want of provisions, or badness of water. The doctor's fame spread rapidly into every part of Fezzan and beyond it; and patients poured in from every side to enjoy the benefit of his advice and his physic.

'At length the time of their departure arrived; and Boo Khaloom, a particular friend of the bashaw of Tripoli, was appointed to command the escort, consisting of 300 Arab horsemen—far more than were necessary, but ordered out of the abundant care of the bashaw for the subjects of his cousin of England. In the month of November, 1822, they left Mourzouk, following the route laid down by Captain Lyon, as far as Tegherry. From this place they crossed a dreary desert, occasionally somewhat enlivened by little hollows or valleys, in which wells were found for themselves and their cattle, consisting of a multitude of camels in addition to the horses. In the course of four or five hundred miles, they passed a few villages and several towns inhabited by the Tibbos, whose territories cover a large extent of this wild region, and who consider themselves entitled to a certain tribute for keeping the wells in repair. These people, the most harmless perhaps of the numerous tribes whom a life of precarious subsistence has thrown upon this miserable country, treated our travellers with great kindness, and in their whole conduct fully justified the character given of them by Captain Lyon. Yet they are not safe or unmolested even in their deserts, being subject to the depredations of the Tuaricks, a fiercer race, who plunder the unprotected villages situated in the valleys, or little oases, but seldom venture to attack the larger towns, erected on the tops of detached and naked brown hills, which here and there rise out of the gray surface, like rocks out of the sea. Of these towns our travellers passed four, whose names are Kishbee, Ashanumma, Dirkee, and Bilma.—Bilma is the great mart of salt for a considerable part of Soudan, 30,000 camel loads of which are said to be carried away yearly by the trading part of the Tuaricks. This is not dug out of the earth in masses, as has been represented; but manufactured by a very simple process: shallow pits, banked round with sand and mud, are dug, after the rains, which soon fill by water oozing in from below. The heat of summer evaporates the water, and leaves behind an incrustation of good culinary salt. From Bilma to Agades one desert of sand succeeded another, with here and there ridges of dark sandstone peeping out of the dreary surface, exhibiting neither plant nor living creature, nor any other object to rest or relieve the wearied eye. One single wadey, or valley, near Bilma, about half way between Mourzouk and Bornou, produced grass and shrubs, and a few date trees. There was no want, indeed, of frequent wells, the water of which was tolerably good; and near these generally were found a few tufts of grass; great numbers of their camels, however, perished for want of food.

On the 4th of February, twenty days after their departure from Bilma, they reached Lari, the frontier town of Bornou. Here the country suddenly changed for the better. Large herds of antelopes were bounding over the plains; guinea fowls and turtle-doves were most abundant, and grass and accacia trees clothed in some degree the surface. Several villages also made their appearance, the houses of which, like those of Lari, consisted of bell-shaped huts, formed of the straw of dhurra. Lari is situated in about 14°. 40′. north latitude, and nearly on the same meridian with Mourzouk. Here our travellers suddenly got sight of the great lake of Bornou, called the Tsaad, which, extending easterly, receives the little streams of those northerly valleys in which most of the Kanem villages are situated. Hence they continued their route in a southerly direction for seven days, without leaving the Tsaad at any great distance, the road mostly lying within sight of its waters or banks; the former presenting numerous bays and inlets, and islands covered with thickets and tall reeds; the latter were low, though a sandy embankment, of forty or fifty feet in height, ran parallel to the margin of the lake, at the distance of one and sometimes two miles from it, having apparently formed, at one time, the bank of the lake, and still, perhaps, forming it in the rainy season; as the ground between this and the lake was in many places observed to be overflowed, even from the effect, as it appeared, of the north-east wind. Several elephants were seen among the accacia woods, and two or three were observed browsing among the reedy islands. The whole neighbourhood was well stocked with villages, among which was one of a larger kind, named Burwa, with mud walls, whose houses and huts were observed to be neat and clean, and all its inhabitants decently clothed.—Leaving Lari, and at the distance from it of about sixty miles beyond the commencement of the lake, they crossed the river Yaou, (the Zad of Horneman, and the Tsaad of Burckhardt,) flowing from the westward into the lake, being now a stream of about one hundred feet wide, and running at the rate of a mile an hour, between high sandy banks from two to three hundred feet apart. It is this river which is said to overflow in the rainy season, and into which Burckhardt says a female slave is thrown on the occasion by order of the king. At the ford where our traveller crossed, two rude ill-shapen boats were lying on the bank. Their gratification in meeting with such a river, after a thousand miles nearly of desert, will readily be imagined. In all their letters they speak warmly of its beauties, the calmness and *sweetness* of its waters, the comfort it seemed to add to the numerous little villages scattered along its banks, and the possibility of its being the far-famed Niger,—which it unquestionably is. A walled town of the same name, Yaou, stood on its banks. From this place to Kouka, the residence of the sheik, is a fine beaten track, covered with kofilas of bullocks transporting merchandize, and with foot passengers mostly armed with spears, and cheerfully trooping along Approaching within one day's journey of the residence of the sheik, our travellers received a message from him, in

answer to one announcing their arrival, that he would receive them at Kouka the next day. The accounts of this personage had been so contradictory, that they approached his capital in an interesting state of uncertainty, whether they should find him at the head of thousands, or whether he would receive them under a tree, surrounded by a few negroes.

They were soon, however, relieved from their suspense; for, on arriving within a few miles of Kouka, they were astonished with the appearance of about four thousand cavalry drawn up to receive them, well armed with spears, and a body of negroes, called the sheik's guard; these latter were clothed in coats of iron chain-work, closed at the neck, and drawn over the head like a Guernsey frock, which, dividing both before and behind, fell on each side of the horse, and protected the thighs also. On their heads they wore skull-caps of iron or brass, fastened on with turbans, yellow, red, and white, and tied under the chin; the horses' heads were also defended by plates of the same metal: their saddles were small and light; their stirrups of brass, in which four toes of the foot only are placed; a sandal of leather covers the foot, ornamented with the skin of a crocodile, and to this the spur is fixed. 'They really,' says Major Denham, in one of his letters, 'rode beautifully, and charged rapidly to within a few feet of our horses' heads, without checking their speed, when they brought up, shaking the reversed spear at Boo Khaloom, with a cry of Barca, Barca! welcome, welcome!' After this, he says, they closed their flanks and completely surrounded the travellers and their little party of Arabs; 'they had nearly put an end to us,' he adds, 'by the dust alone which they raised; and their spears rattled over our heads in rather discordant notes of welcome—all this, however, was managed with a skill and address that was any thing but savage.' Surrounded by this tumultuous escort they approached the town; and after about an hour's delay, were ordered to move on through several dark avenues of the sacred palace of the sheik of Spears, lined with his guards, in plain blue Soudan shirts, and armed each with a spear and dagger. In the same garb the sheik received them, seated in an inner room, on a small carpet, but having on his head a Cashmere turban. Two slaves, with loaded pistols, were lying at his feet. Having read the letter of the bashaw of Tripoli, he merely said they were welcome, and ordered a negro to shew them to the huts that had been prepared for them. They were pleased with the cast of his countenance, and his affable and engaging manner: his age appeared to be about forty-five. The sultan's court at Birnie is described as one of fans, silks, and feathers, while the sheik's is one of spears. Dr. Oudney paid a visit to this mock sovereign, to whom he was conducted by a troop of horsemen of most grotesque appearance, dressed in high round-topped turbans and short thick stuff cotton jackets, looking 'so thick and bunchy,' says the Doctor, 'that they sat on their horses as steady and unmoveable as if they had been so many well stuffed sacks of corn. The great horse of state, with a huge man upon him, headed the procession; (we are glad to find such respectable authority for the Lord Mayor's man in armour;) but so swelled out was the horse with the covering of a thick stuffed carpet, and so loaded was the man with clothing and charms, that both of them appeared incapable of moving. The sultan was perched in a kind of cage in the wall, from which he did not descend; but sent his ambassador to bid the strangers welcome; and in the mean time the drums beat, and the long wooden trumpet sounded, whilst a sort of herald under a tree, with a mace in his hand, was vociferating, with all his might, the genealogy, the titles, and the praises of the sultan.

Our travellers having satisfied their curiosity at Kouka, and the neighbouring towns, were desirous of prosecuting their discoveries beyond the dominions of Bornou; Dr. Oudney and Lieutenant Clapperton wishing to proceed to Soudan, and Major Denham to the eastward; but the sheik gave them to understand that his cousin, the bashaw of Tripoli, having strictly charged him with the care and protection of their persons, he considered himself responsible for their safety, and could not, therefore, allow them to depart on any service of danger. Nothing, indeed, could exceed his kindness to the strangers: and Major Denham entertained a sanguine hope that he might be allowed to accompany him on a projected expedition against Bagherme, after the rainy season. 'He is never tired,' says the Major, 'of asking questions about sieges; and gun-powder is his delight. Thirty or forty English muskets, and two camel-loads of good powder would be to him a more acceptable present than any other that could be given him. My rockets are here invaluable; he has seen two, which have delighted and frightened the whole nation. I have given him a dozen, all that were left; and they are preserved with the utmost care;' and he adds, 'by means of these alone I shall get to Bagherme, as they are to accompany an expedition to that country, which is in agitation, and they cannot as yet set them off; one of them bursting over the town, he assures me, will cause its immediate surrender by its inhabitants.' In the mean time, however, an occasion offered for this enterprising officer to proceed beyond the boundaries of Bornou. Boo Khaloom, who had attended our travellers from Tripoli, thought it no bad opportunity, before his return, to avail himself of the advanced situation in the interior, to proceed on a Grazzie, a sort of marauding expedition which the native tribes of Africa are in the habit of making upon each other. At the earnest solicitation of Major Denham to accompany this expedition, the sheik reluctantly consented, but insisted on sending an old negro servant to take care of him. The number composing the Grazzie consisted of about 3000 men, partly Arabs of Boo Khaloom, partly natives of Bornou, under the command of Barca Gana, his chief Mameluke and general, and some of the troops of the Sheik. They travelled south; and after a march of six days reached Mora, the capital and residence of the Sultan of Mandara, situated in a valley at the foot of a noble chain of hills, at the distance of 170 miles from Kouka. These hills or mountains (said to ex

tend to the distance of thirty or forty days to the south-west) are composed of granite, and their sides clothed with trees. In the valleys are many towns inhabited by Mussulmans; but those who dwell in the mountains are Kindies, or savages, who receive protection from the sultan of Mandara, in consideration of furnishing him with a certain number of slaves. Boo Khaloom had expected that a portion of these would have been given to him at Mara; but this was positively refused: he therefore proceeded still southerly against the Fellata, a very powerful nation, on the offer of the sultan to add to his forces. The Major's account of this enterprize, written to a friend of his at Malta, is so curious and full of interest, that we shall give it in his own words.

'On the 25th of April, the sheik's troops, the Arabs, and about 2000 horse of the sultan of Mandara, with himself, set forth for Musfeia, the capital of the Fellatas. Our road lay through extensive valleys, thickly planted with trees, and bounded by those beautiful hills, the sides of which presented here and there clusters of huts, and the height of which, sometimes exceeded 1500 feet. On the 28th, soon after daylight, we approached the Fellatas' towns, having marched nearly the whole night. Two of them were quickly burnt, and passing on we came upon a third, situated between two low hills, with a dry wadey in front. Here the Fellatas had mustered their forces, had carried a strong fence of pointed stakes from one hill to the other, were themselves on a rising ground behind, and covered by the huts. The position was extremely strong and well chosen. The Arabs moved on with great gallantry, Boo Khaloom at their head; and, notwithstanding the showers of arrows (some poisoned and some not) that poured on them from behind the palisades, they carried them in less than half an hour, and pushing on, drove the Fellatas up the sides of the hills. A few of the Bornou spearmen now supported the Arabs, and pierced through and through about fifty unfortunates whom the fire of the Arabs had obliged the Fellatas to leave wounded near the stakes. Had even a small part of either the Mandara troops, or those of the sheik, now moved up boldly, they must have carried the town, for the Fellatas did not exceed 1000 or 1200 men at the utmost; but they still kept on the other side of the wadey, out of reach of the arrows. The Arabs advanced to the very houses, and got possession of some of them, Barca Gana, myself, and about forty of his own people alone accompanying them. Seeing the backwardness of their enemies, they now made an attack in their turn; the arrows were so thick, that there was no standing against them, and the Arabs quickly fell back. Barca Gana had two horses hit under him, that died almost immediately, the arrows being poisoned; and, here poor Boo Khaloom received his death wound by an arrow of the same description, which struck him in the foot. My horse was badly wounded in the shoulder, and in his near hind leg; an arrow had struck me in the face as it passed, merely bringing the blood, and two others stuck in my *bornouse;* most of the Arabs had two, and some three wounds, and one dropped near me with five sticking in his head alone.

'No sooner did the Mandara and Bornou troops see the retreat of the Arabs, than they one and all took to flight in the most dastardly and confused manner possible; and I now, for the first time, as I saw Barca Gana on a fresh horse, lamented my own folly in thus exposing myself, being badly provided against accidents. If either of my horse's wounds were from poisoned arrows, I felt that nothing could save me; however, there was not much time for reflection. We instantly became a confused flying mass, and plunged, in the greatest disorder, into that wood which we had but a few hours before moved through with order and very different feelings.

'I had got a little to the west of Barca Gana's track, and was following one of the sultan of Mandara's eunuchs, mounted on a white horse, when the cries behind of the Fellata's horse pursuing, made both him and me quicken our pace. The spur however had the effect of incapacitating my animal altogether. The arrow I found afterwards had reached the shoulder bone, and in passing over some rough ground he stumbled and fell. Almost as soon as I was on my legs, the Fellatas were on me. I had however, kept hold of the bridle, and seizing a pistol from the holster presented it at two, who were pressing me with their spears. They instantly went off; but another, who came on me more boldly just as I was trying to remount, received the contents somewhere in his left shoulder, and again I was enabled to raise my foot to the stirrup. Once more mounted, I again pushed my retreat. I had not however, proceeded many hundred yards, when my horse again came down with more violence than before, threw me to a considerable distance against a tree, and, alarmed at the horses behind him, he quickly started up, escaped, and left me on foot and unarmed. My life was now preserved by one of those wonderful interpositions of Divine Providence, which ought to fill the mind of man with gratitude and devotion.

'I was almost instantly surrounded, and, incapable of making the least resistance, as speedily stripped. In an attempt first to save my shirt, and then my trowsers, one villain made two thrusts at me with a spear that badly wounded my hands in two places, and slightly my body, just under my ribs on the right side. Indeed I saw nothing before me but the death I had seen inflicted on those who had fallen into the hands of the enemies of the people, in whose power I now was—but it was otherwise ordained.

'Scarcely were my clothes torn off me, when my plunderers began to quarrel for the spoil. Without a moment's reflection, I crept under the belly of the horse nearest to me, and started, as fast as my legs would carry me, for the thickest part of the wood. Two of them followed me, and I ran on towards the east, knowing that our stragglers would be in that direction, but still almost as much afraid of friends as foes. A deep mountain-stream obstructed my passage, which, by swimming a few strokes, I quickly got over,

and then felt myself quite safe from my pursuers. My feelings at this moment, (what could I do in the helpless state of nakedness in which I was,) cannot be described. I now saw horsemen through the trees still farther to the east, and I determined on reaching them if possible, whether friends or enemies—and my feelings will readily be imagined, when I discovered Boo Khaloom, with about six Arabs, and Barca Gana pressed by a party of Fellatas, whom they had halted to drive back, being the only people who carried guns.

'My voice however, would never have reached their ears had not Maranny, the sheik's negro, who accompanied me from Kouka, seen and known me at a distance, and to this man am I indebted for my life. He rode up to me, assisted me to mount up behind him, while the arrows whistled over our heads, and he then galloped off to the rear as fast as his wounded horse could carry him. Boo Khaloom now rode up to me, and desired one of the Arabs to cover me with a *bornouse;* these were the last words I heard him speak, and we had scarcely proceeded ten miles, when Maranny exclaimed, 'Look! look! Boo Khaloom is dead!' I turned my head round, almost as great an exertion as I was capable of making, and saw him fall into the arms of an Arab.' The major then proceeds to state, that, after riding forty-five miles, he reached the territories of Mandara in a most deplorable condition, and with some difficulty succeeded in borrowing a shirt, which had been worn eight or ten days. The Arabs had lost every thing; forty-five of them were killed, and nearly all of them wounded. The sheik, on his return, received him with the greatest kindness; and, his wounds were speedily healed.

'The distance from Kouka to the Fellata villages in the mountains, the Major informs us, is about 230 miles nearly south, or 3°. 20'. difference of latitude, which would make the latitude of these villages about 9°. 30'. Assuming the longitude to be the same as that of Mourzouk, 14°. 10'. it will be seen, by inspecting the charts, that he was not more than about 300 miles from old Calabar; so that Captain Adams was unwittingly right in saying that the best, at least the nearest, way to the Niger, or its waters, would be across the country from that quarter. While the Major was absent, another important step in African geography was made by Dr. Oudney and Lieutenant Clapperton. With the consent of the sheik they set out on an excursion to examine the river Shary, which, by proceeding southerly, they found at the distance of ninety miles from Kouka. It is a noble stream, nearly a mile broad, flowing gently at the rate of about a mile an hour, and containing a great number of flat islands. It flows from the southward, and is supposed to have its origin in the chain of granite mountains mentioned by Major Denham. They traced its stream to the northward, till it emptied itself by five or sixth mouths into the lake Tsaad; directly in the face of the report which they had gleaned from all quarters, that this river flowed out of the lake. Our travellers had never had the lake fairly open to them before; for it is so studded near its banks with islands, and the country is so perfectly flat, that there is no seeing beyond them; but here it presented a noble sheet of water, extending north, north-east, and east, farther than the eye could reach. Some of the islands in the Tsaad are inhabited by a people called Buddooma, who carry off, on rafts, not only cattle which they find grazing near the shore, but frequently women and children; yet the sheik has no canoes, nor any means of punishing these marauders. John Hillman, the carpenter, had made himself very useful in fabricating sofas and palanquins for the sheik, and had become of course a favourite; the greatest service he could perform for the natives, however, would be that of instructing them in the art of boat-building and of navigating the lake. There is no want of wood for this purpose, and their cotton would supply them with ropes and sails. We trust it will have occurred to our travellers, that the best and surest way of examining its eastern shores is by means of a boat. Our travellers first saw this lake at Lari, which is 130 miles to the northward of Kouka, and as Kouka is said to be ninety miles to the northward of the mouth of the Shary, the lake must be at least 200 miles in that direction; and may be more, provided these two points should happen not to be its northern and southern extremities. A portion of it would appear to occupy the position assigned by major Rennell to the swamps of Wangara; but our travellers had no better success in hearing any thing of this name than Burckhardt, Ritchie, Lyon and others; and so little did it resemble a swamp, that in the month of April, at the end of the dry season, when not a drop of rain had in all probability fallen for six or seven months, it had all the appearance of being full and perfectly transparent. It is not stated, however, in any of the letters which we have seen, whether the water be fresh or salt, though the very omission may almost be assumed as a proof of its being fresh; a still stronger proof is that of its abounding with hippopotami and crocodiles—two animals that exist only in fresh water. Burckhardt, indeed, had positive information that the lake of Bornou was fresh. The probability is, that it is *fresh* and *has* an outlet; and if any reliance can be placed on Arab authority, the Gambarroo, which flows by Bagherme and Fittri to the eastward, is that outlet. 'Some report,' Doctor Oudney says, 'that the Shary gives off a large branch which falls to the southward of Bagherme two days, and runs to Fittri, and thence to the Nile;' and Major Denham learned from an Arab sheik of Waday, that a branch of the Shary, called the Bahr el Dago, goes into the Nile; that it receives additional supplies from Lake Fittri, twelve days journey from those mouths of the Shary which flow into the Tsaad; and that it then takes a course to the south-eastward, till, as before, it reaches the Nile. He was further informed, by the Sheik, of some Mourzouk merchants having spread a report that it was their (the travellers') intention to come up that river (El Dago) from Misr (Egypt) with ships as large as elephants, loaded with guns and gunpowder. There must

be something, we think, in this universal belief that the waters, which we have now traced into the Tsaad, find their way to the Nile of Egypt. There is nothing whatever against their reaching the Bahr el Abiad, except the low level of the Tsaad, which is evidently the *sink* of North Africa; yet the comparative difference of levels between it and the former river is not at all known; nor do we find, in the letters of the travellers, any estimate of its level above that of the sea.

'But where,' asks Dr. Oudney, naturally enough, 'where is the celebrated Niger? The Yaou is the only probable river coming from Soudan, and it is almost too small.' Yet the wonder is, that in the dry season it was not smaller. Most rivers that have no feeders, and more especially African rivers, that lose so much by absorption and evaporation, diminish as they proceed in their course; and if the Niger (for so will we not scruple to call it) had not been confined within very narrow banks, but had spread out a more considerable surface, the probability is, that the whole of its waters at this season, and at this distance from its source, would have been evaporated. Major Denham, who went directly south, beyond the 10th degree of latitude, crossed no river between Kouka and the termination of his journey, and there is none between that city and the Yaou; so that if this stream be not the Joliba, which has been pretty well ascertained to run into the lake Nyffé, about 300 miles to the westward of the Tsaad, and nearly on the same parallel, there certainly is no other in Bornou that can be considered as the Niger. If, indeed, the account of all travellers, and the Arab writers, can be depended on, and particularly the result of Horneman's enquiries, no doubt whatever can remain that the Yaou is the Niger, which Major Rennell has traced satisfactorily into the swamps of Wangara, or (for they must be the same) the lake of Bornou; what becomes of it afterwards, and whether it terminates in the lake, is a point which we trust our travellers will be able to determine.

'From the multitude of villages, observed by our travellers along the western shores of the lake, and the several large towns not very distant from it, there can be no doubt that this part of Africa is well stocked with inhabitants. The town of Kouka, which may be called the sheik's head-quarters or military depôt, has only about 8000 inhabitants. It is situated at the distance of fifteen miles from the western borders of the Tsaad, in lat. 12°. 51′. N. and long. 13°. 14′. E. being nearly twenty miles to the westward of the meridian of Mourzouk; and the travelling distance is about 1000 miles from the same place, which occupied the expedition ninety-two days. Bernie, the residence of the sultan, is eighteen miles S. S. E. of Kouka, and is said to contain 30,000 inhabitants; and Engornou, sixteen miles S. E. by S. of Kouka, not less than 50,000. At this place there is a weekly market held on Wednesdays, to which all the surrounding countries, the people of Kanem and of Soudan resort; so that the numbers who occasionally attend are said to amount to eighty and sometimes a hundred thousand souls! Major Denham made a visit to this place, and was much pleased with it. The currency appeared to consist of amber, coral, and glass beads; but dollars were well known and most in demand. A large diamond-cut drop of a glass chandelier, the Pitt diamond of central Africa, was, however, an object of contest among the ladies of the court. How such a population is supported, it is not easy to imagine: the whole kingdom, on the western side at least, is one dead flat of sand and clay, without a single stone of any description. In the season of heat and drought, every vestige of verdure takes its departure, except from the various kinds of accacia trees and the tamarind: yet herds of elephants, giraffes, buffaloes, and antelopes of various kinds, are everywhere seen, and especially along the borders of the lake. Major Denham says he counted forty-seven large elephants in one group. Where and on what they feed at this season does not appear. Tame bullocks are met with in droves of a thousand or fifteen hundred, and flesh meat is very cheap: a fine ox might be bought for three dollars; and fowls at the rate of forty for a dollar. Of vegetables, our travellers saw little but onions and a few yams; and no fruit except the tamarind. In the sheik's garden is a single lime-tree. The quadrupeds above mentioned, and many smaller species, supplied our travellers with abundance of game, which were procured chiefly by Clapperton, who is an excellent shot. The lake too, abounds with a great variety of water fowl, some of which are said to be of extraordinary beauty; and the ducks and geese were so tame, that he killed eight or ten at one shot. Snipes rise in thousands, like so many clouds.

The temperature in March and April was uniformly high, seldom lower than 100°. and sometimes 104°. at two or three o'clock; yet the constant refreshing breeze prevented it from feeling oppressive. The barometer was steady at twenty-nine inches. So little did the heat appear to affect Clapperton, that he used to go out for several days together, along the margin of the Tsaad, to kill game, and suffered nothing from the exertion: the people were uniformly civil and obliging, A numerous tribe of Arabs had settled in the sheik's dominions. They came from the banks of the Shary, and are described as different from those of the north; their complexions are of a light copper colour, with handsome aquiline noses, and large expressive eyes; they are savage in their manners, and of undaunted courage. Major Denham says they resemble very much some of the best looking of our gipsy race, particularly the women, and their Arabic is nearly pure Egyptian.'—*Quarterly Review, No. LVIII.*

We have detained the reader amongst these interesting details, with the greater pleasure, as they have certainly contributed to enhance our knowledge of this portion of Africa materially.—Major Denham, we are happy to learn from the public papers, has returned in safety, and we look forward for the publication of his journal and papers to enrich various future articles of our work.

Major Laing, we learn from the source above quoted, is now on his route from Tripoli, by the caravan, to Tombuctoo, accompanied by a

Tuaric chief, well known to Lyon, and highly esteemed by all our English travellers. Should he happily succeed in reaching this long aimed at spot, and our consul at Tripoli says, (as he pronounced with regard to the far more formidable journey to Bornou,) that the road is as open and safe as from London to Edinburgh, his next object will be to fall down one of the streams, as far as the Tsaad of Bornou, where he will either meet with our countrymen, who have now for two years been domiciliated at Kouka, or, in their absence be received with kindness by the sheik and the natives.

Two of those countrymen, Dr. Oudney and lieutenant Toole, we are concerned to state, have paid the debt of nature; the latter fell a victim to exertions which, in an African climate, were too severe for his youth, immediately after performing a fatiguing journey across the desert from Mourzouk; the other, to a complaint which he carried out with him, but to which he firmly persuaded himself an African climate would prove friendly—a disease of the lungs. We have still to regret the absence of their journals, itineraries, geographical observations, and other documents, which however, are believed to be safe; but various letters to the consul at Tripoli and to their friends in England supply, in some degree, the deficiency of these details by the general outline they give of their proceedings.

On the 21st of May 1823, Dr. Oudney, lieutenant Clapperton, and a confidential slave of the sheik's as a guide, set out on a journey into Soudan. They reached in four days, (travelling in a north by west direction,) Old Birnie, once the capital of Bornou, and formerly a city of great consequence: its walls were of brick, mixed with clay, thirty feet high, ten or twelve feet thick, and eight or nine miles in circumference; but they were now in ruins, as was a magnificent palace of the sultan's of Bornou, which covered a vast extent of ground, the latitude of this place 13°. 4′. north long. about 1°. 15′. west of Kouka. Here they were joined by the sheik, who invited them to accompany him on an expedition against the Munga tribes, in which they passed successively the towns of Kubshara, Biskour, Surgum, and Balley, the latter being about a hundred and twenty miles from Kano, the capital of Houssa, and a celebrated resort of merchants, in this part of Africa. From this place they returned to Kouka; but recommenced their journey on the 14th of December, and in twelve days passed the western frontier of Bornou, and entered the Beder territory, the sudden change to severe cold, which they here experienced, proved fatal to Dr. Oudney.

'On the morning of the 12th,' says Lieutenant Clapperton, 'when the camels were loaded, Doctor Oudney came out of his tent. I then saw but too plainly that the hand of death was upon him, and that he had not an hour to live. I prevailed on him to return to his tent, and I sat down beside him: he expired about an hour afterwards. The only request he made was, that I would forward his papers to Lord Bathurst, and to say, that he wished Mr. Barrow might have the arrangement of them, if agreeable to his lordship. I sent immediately to the governor of the town to acquaint him with what had happened, and to request that he would point out a spot where I might be allowed to bury the remains of my friend, to hire some of his people to wash the body, and to dig a grave; all of which was immediately complied with; and as we travelled in the character and habits of Englishmen, I considered it an indispensable duty to read the funeral service over the body in the tent and at the grave side, according to the rites of the Church of England; and so far from meeting with the least interruption, the natives, on the contrary, took pains to shew me every possible respect for having so done. Having killed two sheep to be distributed among the poor, I caused a wall of clay to be built round the grave; and the next morning, being extremely unwell from exposure to the sun, and grief for the loss of my friend and companion, to whose good and amiable qualities no language of mine can do justice, I left Murmur with a heavy heart, and on the 20th at noon arrived at the city of Kano.'

Since this, no tidings have been received from Lieutenant Clapperton. But it is known that he delivered the sheik's letter, and a present, to the sultan of Kano, who received him with great kindness, and promised to forward him in safety to his master Bello, the sultan of the Fellatas. The letter alluded to, is an extraordinary instance, both of the benevolence and cultivation of this chieftain's mind After the usual formal salutations, he says, Some distinguished persons, Englishmen and Christians, between whom and Mussulmen an ancient friendship and brotherhood has existed, as is no secret but known to all the world, are about to visit your country. The love between these people and the followers of the true faith has continued for ages, and descends from one generation to another, even as the wealth of a father descends to his children; and by this friendship, frequent amicable intercourse is kept up between them and Mussulmen. But this love is most observable in the ease with which Mussulmen now visit their countries, which are rich and extensive, going and returning without danger or molestation. And now these Christians have visited us, through the medium and love of our master Yussuff, Bashaw of Tripoli, at their own desire, to see the country, which is by God's mercy ours, and what is wonderful in the land, its rivers, lakes, and people, all of which may differ from those of their own country. We have enabled them to see all the country of Bornou, even in the way they wished, with freedom; and they ask of us a passage to yours, in order that the wonders which are not here, may be seen by them there. We have granted their request, and have furnished them with letters of kindness and greeting, which letters will tell you how we esteem them:—

'We remind you, but it is needless, for your great knowledge will inform you, that it is written, that even our prophet himself, our interposer and advocate, (praise be to God and his angels!) ordered, that these should not be molested nor injured when they came in peace, and did no harm. We throw them upon your care and protection. You know that there are believers who strike down and trample upon the weak and un-

protected. You know, also, that justice is not always done to the good by the wicked. We trust therefore to you, and beg that you will support and protect these Englishmen and Christians; that you will not permit them to be buffeted or abused, nor allow them to be pained either by privations or blows, or even regarded with disdain, until such time as it shall please God that they shall return to their native land.

'They are people of a pure heart and true tongue; such we have found them; be you their supporter, and cause them to rejoice in our recommendation; so may God reward you, and grant you what you hope for and desire! and by his blessing may we together proceed on the road to heavenly bliss! May all health, and happiness, and virtue, and faith, be to you and to those near you, and all that belong to you, and not to yourself alone! Dated the evening, &c.

(Signed) Slameen ben Kanerry,
Sheikh of the Koran.'

'On the 23d of January, Major Denham, accompanied by Lieutenant Toole, left Kaouka, and arrived at the river Shary on the 30th, which they found, in lat. 12°. 47'. above six hundred yards in breadth, and running N. E. at the rate of about five miles an hour. Here they embarked for the lake Tsaad, before mentioned, with eight canoes, furnished them by the Kaid of Showey, a small town in this neighbourhood, and found the whole course of the river highly interesting. On its banks, thickly clothed with trees and beautiful shrubbery, they saw numbers of crocodiles.

'The Shary was found to empty itself into the great lake by two branches formed by the island. Descending the western branch the following morning, for about two hours, our travellers found themselves on that sea of *fresh water* which, says major Denham, we called the Lake of Waterloo. They had not proceeded however, beyond two miles on the open lake, when the heavy swell from the north-east, caused the canoes to ship so much water, and the paddling became so laborious to the men, that they were obliged to return. They understood that the nearest of the Beddoumy islands was a voyage of three days from the mouth of the Shary (about ninety miles) in the direction of north-east, during two of which they lose sight of land. These people carry on a piratical war with the borderers of the lake. It is said that they frequently muster from sixty to one hundred canoes. They make no slaves, but demand ransom for their prisoners, who, if it be refused, become islanders, take wives, and remain among them. The whole of the islands are said to be able to muster a thousand canoes, with fifteen to twenty men in each. In every other respect, but that of plundering, they are said to be a mild and inoffensive people, not given to cruelty, and never known to murder their prisoners. They say of themselves that 'they have a strong arm and a cunning head, a small country and poor cattle, and that they must take from those who are richer than themselves.'

'Returning up this stream, they saw a variety of water fowl, and other birds, abundance of fish, and numbers of large hippopotami. Attempting to cross the country from Showey to the Loggun territory, Mr. Toole seems to have received a cold that terminated his earthly career. The journey was through a succession of swamps and stagnated waters, 'where,' says major Denham, 'flies, bees, musquitoes and immense black toads, vie with each other in displaying their peace-destroying powers,' The inhabitants, are so molested by them that they construct within their houses nests of cells one within another, to the number of five or six, to secure a retreat from them. At Kissery, in the midst of these swamps Mr. Toole's sufferings became so great that he could no longer mount and dismount from his horse. They attempted to halt, and their situation may be conceived from the circumstance of their being obliged to light fires at the entrance of their tents, and constantly to supply them with weeds and wet straw, in order to procure a temporary relief from the millions of insects that hovered round them. Their horses refused all food, and naturally averse to flame and smoke, rushed to the fire, and suffered their heads to be actually scorched, in order to obtain a little respite from the stings of their persecutors.

'Painful as their condition was, the Shua Arabs, who guarded the frontier of the Loggun territory, refused to let them pass,' until they had received permission from the sultan. On the 16th February this permission came, but poor Mr. Toole was now quite insensible, and was obliged to be lashed upon a camel. In this state they entered the town, and took possession of a decent hut which had been assigned to them. The next morning major Denham was summoned before the sultan, who, like him of Bornou, was caged up in a box, the front of which was lattice work of cane. This being removed, the major says, something alive was discovered on a carpet, wrapped up in silken robes with the head enveloped in shawls, nothing but the eyes being visible; the whole court prostrated themselves, and threw sand on their heads, while eight trumfrums and as many horns blew a loud and most tremendous blast. On receiving a small present, he *whispered* welcome! for speaking out, it seems, is considered extremely ill-bred in a Loggun gentleman. This old gentleman in the box, on being asked for his permission to proceed up the Shary, enquired particularly if the major wished to purchase any *siriahs*, or handsome female slaves, 'for if you do, he gently whispered, you need go no farther; I have some hundreds, and will let you have them cheap.' Finding however, that he was not likely to gain a customer, the shade was drawn and the audience finished.

'The name of this capital of Loggun is Kurnuck, and it is situated on the banks of the Shary in Lat. 11°. 7'. and contains about fifteen thousand inhabitants, who speak a language half Arabic and half Baghermie. They have a considerable trade with the Shua Arabs, from whom they receive bullocks, milk, and fat, in exchange for blue striped cottons, which they manufacture well, and dye of a very clear and beautiful colour. The people are described as much handsomer than those of Bornou, and more intelligent; the women particularly so, possessing a superior

carriage and manner to those of any black nation that major Denham had ever seen. He was visited by the ladies of some of the principal persons of the country, who examined every thing about his person, begged every thing, and stole every thing they could secrete, and when discovered, only laughed heartily, clapped their hands together, and exclaimed, 'why, how sharp he is! only think, he has caught us!' They have no pretensions, it would seem, to modesty. Major Denham gives them the credit of being the cleverest and the most immoral race he had ever met with, though they call themselves Moslem.

There was no difficulty in getting permission to proceed up the river, which was here about 400 yards wide; and as the major's colleague seemed a little better, he embarked for the purpose of exploring it higher up. The canoes were here better than those lower down, measuring about fifty feet in length, and capable of carrying from twenty to twenty-five persons, built of a fine-grained red wood which grows plentifully on the banks of the Shary; the planks were from two to three feet wide. He had only proceeded a few miles when a boat was seen rowing after them as quickly as possible, and on its coming up, the whole seven that were with him, made to the shore at once in the utmost confusion. He soon discovered that the Baghermie were advancing towards Loggun, and the sultan had sent word that the sheik of Bornou's people should instantly quit the city. It was in vain for the major to plead the sickness of his friend and of his servant;—'go,' said he, 'go while you can, I can give you no protection.' Finding there was no alternative, poor Mr. Toole, unable to assist himself, was again lashed on a camel, and they quitted the walls of Kurnuk, when the three gates were shut upon them one after the other, with great satisfaction, by an immense crowd of people. It was the fourth day before they reached Angala, in Bornou, having enjoyed very little rest, and scarcely any food; the poor sick traveller being delirious the greater part of the time, lashed on a camel, and exposed to the scorching rays of the sun. On being told that they had reached Angala, he said, 'thank God, then I shall not die!' Every hope, however, vanished two days afterwards; a cold shivering seized him, and his extremities were like ice; in this state he continued a few hours, and expired without a struggle or a groan, being completely worn out and exhausted. 'The same afternoon,' says Major Denham, 'I followed his remains to their last lodging place, where six of the sultan of Angala's slaves lowered them into a deep grave they had dug, overhung by a clump of mimosas in full blossom,—and a silent prayer breathed over them was the best funeral service which circumstances allowed me to perform.' Mr. Toole had not completed his twenty-second year, and was in every sense a most amiable and promising young officer. His manners are said to have been extremely pleasing, and his disposition kind, gentle, and obliging. He was perfectly resigned to his fate; and when major Denham, the day before his death, spoke of their return to Kouka, he smiled, shook his head, and said, 'No, no, it is all over;' and shortly after begged, as his last request, that lord Bathurst would recommend his next brother to succeed to his ensigncy in the 80th regiment.

Major Denham now accompanied the sheik's army, on an expedition towards Fittre, round the northern end of the lake; but they made little progress on account of the Rhamadan, as it was said, but chiefly, as it afterwards appeared, of some hostile movements on the part of the people of Waday. The major was most anxious to proceed to Kanem on the northern side, and from thence along the eastern shore of the lake, but the sheik gave almost a positive refusal from anxiety for his safety. He at length, however, consented that he should go to the southward, cross the Shary below Showey, and take with him twenty horsemen, with some of his best Arabs, all armed with guns, while he (the major) was only to have a couple of the fastest going maharies, the fleetest animal that is known; his route to be quite close to the banks of the Tsaad, while the armed force was to take a more inland direction, and nearly parallel with him. He stipulated with the sheik, that he should encompass the lake and return by Laree on the northern extremity, to Kouka. 'The sheik smiles,' he says, 'at my pertinacity in pressing to visit spots that he himself can see so little interest in; but usually ends by saying, 'well, it is wonderful; it would be much less trouble to come back by the same road, but you will have it and it must be done.' Major Denham adds, 'that having purchased and paid for a horse after losing several that the sheik had made me a present of, he sent me word on hearing of it, that if I thought of him, as he did of me, the first person to be made acquainted with my wants would be himself.'

The letter announcing this intended expedition of major Denham round the Tsaad, the last that has been received, is dated the 18th of June, 1824; and the above are the last details of his expedition, which have yet been given to the public.

We have thus exhibited at considerable length, the spirited modern efforts of Englishmen, in exploring these hitherto impervious deserts. It is not however, to be forgotten that other parts of Africa have attracted the attention, and been illustrated by the researches of our enterprizing countrymen. Legh, Light, and Burckhardt, are names (the last especially,) indissolubly connected with the history of its north-eastern shores; while Jackson, Keating, and others have explored its more western wilds: nor must we forget our obligations to Sparrman, Kolben, Vaillant, and Barrow, in southern Africa; or the labours of Hamilton, lord Valentia, and Mr. Salt, in the east of this continent. We shall avail ourselves of the information they have respectively afforded, as these districts are brought successively under our review.

AFRICA, or MEHEDITA, an opulent seaport town on the coast of Barbary, 90 miles S. S. E. from Tunis. It was taken by the emperor Charles V. who demolished its fortifications. Lon. 11°. 10′. E. Lat. 35°. 36′. N.

AFRICAN SLAVE TRADE. See SLAVE TRADE.

The AFRICAN INSTITUTION, is a society instituted for purposes of benevolence, or rather

of reparation toward Africa; its views cannot be better stated than in the resolutions which were adopted at the constituent meeting on the 14th of April, 1807, and which were circulated with the first report, as the basis of the society.

'1. That this meeting is deeply impressed with a sense of the enormous wrongs which the natives of Africa have suffered in their intercourse with Europe; and from a desire to repair those wrongs, as well as from feelings of benevolence, is anxious to adopt such measures as are best calculated to promote their civilization and happiness.

'2. That the approaching cessation of the slave trade, hitherto carried on by Great Britain, America, and Denmark, will, in a considerable degree, remove the barrier which has so long obstructed the natural course of social improvement in Africa; and that the way will be thereby opened for introducing the comforts and arts of a more civilized state of society.

'3. That the happiest effects may be reasonably anticipated from diffusing useful knowledge and exciting industry amongst the inhabitants of Africa; and of obtaining and circulating throughout this country, more ample and authentic information concerning the agricultural and commercial faculties of that vast continent; and that, through the judicious prosecution of these benevolent endeavours, we may ultimately look forward to the establishment, in the room of that traffic by which Africa has been so long degraded, of a legitimate and far more extended commerce, beneficial alike to the natives of Africa and to the manufacturers of Great Britain and Ireland.

'4. That the present period is eminently fitted for prosecuting these benevolent designs; since the suspension, during the war, of that large share of the slave trade, which has commonly been carried on by France, Spain, and Holland, will, when combined with the effect of the abolition laws of Great Britain, America, and Denmark, produce nearly the entire cessation of that traffic along a line of coast extending between two and three thousand miles in length; and thereby afford a peculiarly favourable opportunity for giving a new direction to the industry and commerce of Africa.

'That for these purposes a society be immediately formed,' to be called 'The African Institution.' Disclaiming all colonial and mercantile speculations, and all direct aim at the propagation of religion, which they deemed the sole and legitimate purpose of the christian missionary, they further resolved to pursue their object by such means as the following. To collect and diffuse information respecting the natural productions of Africa, and respecting its agricultural and commercial capacities, its intellectual, moral, and political condition—to cultivate a friendly connexion with the natives, and promote their instruction in the art of reading, and in useful knowledge in general—to enlighten them with regard to their true interests, and the means by which they may improve the present opportunity of substituting a beneficial commerce for the slave trade—to introduce amongst them the improvements and most useful arts of Europe—to promote the cultivation of the African soil, by furnishing the natives with seeds, and plants, implements of husbandry, and agricultural instruction—to acquaint them with medical discoveries—to obtain a knowledge of the African languages, and reduce them to a written form, and to employ agents for establishing correspondences, &c. From its commencement the society has maintained a most jealous circumspection with regard to the execution of the abolition laws, communicating information to government, and aiding its measures with the wisdom of practical experience. We wish we could add, in respect to foreign nations, with a success proportionate to its zeal. In consequence of the scantiness of the society's funds, the latter purpose has hitherto been that to which its principal attention has been directed, as the primary step to improvement. The annual Reports of this society very ably detail its proceedings, which are under the management of a patron and president, twenty vice-presidents, a treasurer, and a committee of management, consisting of thirty-six persons, annually chosen. The president is the duke of Gloucester.

AFRICAN COMPANY, a society of merchants, established by Charles II. for trading to Africa. An association of merchants of the city of Exeter gave rise to this company, and first received a patent in 1588, from queen Elizabeth, which conferred on them the exclusive privilege of trading to the rivers Senegal and Gambia for ten years. A similar charter was granted by her successor James I. to certain merchants forming a joint stock company in 1618, but it was soon dissolved: a third company created in 1631, by Charles I. shared a similar fate. A demand for negroes for our West India islands began however to be pretty constant about this time, and the duke of York, with some other persons of distinction, in 1662, obtained a charter from Charles II. which secured to the English a monopoly of all commerce with Africa, from Cape Blanc to the Cape of Good Hope. Of this company also the directors in a few years resigned their charter; when in 1672 the last incorporation of this description was formed by letters patent, and conducted for some time a flourishing trade. They raised a joint capital of £111,000, and erected various forts on the coast, until the existence of these monopolies by grants from the crown, being considered at the Revolution inconsistent with the declaration of rights, the trade to Africa was thrown open. All private traders, however, were obliged, by stat. 9 and 10 William and Mary, to pay 10 per cent. towards maintaining the forts and factories already erected; and in 1730, £10,000 was granted by parliament in aid of this expence.

In 1750 the original company being completely bankrupt, its forts and various establishments on the African coast were vested, by 23 Geo. II. cap. xxxi, in the present Company of Merchants trading to Africa. This company cannot trade as a corporate body, nor possess transferrable stock; its duties are to maintain all the forts and garrisons in good repair, that lie between Cape Rouge and the Cape of Good Hope; any British subject may be admitted

rate it on the payment of 40*s.*; and the management of its affairs are vested in nine commissioners, chosen annually, for London, Liverpool, and Bristol, in equal numbers. The commissioners appointed to enquire into the state of the African Settlements, in 1812, gave the following as the annual expence of each of these forts:

	£		
Appollonia	879	7	10½
Dixcove	926	2	5
Succondee	429	3	5½
Commenda	842	2	3
Cape Coast Castle	4768	9	1¼
Annamaboe	1885	12	3½
Tantumquery	771	17	6¾
Winnebah	776	8	11
Accra	1328	1	0
Whydah	587	16	6¾
	£13195	2	5

The whole annual expences of the Company in Africa, for forts, salaries of officers, &c. is stated to be £25,327 1*s.* 5½*d.* It further appears from this Report, that the trade of the coast is chiefly in the hands of the governors of the forts, to each of whom it affords a perquisite of from £800 to £1000 a year.

The company's annual expenditure at home, consists of £100 to each of the nine members of the committee; and £300 to the secretary; in all £1200. The number of persons in their employ at Christmas 1813, consisted of forty-seven governors and subordinate officers; 450 soldiers and menials; and they had thirty-seven negro chiefs in their pay.

The AFRICAN ASSOCIATION, distinguished for its early patronage of travellers in Africa, originated with gentlemen of various parties, who in 1788, united themselves, to the number of about ninety-five, to promote the discovery of the interior of this great continent. Their affairs were conducted by a committee of five distinguished individuals. Lord Rawdon (the present marquis of Hastings), the late Dr. Watson, Bishop of Landaff, Sir Joseph Banks, H. Beaufoy, Esq. and Mr. Stuart; who had the honour to dispatch the intrepid Ledyard on his first journey to Africa, in the year of their institution; and it was to Henry Beaufoy, Esq. that Ledyard made the memorable answer, on being asked, upon the first interview, when he would set out?—'To-morrow morning.' The committee assigned him, in conformity with his own desire, the course from east to west, in the supposed latitude of the Niger. In August he arrived at Cairo; but died before entering upon the route proposed. Mr. Lucas was their next traveller, but with little more success. Embarking for Tripoli in October, (1788), he was instructed to penetrate the desert of Zaara to Fezzan, and to return by way of Gambia. But at Mesurata, he found those difficulties which deterred him from proceeding farther. In 1790 Major Houghton was engaged by the committee to ascend the Gambia eastward, and to continue on the same line of route over the continent. He reached the coast in November, and went up the river 900 miles, to Bambouk, and from thence to the adjoining province of Kasson, where he died in September, 1791. The association now had the honour of employing the celebrated Mungo Park, who in 1795 entered upon the same route as his predecessor; explored the source of the Niger to Sansanding, and after almost incredible exertions returned in about two years. He was afterwards, it is but too well known, sent out by government in 1805, to renew these labours, and never more returned.

To the individuals who first directed and encouraged the enterprises of our countrymen in this direction, it is due thus to re-state the names and objects of their travellers; of whom Mr. Horneman was the last. This gentleman embarked from London in 1797; was at Cairo when the French expedition, under Buonaparte, had possession of the country; and, on explaining his object, was received under the general's protection; was heard of at Tripoli in April 1800, but since that period all intelligence of him has ceased. Latterly government has with great zeal directed and equipped various expeditions to the Interior of Africa: and nobly superseded those exertions of private societies.

AFRICA is represented on medals by the different symbols of the elephant, Pegasus, scorpion, lion, &c. as on a medal of Adrian, bearing on the obverse the head of the emperor HADRIANUS AUG. CO*nSul* III. *Pater Patriæ*, on the reverse the

figure of a female crowned with the proboscis, &c. of an elephant, and holding a scorpion in her hand; from the abundance of those animals in that country, inscription AFRICA. The female has also a cornucopiæ in her arms, and a basket with ears of corn at her feet, emblematical of its fertility. A medal of Severus bears on the obverse the head of Severus crowned with laurel, inscription SEVERUS PIUS AUG.; on the reverse a figure of Africa standing, having ears of corn in her right hand, and a lion at her feet; inscription P*ontifex* M*aximus* TR*ibunus* P*opuli* CO*nSul* III. P. P.

AFRICANUS FLOS. Gerard mentions four species of this flower; Miller enumerates and describes thirteen; but they are of no repute in medicine.

AFRICANUS, (Julius,) an historian of the third century, the author of a chronicle which was greatly esteemed, and in which he reckons 5500 years from the creation of the world to Julius Cæsar. This work, of which we have now no more than what is to be found in Eusebius, ended at the 221st year of the vulgar æra. Africanus also wrote a letter to Origen on the

tory of Susanna, which he regarded as supsitious; and we have a letter of his to Arises, in which he reconciles the seeming condictions in the two genealogies of Christ, orded by St. Matthew and St. Luke. The peror Heliogabalus at his request rebuilt the bey of Nicopolis on the site of the ancient mmaus. The remains of this author were nted among the Mathematici Veteres, Paris, io, 1693, and were translated into French by . Guischardt in his Memoires Militaires des ecs et des Romains, Paris, 1774. The early rt of his Chronology is supposed to be an ridgment of the work of Manetho, who lived O years B.C. The exact time of his death is ubtful.—Lardner says 'We may glory in ricanus as a Christian.'

AFRICANUS, (Scipio.) See SCIPIO.

AFRICTA, a kind of wafers, which the anents used in their sacrifices.

AFRIQUE, St. a town of France in the epartment of the Aveyron, on the Sorgues, leven leagues and a half S.S.E. from Rodez. opulation 3580.

AFRICUS, a name sometimes given to the ind S.W. and by W. so called from its blowng from Africa. Horace calls it protervus.

AFRONT'. In front.

AFSLAGERS, in commerce, persons appointed by the burgomasters of Amsterdam to preside over the public sales made in that city. They must always have a clerk of the secretary's office with them, to take an account of the sale. They correspond to our brokers, or auctioneers.

AFT', AFT'ER, *prep.* & *adv.* AFT'EREYE, AFT'ERWARDS. Gothic, *aftaro*, A.S. Æftep: according to Tooke, the comparative of the noun aft; it is synonymous with hind, and back, and is a frequent prefix in compound words, but affects their signification no otherwise than its general acceptation imports; i. e. succession in order of time and place.

In þe vÿf hondred ȝer of Grace Seÿnt Austÿn hÿder com.
And four score ȝer and tuo, to prechy Cristendom.
And aboute an hondred ȝer yt was and fÿftÿ al so,
After þat Saxons and Englysse verst come þys lond to. *R. Gloucester*, p. 230.

Help þi kynne Crist bit. for per bÿ gÿnnep charite,
And *afterwarde* awhaite, hoo hap moost neede
And per help ÿf þou hast.
Vision of Piers Plouhman, p. 288.

Therfore kepe ye and do ye alle thingis, whatever thingis thei seyen to you: but nyle ye do *aftir* hir werkis; for thei seien and do not.
Wiclif, Matt. xxiii.

O ye sonnes of men, how longe wyll ye blaspheme myne honour? ād haue soch pleasure in vanyte, and seke *after* lesyng? *Bible*, Ps. iv.

And saw the fox toward the wode is gon
And bare upon his back the cok away.
They crieden, out! harow and wala wa!
Aha the fox! and *after* him they ran
And eke with staves many another man.
Chaucer. Nonnes Preestes Tale, v. ii. p. 196.

Uses, not thought upon before, may *afterward* spring up; and be reasonable causes of retaining that, which former considerations did formerly procure to be instituted *Hooker.*

Let go thy hold, when a great wheel runs down a hill; lest it break thy neck, with following it: but the great one, that goes upward, let him draw thee *after*. *Shakspeare's King Lear.*

Thou shouldst have made him,
As little as a crow, or less; ere left
To *after-eye* him. *Shaksp. Cymbeline.*

Good *after* ill, and *after* pain delight;
Alternate, like the scenes of day and night.
Dryden's Fables.

Those, (who from the pit of hell,
Roaming to seek their prey on earth) durst fix
Their seats long *after*, next the seat of God.
Paradise Lost.

Far be it from me, to justify the cruelties which were at first used towards them, which had their reward soon *after*. *Bacon.*

When o'er the ship in undulation vast,
A giant surge down rushes from on high,
And fore and *aft* the severed ruins lie.
Falconer's Shipwreck.

AFT, in maritime affairs, abaft or behind, near the stern of the ship, as, 'To run out the guns afore and aft,' i.e. from one end to the other.—'Right aft,' i.e. in a direct line with the stern when applied to any distant object.—'To haul aft the fore sheet or main sheet,' i.e. to pull the sails more towards the stern.

AFTER, in maritime affairs, the hinder part of the ship, as the after-hatchway, the after-capstan, after-sails, &c.

AFTER-GUARD, the seamen who are stationed on the poop and quarter-deck of vessels, to attend and work the after-sails, &c.

AFTER-BIRTH, in midwifery. See PLACENTA

AFTER-MATH, in agriculture, or after-grass, the second crop, or grass which springs up after mowing: or grass-math, that is cut after some kinds of corn. In cutting rowen or second crops of grass, says Mr. Loudon, more attention will be requisite than in the first, as the crops are mostly much lighter and more difficult to cut, the scythe being apt to rise and slip through the grass without cutting it fairly, except when in the hands of an expert workman. Crops of this sort should always be cut as much as possible when the dew is upon them; and as soon as ever there is a tolerable growth, as by waiting, the season is constantly getting more unfavourable for making them into hay; and when not well made this hay is of little or no value. When the grass has been decided to be in the proper condition for being cut down, a set of mowers proportioned to the extent of the crop should be immediately provided. In some districts, it is the custom to pay these labourers by the day; but a better and more general practice is, to let the work at a certain price by the acre. The extent or proportion of ground that can be mown in any given space of time, must obviously vary much according to the nature of the ground, the fulness of the crop, and the goodness of the workman, but in general an acre is supposed a full day's work for an expert mower.

AFTER-KINDRED, a term used by some writers for remote kindred.

AFTER-NOON. The Romans professed to dedicate their mornings to business, and their afternoons to diversions, as at their game called pila, and other exercises of the body, especially walk-

ing or riding. These lasted till the eighth or ninth hour, answering to our three o'clock, which was the time for the baths. After bathing, they anointed and perfumed themselves; and about the tenth hour, went to cœna, supper, about three hours before sun-set; which done, the day was ended at the public spectacles, theatrical or amphitheatrical sports; with music, singing, and the like.

AFTER-SAILS, in maritime affairs, comprehend all those which are extended on the mizen mast, and on the stays, between the mizen and main-masts: they are opposed to the head sails.

AFTER-THROES, or pains, enixus posteri, dolores post partum, in midwifery, are pains resembling labour pains, though ordinarily less violent, and which occur after the expulsion of the placenta; being occasioned by the contraction of the uterus to expel foreign bodies from its cavity, as well as to reduce the capacity of the blood-vessels, which, during pregnancy acquire a considerable magnitude. They are more or less severe in different women, but are found very rarely to occur after first labours. They are more frequent after the birth of large, than of small or middling-sized children; or after labours that have terminated in an unusually quick and rapid manner, particularly if the placenta has been extracted almost immediately after the birth of the child. After-pains, even when most severe, are seldom attended with danger; and are best relieved by the application of warm cloths, with gentle friction; by giving internally twenty-five or thirty drops of the tincture of opium, or by assiduously rubbing upon the region of the uterus, a mixture composed of four parts volatile liniment, and one of the tincture of opium; by administering frequent draughts of warm gruel, or giving castor oil, or some other gentle purge on the following day. See LABOUR.

AFTER-SWARM, are secondary or posterior swarms of bees, frequently found to quit the hives within a fortnight after the first. Some writers distinguish the after swarms from the prime, in that the latter are directed by the vulgar, or crowd of bees, whose only rule is the fulness of the hive; whereas the former are appointed by the ruling bees, and indicated by a noise or call, which these make for the space of two or three days, as it were, to give warning to the common herd to prepare for a march. Within eight or ten days after the prime swarm is gone, if the princess next in order find a competent number fledged and ready, she begins to tune her treble voice, in a mournful and begging note, as if she prayed the queen-mother to let them go; to which voice, if she vouchsafe a reply, by tuning her base to the other's treble, it marks her consent; in consequence of which, within a day or two after, if the weather allow, the new swarm appears. If the prime swarm be broken, the after will both call and swarm the sooner, perhaps the next day; in which case a third, sometimes a fourth, succeeds in the same season; but all usually within a fortnight after the prime swarm. See SWARM.

AFTO, in botany, a name given by the natives of Guinea, to a plant of the erysimum kind, which they grind to powder, and take as snuff, to cure the head-ach. Petiver has called this plant the woody and woolly erysimum, or hedge-mustard of the coasts of Guinea.

AFUERA, an isle of Juan Fernandez, in the Pacific, on the coast of Chili. Its coasts abound with sea-fowl and wolves. W. long. 80°. 5′. S. lat. 33°. 47′.

AFWESTAD, a town of Sweden, in Dalecarlia, seated on the Dala; which has a copper work, a church, a post-office, and a mint for coining. In the middle of the last century a portion of the copper coinage of the country was here conducted, but this is now discontinued.

AFWIOWARA, a village and district of Kautokeino, in Lapland, situated on the mountains under Norway. It has a bailiwick and a court of law.

AFZELIA, in botany, a genus of the didynamia angiospermia class and order; the characters of which are, CAL. quinque-partite, COR. campanulated, and the capsule rotundated, acuminated, double-celled, gaping at the apex and polyspermous; with hemisphermic receptacles. There is one species, the Afzelia Cassioides, the Afzelia of Gmelin. Also a new species of the decandria monogynia class and order, near the Hymenæa, and of the natural order of leguminosæ: the essential characters of which are, CAL. tubulose with a limb quadrifid, deciduous; PET. four, unguiculated, with a very large head: the filaments two, superior, sterile; the legumen multicelled; the seeds arillated at the base. It is found in Africa, near the equinoctial. Linnæan Trans. vol. iv. p. 221.

AGA, in the Turkish language, signifies a great lord or commander. Hence the general of horse is denominated spahilar agassi; and the aga of the Janissaries is the commander in chief of that corps. He is an officer of great importance; and is the only person who is allowed to appear before the Grand Signior, without his arms across his breast, in the posture of a slave. Eunuchs at Constantinople are in possession of most of the principal posts of the seraglio, and the title aga is given to them all, whether in employment or out. It is also given to all such as are without employ, and especially to wealthy landholders.—We find also agas in other countries. The chief officers under the Khan of Tartary are called by this name. And among the Algerines, we read of agas chosen from among the boluk bashis (the first rank of military officers), and sent to govern in the chief towns and garrisons of that state. The aga of Algiers is the president of the divan, or senate. For some years, the aga was the supreme officer, and governed the state in place of bashaw, whose power dwindled to a shadow. But the soldiers rising against the boluk bashis, or agas, massacred most of them, and transferred the sovereign power to the califf, with the title of Dey or king.

AGA, or ADJA, in geography, a village about half a mile from Anamaboa, on the gold coast of Africa, where the Dutch formerly had a fort. The landing is difficult and dangerous; but the adjacent country produces several valuable commodities, and among others a very fine cotton.

AGAAZI, or AGAGI, in geography, the Abyssinian denomination of a class of shepherds, who are said to have been employed by the descend-

ants of Cush, the first inhabitants of the country, and by dispersing the produce of Arabia and the eastern coast of Africa over the continent, to have acquired wealth and influence. Agag, says Mr. Bruce, denoted the nobles and chiefs of the armed shepherds, whence came their title king of kings; and the plural of this is agagi, or, as it is written in the Ethiopic, agaazi. The king of Amalek, mentioned 1 Samuel, ch. xv. and slain by Samuel, was, according to this writer, a shepherd of this kind. *Bruce's Trav.* v. i. 387.

AGA CRETENSIUM, in botany, the Spanish milk-thistle.

AGABUS, Αγαβος, Gr. a grass-hopper, a prophet, who foretold the famine that happened in the reign of Claudius Cæsar, A. D. 44, and the persecution of Paul by his countrymen at Jerusalem. See Acts xi. 28, and xxi. 10. He is said to have suffered martyrdom at Antioch.

AGADA, an Egyptian or Abyssinian wind instrument, of the flute species, but with a mouth piece, like a clarionet.

AGADEER, the Gesert Ghessem of Leo Africanus, or SANTA CRUZ, a noble port, and once a very flourishing town of Morocco. No port of the empire has so fine and secure a road for vessels. The town stands on the summit of a mountain, and is defended with batteries. Its inhabitants were transferred by Seedy Mahomet to Mogodor, and the place has never since recovered its original constitution.

AGADES, (Audagost, of Edrissi,) a flourishing town of central Africa, on the caravan route from Tripoli and Fezzan to Cassina. It is forty-seven days journey from Mourzouk, and many of the merchants from that quarter stop at Agades, to change their commodities for those of Soudan, and the countries to the south of the Niger. The merchants of this place are the sole carriers of the salt which is found on the banks of the lake of Domboo, in the desert of Bilma, though that territory belongs to Bornou. Senna of a very superior quality grows in the neighbouring mountains. The African Association (1792) states Agades to be one of the cities of Cashna, but Horneman reports it to be the capital of an independent kingdom called Asben. It is the centre of the trade of the interior of Africa.

AGADEEP, a town of Bengal, on the Bhagarutty, 14 miles south of Plassey. The word signifies 'The extreme Island,' and the Hindoos state that the sea originally reached this place.

AGAG, גג, Heb. i. e. an upper room, a king of the Amalekites, equally cruel and effeminate, who was spared by Saul, notwithstanding the express command of the Almighty, and slain by Samuel, because 'his sword had made many women childless.' His cowardly dread of death, recorded in 1 Samuel, xv. affords one of numberless proofs recorded in history, that those monsters, who put no value on the lives of others, are generally most anxious to preserve their own.

AGAGITE, an epithet given to Haman, the proud prime minister of Persia, probably because he claimed, or deduced his descent from the tyrant mentioned in the last article; an ancestor, worthy of such a descendant.

AGAGEER, a name given in Abyssinia to those who hunt and kill the wild elephants. Their name is derived from the word Agar, which signifies to hough or ham-string with a sharp weapon. These persons dwell constantly in the woods, and live entirely on the flesh of the beasts which they kill, which are chiefly the elephant and rhinoceros. They are light and agile, both on horseback and on foot; of a swarthy complexion: and have European features. The manner in which they kill the elephant is as follows: two men, altogether naked, mount the same horse, which the foremost manages, and the hindmost has a broad sword, the handle of which he grasps with his left hand, whilst with his right he takes hold of a part of the blade, round which whip-cord is twisted. The edges of the sword are as sharp as a razor, and yet he carries it without a scabbard. When the elephant is found feeding, the horseman runs before him, making noises to irritate him; the animal incensed by this, attempts to seize the horse and rider with his trunk, instead of endeavouring to make his escape. The horseman after some evolutions of this kind, rides up to the elephant and drops his companion on the off side; and, whilst the rider engages the attention of the animal, the other person gives him a stroke above the heel, in that part which in the human subject is called the tendon of Achilles. After which, the horseman turns round and takes up his companion. Sometimes an expert Agageer will kill three out of one herd. The blow commonly separates the tendon, or at least wounds it to such a degree that the weight of the animal breaks it. In this state the horseman and his companion speedily dispatch the animal with their javelins and lances; when he is slain, the flesh is cut off the bones into strings, and these are hung on the branches of trees to dry, without salt; and, are then laid by for their stock of provision in the season of the rains.

AGAI. See AGIO.

AGAIN', *a.* AGAINST,' AGAIN'WARD, AGAIN'SAY. } Sax. aȝen, from Onȝeȝen, to meet; to oppose; to encounter:—Tooke. Again, and its cognate words, denote repetition, transition, opposition; in our earlier literature, we find ayen, ayenst, agane; agens, agen, still later.

——————He gedere ys ost anon
To werre, and to stonde *aȝeiȝn* pe Romaynes ys fou.
R. Gloucester, p. 80.

Sir, said kyng Guyon, turne *ageiȝn*, I rede,
Frankis and Burgoillon, els alle gos to dede.
R. Brunne, p. 191.

For I schal gyue to you mouth and wisdom to whiche all youre aduersaries schulen not mowe *agenstonde* and *agenseye*. *Wiclif. Luke* xxi.

Not yeldinge yuel for yuel, neither cursyng for cursyng, but *agenward* blessynge.
Wiclif. Peter iii.

And therfore is I come, and eke Alein,
To grind our corn, and carry it home *agein*:
I pray you spede us heuen that ye may.
Chaucer. The Reeve's Tale, v. i. p. 159.

Long was I, lady Lucke, your seruing man,
And now haue lost *agayne* all that I gat,
Wherfore whan I thinke on you nowe and than,
And in my mynde remember this and that,
Ye may not blame me though I beshrew your cat,
But in fayth I blesse you agayne a thousand times,
For lending me now some laysure to make rymes.
Sir T. More's Davy the Dycer.

How oft do they [angels] with golden pinions cleave
The flitting skies like flying pursuivant,
Against foul fiends to aid us militant. *Spenser.*

Thence she them brought into a stately hall,
Wherein were many tables fair dispred,
And ready dight with drapets festival,
Against the viands should be ministred.
Faerie Queene.

The like charge was given them *against* the time, they should come to settle themselves in the land promised unto their fathers. *Hooker.*

Some say, that ever, *'gainst* that season comes,
Wherein our Saviour's birth is celebrated,
The bird of dawning singeth all night long:
And then they say, no spirit walks abroad;
The nights are wholesome; then no planets strike;
No fairy takes, no witch hath power to charm;
So hallow'd and so gracious is the time.
Shakspeare's Hamlet.

Hope is a lover's staff, walk hence with that,
And manage it *against* despairing thoughts.
Shakspeare's Two Gentlemen of Verona.

To that purpose he made haste to Bristol; that all things might be ready *against* the prince came thither. *Clarendon.*

Against the promis'd time provides with care,
And hastens in the woof the robes he was to wear.
Dryden.

A little learning is a dang'rous thing:
Drink deep, or taste not the pierian spring;
There shallow draughts intoxicate the brain;
And drinking largely sobers us *again.*
Pope.

All which, I grant to be reasonably and truly said; and only desire, they may be remembered *against* another day. *Stillingfleet*

AGALACTIA, Agalaxy, from *α* and *γαλα*, Gr. Want of milk.

AGALLOCHUM, from Αγαλλομαι, I boast, alluding to its excellent odour, a medicinal wood imported from the East Indies, usually in small pieces, and of a very fragrant scent. See Xyloaloes.

AGALMA, Agalmata, Gr. Αγαλμα, in antiquity, a term originally used to signify any kind of ornament in a temple; but afterwards for the statues only, as being most conspicuous; or the temple itself.

AGAMA, in zoology, a species of the lacerta, with a long and round tail, under the head and above the neck aculeated with reverse scales. It is the iguana cordylina.

Agama, in zoology, another variety, called iguana salam andrina, is imbricated on the tail with large scales.

AG'AME. In game. See Game.

For by my trouth, I say it not *in game*,
To wend as now, it were to me a shame.
Chaucer's Third Book of Troilus, fol. 170.

I am right glad with you to dwellen here,
I said but *agame* I would go. *Idem.*

AGAMEDES, in fabulous history, is said along with his brother Trophonius, to have built the chancel, or oracle, of the famous temple of Apollo, at Delphi, of five whole stones: and that when they had finished their work, they requested of the god that they might receive for their reward what he judged best: and within three days after, they were both found dead in bed!

AGAMEMNON, the son of Atreus and Ærope, was captain-general of the Trojan expedition. It was foretold to him by Cassandra, that his wife Clytemnestra would be his death; yet he returned to her, and accordingly was murdered by Ægisthus, who had corrupted his wife in his absence, and by her means usurped the government. Homer calls him *κρειων*, and *ανδρων*.

AGAMENTICUS, a mountain of north America, in the province of Maine. Lat. 43°. 15'. It is about eight miles from the sea, and is a noted land-mark for mariners. Also a river of North America, in the centre of York county, and district of Maine. It receives its waters from the ocean through the bay of Pascataqua, and has only a scanty supply from streams of fresh water. Its mouth is about four miles south from Cape Neddic river, and admits small vessels.

AGAMESTER, the eleventh archon of Athens.

AGAMI, in ornithology, a name applied by Buffon to the psophia crepitans of Linnæus, the grus psophia of Pallas, the Phasianus Antillarum of Brisson, and the gold-breasted trumpeter of Latham; the specific character of which is, that its head and breast are smooth, green, and shining. The bird is about twenty-two inches long.

AGAN, one of the Ladrone islands, where Magellan, in search of the Moluccas, was assassinated.

AGANA, a large town of Guam, one of the Ladrones, built by the Spaniards when they colonized the island. It is pleasantly situated on the western coast, 12 miles N. E. of the harbour. The houses, which stand on posts about three feet from the ground, are mostly composed of wood, and are laid out in straight and long streets. The Spaniards have a large government house, a royal magazine, and barracks for 500 men. These, together with a fine church in the Spanish style, and two convents or colleges, are of brick. The town has some beautiful gardens, and is very well defended. It stands in Lat. 13°. 26'. N.

AGANIPPE, in antiquity, a fountain of Bœotia, at mount Helicon, on the frontier of Phocis and Bœotia, sacred to the Muses, and running into the river Permessus; Ovid seems to make Aganippe and Hippocrene the same. Solinus distinguishes them, and ascribes the blending them to poetical license.

AGANIPPIDES, in ancient poetry, a designation given to the Muses, from Aganippe.

AGAOMA, or Agama, a district of Abyssinia, in the province of Tigré, to the south of Dixan. During the government of Ras Michael it paid a considerable tribute of gold and cattle; but since Shum Woldo became master of it, it has yielded but a small revenue.

AGAPANTHUS, *quasi αγαπητος ανθος*, plea-

sant flower, in botany, a genus of the hexandria monogynia class and order, of the natural order Liliaceæ, the Spathaceæ of Linnæus, and the Narcissi of Jussieu. Its characters are, CAL. a spathe common gaping at the side; COR. one-petalled, funnel-shaped and regular; tube cornered, as if composed of six claws, border six-parted, with the parts oblong and spreading; STAM. six filaments inserted in the throat, shorter than the corolla, declinate; the anthers kidney-shaped and incumbent; PIST. a superior germ, oblong, three-cornered: the style filiform, of the length of the stamens and declinate; the stigma simple, or trifid; the pericarpium is an oblong capsule, three-sided, three-celled, three-valved: valves navicular, with contrary dissepiment; the seed numerous, oblong, compressed, and enlarged with a membrane. There is one species, viz. agapanthus umbellatus, the crinum Africanum of Linnæus, or African blue lily. This is the African tuberose hyacinth, with a blue umbellated flower. The root of this plant is composed of thick fleshy fibres; from the same head arises a cluster of leaves, and a stalk supporting an umbel of blue flowers, each flower standing on a pedicle, about an inch long, which make a fine appearance. They come out at the end of August, or beginning of September, and frequently continue in beauty till spring. The flowers are those of the hemerocallis, but this genus is distinct from it in its spathe. It is a native of the Cape of Good Hope, from whence it was brought to Holland, and in 1692 it was cultivated at Hampton Court.

AGAPE'. See GAPE.

In himself was all his state;
More solemn than the tedious pomp, that waits
On princes; when their rich retinue long,
Of horses led, and grooms besmear'd with gold,
Dazzles the crowd, and sets them all *agape*.
Paradise Lost.

Dazzle the crowd, and set them all *agape*. *Philips.*

AGAPE, in ecclesiastical history, from Αγαπη, Gr. love, the love feast, or feast of charity, in use among the primitive Christians; when a liberal contribution was made by the rich to feed the poor. St. Chrysostom gives the following account of this feast, which he derives from the apostolical practice. He says, 'The first Christians had all things in common, as we read in the Acts of the Apostles; but, when that equality of possessions ceased, as it did even in the Apostles time, the agape, or love feast, was substituted in the room of it. Upon certain days, after partaking of the Lord's supper, they met at a common feast; the rich bringing provisions, and the poor, who had nothing, being invited.' It was always attended with receiving the holy sacrament; but, there is some difference between the ancient and modern interpreters as to the circumstance of time, viz.—Whether this feast was held before, or after the communion. St. Chrysostom is of the latter opinion; the learned Dr. Cave of the former.—These love feasts, during the three first centuries, were held in the church without scandal or offence; but, in after times, the heathens began to tax them with impurity. This gave occasion to a reformation of the agapæ. The kiss of charity, with which the ceremony used to end, was no longer given between different sexes; and it was expressly forbidden to have any beds or couches, for the conveniency of those who should be disposed to eat more at their ease. Notwithstanding these precautions, the abuses committed in them became so notorious, that the holding of them, (in churches at least,) was solemnly condemned, at the council of Carthage, in the year 397. Some modern sects, as the Wesleyans, Sandemanians, &c. have attempted to revive this feast.

AGAPETÆ, in ecclesiastical history, a name given to certain virgins and widows, who, in the ancient church, associated themselves with, and attended on, ecclesiastics, from motives of piety and charity. In the primitive days there were women instituted deaconesses; who, devoting themselves to the service of the church, took up their abode with the ministers, and assisted them in their functions. They afterwards degenerated into libertinism; insomuch, that St. Jerome asks, with indignation, unde agapetarum pestis in ecclesias introiit? This gave occasion to councils to suppress them.

AGAPIS, in natural history, a stone of a dusky yellow, or the colour of a lion's skin; held in great esteem in many nations, on account of its supposed virtues, as an anodyne and vulnerary.

AGAR, Abraham's concubine. See HAGAR.

AGARD, Arthur, a learned English antiquarian, born at Foston, in Derbyshire, in the year 1540. His fondness for English antiquities induced him to make many large collections; and his office as deputy chamberlain of the exchequer, which he held forty-five years, gave him great opportunity of acquiring skill in that study. Similarity of taste brought him acquainted with Sir Robert Cotton, and other learned men, who associated themselves under the name of The Society of Antiquaries; of which society Mr. Agard was a conspicuous member. He made the Doomsday book his peculiar study; and composed a work to explain it, under the title of Tractatus de usu et obscurioribus verbis libri de Domesday: he also compiled a book for the service of his successors in office, which he deposited with the officers of the king's receipt, as a proper index for succeeding officers. A selection of his Enquiries into the polity and constitution of England, was published after his death by Mr. Hearne in the papers of the Antiquarian Society. All the rest of his collections, consisting of at least twenty volumes, he bequeathed to Sir Robert Cotton: and died in 1615.

AGAREE, a station for caravans between Cassena and Gadanus, in the great Desert of Sahara, one hundred and thirty miles S. E. of Gadanus.

AGARENI, or AGARENIANS, the followers of the religion of Mahomet. The word is derived from Agari, or Hagar, handmaid of Abraham and mother of Ishmael; and properly denotes the Arabs, called also Ishmaelites, and more lately Saracens.

AGARIC, in botany. See AGARICUS.

AGARIC, in pharmacy, a kind of fungous excrescence, growing on the trunks and large branches of several trees; but chiefly on the larch tree, and upon some kinds of oak, when

decayed. Three fourths of it consist of a resinous substance, and the remainder is a slimy mucilaginous earthy matter, so tenacious, as scarcely, by any method to be dissolved by water. It is easily cut with a knife, friable betwixt the fingers, and has no hard, gritty, or coloured veins. It is an ingredient in the theriaca Andromachi, where it is admitted in the quality of a cordial: though its cardiac virtue is excepted to as much as its purgative. It was in much esteem among the ancients, but has deservedly fallen into disrepute of later years, as it occasions insupportable nausea. Tournefort enumerates eighteen species of agaric. But it is more generally divided into three kinds; the male, the female, and the false or spurious agaric. The best comes from the Levant; that which comes from Savoy and Dauphiny being less esteemed. Holland also affords some, but that is reckoned the worst; because it is grated, and whitened at the top with chalk. By a chemical solution it passes almost wholly into oil; it yields no volatile salt, but abounds with a sort of flaky earth, and acid phlegm; as to texture, it seems much to resemble colocynth.

AGARIC, FALSE, or bastard, or oak agaric, is that which grows on those trees. It is commonly reddish, and very heavy, it is very little esteemed, which probably occasioned its being called the false agaric. The druggists look only upon that which grows on the larch tree to be the right sort.

AGARIC, FEMALE, is the most esteemed in medicine. To be good it ought to be white, large, brittle, and bright, so as to be easily pulverised; of a lively and penetrating scent, and of a bitter taste. This was thought efficacious as a styptic, to restrain not only venal, but arterial hæmorrhages without the use of ligatures. Its reputation, however, did not long subsist; and after repeated trials, the surgeons of London were obliged to discontinue it as inefficacious and unsafe.

AGARIC, MALE, otherwise called the common or heavy agaric, is of a yellowish colour, and pretty solid. It is commonly used in dyeing black, and is reckoned among the non-colouring drugs, which the dyers of the best woollen cloth and serges are obliged to use in France. It is called non-colouring, because it can produce no colour of itself, without being mixed with other ingredients.

AGARIC, MINERAL, a kind of stone, or marle, which is found in the cliffs of rocks in different parts of Germany. It is very white and light, whence, it is called milk of the moon. It is also named marrow of stone, or lithomagra, and stenomagra. Some tell us that the calcination of this stone is performed by the vapours of the metals within the rocks where it is found. It is used internally against hæmorrhages, the stranguary, gravel, and especially dysenteries; externally, to dry and heal old ulcers, stop defluxions of the eyes, &c.

AGARICON. See last and next articles.

AGARICUS, or MUSHROOM, a genus of the order of fungi, belonging to the cryptogamia class of plants. Only the esculent kinds of mushrooms are cultivated; and the following method is used by the gardeners who raise them for sale.—If the young mushrooms cannot be procured from gardens, they must be looked for in rich pastures during August and September: the ground must be opened about the roots, where it is frequently found full of small white knots; which are the off-sets, or young mushrooms. These must be carefully gathered in lumps, with the earth about them: but as this spawn cannot be found in the pasture, except at that season when the mushrooms are naturally produced, it may be searched for at any time in old dung-hills, especially where there has been much litter, and it hath not been penetrated by wet so as to rot; it may also be found very often in old hot-beds: but it may be procured by mixing some long dung from the stable, which has not been thrown on a heap to ferment, with strong earth, and put under cover to prevent wet getting to it. The spawn commonly appears in about two months after the mixture is made; but proportionably the sooner the more effectually the air is excluded, provided the mixture is not kept so close as to heat. Old thatch, or litter which has lain long abroad so as not to ferment, is the best covering. The spawn has the appearance of white mould shooting out into long strings, by which it may be easily known wherever it is met with.—The beds for receiving the spawn are now to be prepared. These should be made of dung in which there is plenty of litter, but which should not be thrown on a heap to ferment: that dung which has lain spread abroad for a month or longer is best. The beds should be made on dry ground, and the dung laid on the surface; the width at the bottom should be two and a half or three feet, the length in proportion to the quantity of mushrooms desired; then lay the dung about a foot thick, covering it with strong earth about four inches deep. Upon this lay more dung, about ten inches thick; then another layer of earth, still drawing in the sides of the bed, so as to form it like the roof of a house; which may be done by three layers of dung, and as many of earth. When the bed is finished, it must be covered with litter or old thatch, both to prevent its drying too fast and to keep out wet. In this situation it ought to remain eight or ten days, when it will be in proper temperature to receive the spawn; for this is destroyed by too much heat; though, before planting, it may be kept very dry, not only without detriment, but with considerable advantage.—The bed being in a proper temperature for the spawn, the covering of litter should be taken off, and the sides of the bed smoothed; then a covering of light rich earth, about an inch thick, should be laid all over the bed; but this should not be wet. Upon this the spawn must be thrust, laying the lumps two or three inches asunder: then gently cover this with the same light earth, above half an inch thick; and for the covering of litter over the bed, laying it so thick as to keep out wet, and prevent the bed from drying. In spring or autumn the mushrooms will begin to appear, perhaps in a month after making; but when the beds are

made in summer or winter, they are much longer before they produce. In any season, however, they ought not to be hastily destroyed; since mushroom beds have been known to produce very plentifully, even after the spawn has lain in them five or six months. When the beds are destroyed, the spawn should be carefully preserved, and laid up in a dry place, at least five or six weeks before it is again planted. —The difficulty of managing mushroom beds is, to keep them always in a proper degree of moisture. In the summer season they may be uncovered to receive gentle showers of rain at proper times; and in long dry seasons the beds should now and then be watered, but much wet ought by no means to be suffered to come to them. During the winter season they must be kept as dry as possible, and so closely covered as to keep out cold. In frosty or very cold weather, if some warm litter, shaken out of a dung heap, is laid on, the growth of the mushrooms will be promoted: but betwixt this and the bed, a covering of dry litter must be interposed; which should be renewed as it decays; and as the cold increases, the covering must be thickened. By attending to these directions, plenty of mushrooms may be produced all the year round. One bed will continue good for many months. For a particular, perhaps fabulous, method of producing mushrooms, see Lyncurius. Botanical writers enumerate fifty-five species belonging to this genus; of which the most remarkable are the following:

1. Agaricus Campestris, or common mushroom, which has the top or cape first of a dirty cream colour, convex, and if but just expanding, the under part, or what is called the gills, is of a bright flesh red. It is found in woods, old pastures, and by road sides; and is in the greatest perfection in September.

2. Agaricus Chantarellus, or chantarelle agaric, is rather a smaller fungus than the former. This plant broiled with salt and pepper has much the flavour of a roasted cockle; and is esteemed a delicacy by the French, as is the Agaricus Pratensis. It is found in woods and high pastures, and is in perfection about the end of September.

3. Agaricus Cinnamomeus, or brown mushroom, has a cap the colour of fresh tanned hides. At first it is hemispherical, firm, even, and fleshy, with mostly a small rising in the centre; but when old is quite flat. The whole plant has a pleasant smell, and when broiled gives a good flavour. It is found in woods in September and October.

4. Agaricus Clypeatus, or long-stalked mushroom, has a hemispherical hat tapering to a point, and clammy; the pillar is long, cylindrical, and white; the gills are white, and not concave, dusted with a fine powdery substance on each side; the root is bulbous, long, and hooked at the end. It is found in September, in woodlands and pastures.

4. Agaricus Deliciosus, or orange agaric. This fungus, well seasoned and then broiled, has the exact flavour of a roasted muscle. Its prime time is September, and it is to be found in high dry woods.

6. Agaricus Muscarius, or reddish mushroom. This is the *moucho-more* of the Russians, Kamtschadales, and Koriacs, who use it as an instrument of intoxication.

7. Agaricus Pratensis, or champignon, very common upon heaths and dry pastures.

8. Agaricus Quercinus, or agaric of the oak, as well as many other species of this genus, grow on dunghills, or rotten wood, in cellars, or on the trunks of trees. It was formerly an article in the Materia Medica; but is now deservedly rejected.

9. Agaricus Violaceus, or violet mushroom. It is found in woods in October. Hudson's bulb sus is only a variety of this plant.

Agaricus. Medical men have differed about the qualities of mushrooms; some considering them as a rich nourishment aud perfectly innocent, when properly chosen; and others asserting them to be extremely deleterious. Most of the fungi are indeed of a hurtful quality; and with respect to the whole tribe, the esculent are very few. But esculent mushrooms are very nutritive, very readily alkalescent, and more so without immediate acescency than any other vegetable: they are therefore a rich nourishment, and much akin to animal food; on which account they may be indulged in considerable quantity to strong persons. It requires, however, skill to distinguish this esculent kind; and very few, especially of those who are commonly employed to gather them, viz. the servants, have studied Clusius, or other authors who have been at the pains to distinguish them. Perhaps our esculent mushrooms, when old, acquire a dangerous acrimony; and for these reasons Dr. Cullen is of opinion, that it is for the most part prudent to avoid them. In the warmer climates they may be used as light food; but here it is preposterous to use them along with animal food, as they do not correct its alkaline tendency. The 1st, 2d, 3d, 5th, 7th, and 9th species above enumerated, are the only species that can be safely recommended as edible. It is well known, that soil and situation have a great influence upon the properties of plants; and these being of a singular nature, and absolutely between that of an animal and vegetable, may be more powerfully affected than a complete species of either-because they have neither leaves nor branches to carry off the noxious damps and vapours of a stagnant soil, as a perfect vegetable has; nor have they any gross excremental discharges, like those of a living animal. The gills, no doubt, exhale some of their superfluous moisture; but their situation is such, that any thick steam from the earth may lodge in them, and by clogging their excretory ducts, render the plants morbid. Thus they soon run into a state of putrefaction, and become a prey to worms, flies, and other insects. The common mushroom, which is in general esteem, though we have several others better, is not safely eaten when produced from a moist soil. Those who gather mushrooms for sale, should therefore have particular regard to the lands they collect them from, especially it they know they are to be broiled; but if they be intended for catchup, perhaps they may be less cautious, as the salts and spices, with which the juice is boiled, may correct any evil disposition in the plants. But, even in this case,

catchup made of mushrooms taken from a dry soil, has a more aromatic and pleasant flavour, than that which is made from those taken from a moist one, and it will always keep a great deal better.

AGASI, or AGASSI, in Turkey, a title of honour, synonymous with AGA, which see.

AGAST', AGAZE', AGAZED'. From A. S. Ɛeɼean, to see, to look at; or from the Gothic, *agyan*, to fear; in our usage, the two roots are apparently combined, as it signifies to gaze with terror; amazed; frighted to astonishment.

So com a tempest wilde. his schip had alle ouer ronnen
þe maryner was *agast*, þat schip þat wild not go.
Lotes did þei kast, for whom þei had þat wo.
R. Brunne, p 124.

And he þat eete of þat seed. sholde be evene trywe
With God and nat *agast*. bote of gyle one.
Vision of Piers Plouhman, p. 381.

So as they travell'd, so they 'gan espy
An armed knight toward them gallop fast;
That seemed from some feared foe to fly,
Or other grisly thing that him *agast*.
Faerie Queene.

Hundreds he sent to hell; and none durst stand him:
Here, there, and every where, enrag'd he flew:
The French exclaim'd, 'The devil was in arms!'
All the whole army stood *agazed* on him.
Shakspeare's Henry VI.

Thus roving on,
In confus'd march forlorn, th' advent'rous bands
(With shudd'ring horror pale, and eyes *agast*)
View'd first their lamentable lot; and found
No rest. *Paradise Lost.*

Loud was the noise, *aghast* was every guest,
The women shriek'd, the men forsook the feast.
Dryden's Theodore and Honoria.

Stout Glo'ster stood *aghast* in speechless trance:
To arms! cried Mortimer, and couch'd his quivering lance. *Gray's Bard.*

——————The pilgrim oft,
At dead of night, mid his Oraison hears
Aghast the voice of time, disparting towr's
Tumbling all precipitate down dash'd,
Rattling around loud thund'ring to the moon.
Dyer's Ruins of Rome.

The church-bell tolls, deep sounding down the glade,
The solemn hour for walking spectres made;
The simple plough-boy, wakening with the sound,
Listens *aghast*, and turns him startled round,
Then stops his ears, and strives to close his eyes,
Lest at the sound some grisly ghost should rise.
Kirke White's Poems.

AGASYLLIS, in the Materia Medica, a name given by some of the ancient Greek writers to gum ammoniac; and by Dioscorides, to the tree which produced that gum. By their descriptions of this medicine, it appears not to have been the same which we know by this name.

AGATE, an instrument used by gold wire-drawers; so called from the agate in the middle of it, which forms its principal part. See the following article.

AGATE, in mineralogy, a species of precious stone, or rather a silicious mixture of jasper, amethyst, quartz, opal, heliotrope, and cornelian, blended in variable proportions with a base of calcedony. Its combinations, however complex, are distinguished by a characteristic speciality, the component parts sliding into each other by such nice gradations, as show them to have been all of simultaneous formation. In this respect it differs from *silicious* BRECCIA, in which angular fragments of silicious pebbles are cemented by a compost of quartz, calcedony, or flint, of a constitution wholly distinct from that of the invested parts. Differing according to the appearance and transparency of its component substances, the agate is never wholly opaque like the jasper, nor transparent like the quartz crystal. Its most common colours are yellow, red, blue, milk-white, honey-orange, an ochre yellow, flesh-blood, reddish brown, brownish green, violet-blue, &c. through which the opaquer parts appear like dots, eyes, zones, bands, with various other ramifications, and are sometimes variegated with clouds and veins of various colours, figures, and dimensions. This species of mineral is found in the form of irregular rounded nodules, from the size of a pin's head, to more than a foot in diameter; sometimes in strata, and occasionally stalactitic. Several varieties of agate are distinguished by the lapidaries: the finer semi-transparent kinds, consisting principally of chalcedony, are called oriental: in the banded agates the colours are disposed in straight parallel lines or bands; while in the fortification agate, the most beautiful of all the varieties, they are arranged in waved and angular concentric zones: the landscape agate, by the name alone, sufficiently declares its irregular appearance: the moss agate, or Mochoa stone, is filled with dendritical crystallizations of iron ore, so nearly resembling some kinds of moss as to have been actually mistaken for real vegetables by Daubenton. These semipellucid gems were originally found on the banks of the river Αχατης, in Sicily, whence their name is derived. They are now, nevertheless, common in many parts of the world. The largest and most beautiful agates which this island produces are known by the name of *Scotch pebbles*, and are found chiefly in the neighbourhood of Dunbar.

We enumerate the following varieties of this mineral as the most remarkable, arranged according to the different colours of the ground. I. Of those with a *white* ground there are three species. 1. The dendrachates macoa stone, so called from that part of Arabia, whence it is derived, seems to be the same with what some authors call the achates with rosemary in the middle, and others achates with little branches of black leaves. It consists of translucent calcedony. Its dark outline of arborization, like vegetable filaments were formerly attributed to deposits of iron, and manganese; but are now thought to arise from mineralized plants of the crypto gamus. 2. The dull milky-looking agate. This, though greatly inferior to the former, is a very beautiful stone. It is common on the shores of rivers in the East Indies and also in Germany and some other parts of Europe. Our lapidaries cut it into counters for card playing, and other toys of small value. 3. The lead-coloured agate, called the phassachates by the ancients. II. Of the agates with a *reddish* ground there are four species. 1. An impure one of a flesh coloured white, which is but of little beauty in comparison with other agates. The admixture of flesh-colour is but very slight; and it is often found without any clouds, veins, or other variega-

tions; but sometimes it is prettily veined or variegated with spots of irregular figures, having fimbriated edges. It is found in Germany, Italy, and some other parts of Europe; and is wrought into toys of small value, and into the German gun-flints. It has been sometimes found with evident specimens of the perfect mosses bedded deep in it. 2. That of a pure blood-colour, called hæmachates, or the bloody agate, by the ancients. 3. The clouded and spotted agate, of a pale flesh-colour, called by the ancients the cornelian agate, or sardachates. 4. The red lead-coloured one, variegated with yellow, called the coral agate, or corolla achates, by the ancients. III. Of the agates with a *yellowish* ground, there are only two known species; the one of the colour of yellow wax, called cerachates by the ancients; the other a very elegant stone, of a yellow ground, variegated with white, black, and green, called the leonina, and leonteseres by the ancients. IV. Of the agates with a *greenish* ground, there is only one known species, called by the ancients jaspachates.

The *Ribbon agate*, which exhibits so elegant an appearance, occurs in porphyry and gneiss, and consists of alternate parallel layers of chalcedony with jasper, quartz, or amethyst. The *brecciated agate*, a beautiful variety containing fragments of the former, lies in a base of amethyst; of both the most beautiful specimens are found in Saxony and Siberia. *Fortification agate*, found in nodules of various imitative shapes, occurs at Oberstein, on the Rhine, and in Scotland. It is imbedded in amygdaloid, and on cutting it across the interior zig zag, parallel lines are found to resemble the plan of a modern fortification. Even the centre contains a splintery mass of quartz and amethyst, surrounded by a jasper and chalcedony. The *moss agate*, to which we have already referred, appears to consist of chalcedony, arborized after the form of vegetable filaments; and on some occasions irregularly traversed with veins of red jasper. According to the conjecture of Daubenton, Dr. M'Culloch discovered in mocha and moss agates, aquatic confervæ, coated with iron oxyde; but exhibiting their natural form and colours. Mosses and lichens have been also detected along with chlorite, in vegetations. In the possession of the earl of Powis, is an onyx agate set in a ring which contains the chrysalis of a moth. Hollow nodules of agate, called geodes, present interiorly crystals of colourless or amethystine quartz, scattered occasionally with crystals of stilbite, chabasie, and capillary mesotype. In the interior of those found among the hills of Dauria, on the right bank of the Chilca, M. Patrin occasionally detected bitumen. The geodes found in volcanic districts occasionally contain water in their cavities; These are chiefly found in insulated blocks of a lava, distinguished by an earthy fracture. When cracked the liquid escapes by evaporation, but may be restored by immersing them in hot water for a short time.

Agates are most prized when the internal figure nearly resembles some animal or plant; and these are more numerous than might be imagined, some containing natural representations of men, lions, tigers, &c. Velschius had in his custody a flesh-coloured agate, on one side of which appeared a half moon in great perfection, represented by a milky semicircle; on the other side, the phases of vesper, or the evening star: whence he denominated it an aphrodisian agate. An agate is mentioned by Kircher, on which was the representation of a heroine armed; and one in the church of St. Mark in Venice, has the representation of a king's head adorned with a diadem. On another, in the museum of the prince of Gonzaga, was represented the body of a man, with all his clothes, in a running posture. A still more curious one is mentioned by De Boot, wherein appears a circle struck in brown, as exactly as if done with a pair of compasses, and in the middle of the circle the exact form of a bishop with a mitre on: but inverting the stone a little, another figure appears; and if it is turned yet further, two others appear, the one of a man, and the other of a woman. But the most celebrated agate of that kind is that of Pyrrhus, wherein were represented the nine muses, each with their proper attributes, and Apollo in the middle playing on the harp. In the emperor's cabinet is an oriental agate of a surprising bigness, being fashioned into a cup, whose diameter is an ell, abating two inches. In the cavity is found delineated in black specks, *b. xristor. s.* xxx. Other agates have also been found, representing the numbers 4191, 191; whence they are called arithmetical agates, as those representing men or women have obtained the name of anthropomorphous. Agates may be stained artificially with solution of silver in spirit of nitre, and afterwards exposing the part to the sun; and though these artificial colours disappear on laying the stone for a night in aqua-fortis, yet a knowledge of the practicability of thus staining agates, must render those curious figures above mentioned strongly suspected of being the work, not of nature but of art. The oriental agates are all said to be brought from the river Gambay. A mine of agates was sometime ago discovered in Transylvania, of divers colours, and some of a large size, weighing several pounds. Considerable quantities of these stones are still found near the river Achates in Sicily. There are found in some of these the surprising representations above mentioned, or others similar to them. By a dexterous management of these natural stains, medals have been produced, which seem master-pieces of nature: for this stone bears the graver well; and as pieces of all magnitudes are found of it, they make all sorts of work of it. The high altar of the cathedral of Messina is all over encrusted with it. The lapidaries pretend that the Indian agates are finer than the Sicilian; but father Labat informs us, that in the same quarries, and even in the same block, there are found pieces much finer than others, and these fine pieces are sold for Indian agates, in order to enhance their price. Antiquaries put no small value upon stones of this kind engraven by art. In this sense, agates make a species of antique gems, in the workmanship whereof we find eminent proofs of the great skill and dexterity of the sculptors. Several agates of exquisite beauty are preserved in the cabinets of the curious; but the facts re-

presented on these antique agates, however well executed, are now become so obscure, and their explications so difficult, that several diverting mistakes and disputes have arisen among those who undertook to give their true meaning. The great agate of the apotheosis of Augustus, in the treasury of the holy chapel, when sent from Constantinople to St. Lewis, passed for a triumph of Joseph. An agate, in the late French king's cabinet, had been kept 700 years with great devotion, in the Benedictine abbey of St. Evre at Toul, where it passed for John the Evangelist carried away by an eagle, and crowned by an angel: but the heathenism of it having been fully detected, the religious would no longer give it a place among their relics, but presented it to the king. The antiquaries found it to be the apotheosis of Germanicus. In like manner the triumph of Joseph was found to be a representation of Germanicus and Agrippina, under the figures of Ceres and Triptolemus. Another was preserved, from time immemorial, in one of the ancient churches of France, where it had passed for a representation of paradise and the fall of man; there being on it two figures, representing Adam and Eve, with a tree, a serpent, and a Hebrew inscription round it, taken from the third chapter of Genesis, 'The woman saw that the tree was good,' &c. The French academists, instead of our first parents, found Jupiter and Minerva represented by the two figures: the inscription was of a modern date, written in a Rabbinical character, very incorrect, and poorly engraven. The prevailing opinion was, that this agate represented simply the worship of Jupiter and Minerva at Athens.

Some account for the phenomena observed in genuine agates from natural causes. Thus Kircher, who had seen a stone of this kind, in which were depicted the four letters usually inscribed on crucifixes, I. N. R. I. apprehends that some real crucifix had been buried under ground, among stones and other rubbish, where the inscription happening to be parted from the cross, and to be received among a soft mould or clay susceptible of the impression of the letters, came afterwards to be petrified! In the same manner he supposes the agate of Pyrrhus to have been formed. Others resolve much of the wonder into fancy, and suppose those stones formed in the same manner with the camieux or Florentine stones. See CAMIEUX.

The agate is used for making cups, rings, seals, handles for knives and forks, hilts for swords and hangers, beads to pray with, smelling boxes, patch boxes, &c. being cut or sawed with no great difficulty. Great medicinal virtues were formerly attributed to the agate, such as resisting poisons, especially those of the viper, scorpion, and spider; but they are now very justly rejected from medicinal practice.

AGATHA, St. a town of Italy, in the ulterior principality of Naples, with a bishop's see. It is six miles south-east of Reggio; of great natural strength, and has the title of a principality. Also a town with the title of a duchy, on the coast of Capitanata.

AGATHARCHIDES, or AGATHARCIUS of Cnidus, in biography, a Greek historian, and grammarian, mentioned by Josephus, and other ancient writers, was contemporary with Eratosthenes, and flourished under Ptolemy Philometer about 177 years before Christ. He was reader to Heraclida, president of the Alexandrian Library, and wrote several historical treatises; of which Photius mentions forty-nine books, concerning the affairs of Europe, ten of Asia, five of the Red Sea, and an epitome of what had been written on this subject in one book. Some fragments of his writings may be found in Josephus and Photius. The testimony of Agatharchides is alleged to prove, that in the reign of Ptolemy Philometer, the Greek sovereigns of Egypt had not yet traded directly to India, but imported the commodities of India, from Saba, the capital of Yemen. This ancient writer's description of the western coast of the Red Sea closes at Ptolemais, as if there were no regular commerce beyond that point.

AGATHIAS, or AGATHIUS, surnamed Scholasticus, a Greek Byzantine historian, of the sixth century under Justinian. He was born at Myrina, in Asia the less, at the mouth of the river Pythicus. He was an advocate at Smyrna, had a taste for poetry, and wrote a history which begins with the twenty-sixth year of Justinian's reign, where Procopius ends, and terminating with the slaughter of the Huns, 559. It was printed in Greek and Latin, with Bonaventure Vulcanius's, at Leyden, 1594, in quarto; and at Paris, 1660, in folio.

AGATHO, a tragic and comic poet, disciple of Prodicus and Socrates, applauded in Plato's dialogues for his virtue and beauty. His first tragedy obtained the prize; and he was crowned in the presence of upwards of 30,000 spectators, in the fourth year of the ninetieth Olympiad. None of his works are extant, except a few quotations in Aristotle, Athenæus, and others. Agatho delighted so much in antitheses, as to give him occasion for saying to a person, who wished him to expunge them, 'you do not consider that you would rend Agatho from himself.' Athenæus (Deipnosophist, l. v. p. 211. ed. Casaub.) cites the following, 'If I tell you the truth, I shall not please you; and if I please you, I shall not tell you the truth.' And Aristotle gives us these, 'The only thing impossible to God, is to cause that not to be made that has been made;' 'fortune loves art, and art loves fortune;' 'it is probable, that a great many improbable things may happen to mortals.' There was also a pope of this name in the seventh century who was very active against the Monothelites.

AGATHOCLES, the famous tyrant of Sicily, was the son of a porter at Reggio. He was successively a common soldier, a centurion, a general, and a pirate. He defeated the Carthaginians several times in Sicily, and was once defeated himself. He first made himself tyrant of Syracuse, and then of all Sicily: after which he vanquished the Carthaginians again, both in Sicily and Africa. But at length having ill success, and being in arrears with his soldiers, they mutinied, forced him to fly to his camp, and cut the throats of his children, whom he left behind. Recovering himself again he relieved Corfu, besieged by Cassander; burnt

the Macedonian fleet; returned to Sicily; murdered the wives and children of those who had murdered his; afterwards meeting with the soldiers themselves, he put them all to the sword; and ravaging the sea coast of Italy, took the city of Hipponium. He was at length poisoned by his grandson, Archagathus, in the seventy-second year of his age, 290 years before Christ, after having reigned twenty-eight years.

AGATHOCLES, the unfortunate son of Lysimachus king of Thrace and Macedon, who, after defeating and putting to flight Demetrius Poliorcetes, was murdered by his father's orders, at the instigation of his step-mother Arsinoe, who was also his wife's sister, A. A. C. 282.

AGATHODÆMON, from *αγαθος*, good, and *δαιμων* dæmon, a beneficent genius. Among ancient writers, agathodæmon is a denomination given to a kind of serpents, bred up and revered by the Egyptians, from an opinion of some sanctity residing in them. They are also called dragons, and fabulously described as having wings.

AGATHOPOLIS, the city of Montpelier in France. See MONTPELIER.

AGATHYRNA, or AGATHYRSA, in ancient geography, a town of Sicily, now St. Marco; as old as the war of Troy.

AGATHYRNUS, in ancient history, the son of Æolus, and founder of Agathyrna.

AGATTON, a town of Africa, seated near the mouth of the river Formosa, on the coast of Guinea, eighty miles south of Benin. It was formerly a considerable place; and the neighbourhood is considered healthy; but frequent wars have depopulated it.

AGATTOO, one of the Aleutian islands, about sixteen miles long, with a lofty mountain in the middle. Distant from Attoo 20 miles. Long. 175°. E. Lat. 52°. 30′. N.

AGATY, a Malabar tree, bearing a fruit in taste and shape like the kidney-bean.

AGAVE, the common American aloe: a genus of the monogynia order, belonging to the hexandria class of plants; and in the natural method ranking under the tenth order, coronariæ. The characters are: there is no calyx; COR. monopetalous and funnel-shaped; the border six-parted, with lancet erect divisions: STAM. six erect filaments, longer than the corolla; the antheræ are linear, shorter than the filaments, and versatile: PIST. an oblong germen; the stylus is filiform, the length of the stamina, and triangular; the stigma headed and triangular: PER. an oblong triangular capsule, trilocular, and three valved: the seeds are numerous. Of this genus, botanical writers enumerate eight species.

AGAVE AMERICANA, or the great American aloe: the stems generally rise upwards of twenty feet high, and branch out on every side towards the top, so as to form a kind of pyramid: the slender shoots being garnished with greenish yellow flowers, which stand erect, and come out in thick clusters at every joint: these make a fine appearance, and continue long in beauty; a succession of new flowers being produced for near three months in favourable seasons, if the plant is protected from the autumnal colds. The seeds do not ripen in England. It has been generally thought, that these plants do not flower till they are 100 years old; but this is a mistake, for the time of their flowering depends on their growth; so that in hot countries, where they grow fast, and expand many leaves every season, they will flower in a few years; but in colder climates, where their growth is slow, it will be much longer before they shoot up their stem. There is a variety of this species with striped leaves, common in the English gardens. The other sorts are so tender, that they must constantly remain in the stove.

AGAUPE, in botany, a name used by some authors for the common white water-lily.

AGDE, a populous city of France, in Lower Languedoc, in the department of Herault, and arrondissement of Beziers. It trades in fine wool, wine, oil, corn, and silk. It is seated on the river Herault, a mile and a quarter from its mouth, where it falls into the gulph of Lyons, on which there is a fort built to guard its entrance. The houses are principally built of black stone, and there is an entrance into the city by four gates. The public buildings are not handsome. The city is extended along the river, where it forms a small port, which small craft may enter. There was formerly a great concourse of pilgrims here to the chapel of Notre Dame de Grace. It is a little without the city, between which and the chapel there are numerous oratories, which they used to visit with bare feet. Long. 3°. 33′. E. Lat. 43°. 19′. N. Population 7200.

AGDENAS, a district of Norway, in the territory of Drontheim, into which the bay runs.

AGE, *n.* } *Age*, Fr. deduced by Junius
A'GED, } from *aa*, which in the Teutonic
A'GEDLY. } dialect signified long duration; A. S. agan past: time in general, or a particular period; as human life, or any portion of it.

Fro þe by gynnyng of þe world, to þe tyme þat now is,
Sene *ages* þer habbeþ y be, as sene tyme y wys.
R. Gloucester, p. 9.

Suld thou not first think quhare thou left, but leis,
Thy wery fader the *agit* Anchises?
Douglas' Æneid, b. ii. p. 58.

If the comparison do stand between man and man, the *aged* (for the most part) are best experienced, least subject to rash and unadvised passions.
Hooker.

Novelty is only in request: and it is as dangerous to be *aged* in any kind of course; as it is virtuous to be constant in any undertaking.
Shakspeare's Measure for Measure.

One man in his time plays many parts,
His acts being seven *ages*. *Shakspeare.*

And Jacob lived in the land of Egypt, seventeen years: so the whole *age* of Jacob was an hundred forty and seven years. *Genesis* xlvii. 28.

Hence lastly springs care of posterities;
For things, their kind would everlasting make:
Hence is it, that old men do plant young trees,
The fruit whereof another *age* shall take.
Sir J. Davies.

Next to the Son,
Destin'd Restorer of mankind, by whom
New heav'n and earth shall to the *ages* rise,
Or down from heav'n descend.
Milton's Paradise Lost.

And on this forehead (where, your verse has said,
The loves delighted, and the graces play'd)

Insulting *age* will trace his cruel way,
And leave sad marks of his destructive sway.
Prior.

No longer now the golden *age* appears,
When patriarch wits surviv'd a thousand years.
Pope.

He feeds yon alms-house, neat, but void of state,
Where *age* and want sit smiling at the gate
Idem.

Immortal! *ages* past, yet nothing gone!
Morn without eve! a race without a goal!
Unshorten'd by progression infinite!
Futurity for ever future! life
Beginning still, where computation ends!
Young.

The love of retirement has in all *ages* adhered closely to those minds which have been most enlarged by knowledge, or elevated by genius.
Rambler.

His house was known to all the vagrant train,
He chid their wand'rings, but relieved their pain;
The long-remembered beggar was his guest,
Whose beard descending swept his *aged* breast.
Goldsmith's Deserted Village.

And if no future *age* shall hear my name,
I lurk the more secure from fortune's blast,
And with more leisure feed this pious flame,
Whose rapture far transcends the fairest hopes of fame.
Beattie.

AGE, among the ancient poets, was used for the space of thirty years; in which sense, age amounts to much the same with generation. Thus, Nestor is said to have lived three ages when he was ninety years old. The interval since the first formation of man they divided into four ages, distinguished by the epithets of golden, silver, brazen, and iron. During the golden age, Saturn reigned in heaven, and justice and innocence in this lower world. The earth then yielded her productions without culture; men held all things in common, and lived in perfect friendship. This period was supposed to have lasted till the expulsion of Saturn from his kingdom. The silver age commenced when men began to deviate from the paths of virtue; and their lives became less happy. The brazen age commenced on a farther deviation, and the iron age took place in consequence of one still greater. The East Indian Brahmins seem to have adopted the idea of the Grecian poets, if the latter did not borrow it from them; or rather, if both were not indebted for it, to the Mosaic account of the original paradisaical state of man. The Brahmins seem evidently to have had at least a traditional account of the longevity of the antediluvian patriarchs, from the description they give of the four ages of the world.—The first, which they represent as a sort of golden age, lasted, according to them, 1,728,000 years; in this period, the god Brahma was born, and men were all giants; their manners were innocent; they were exempt from diseases, and lived 400 years.—In the second age, which lasted 1,296,000, their rajahs were born: vice now crept into the world; men's lives were fallen to 300 years, and their size retrenched proportionally.—Under the third age, which lasted 8,064,000 years, vice being more increased, men only attained to 200 years.—The last age is that wherein we now live, of which 4,027,213 years are already gone; and the life of man is sunk to one fourth of its original duration. A late author, however, reflecting on the barbarism of the first ages, will have the order which the poets assign to the four ages inverted; the first, being a time of rudeness and ignorance, would be more properly denominated an iron than a golden age. When cities and states were founded, the brazen age succeeded; when they began to improve, the silver age commenced; and since arts and sciences, navigation and commerce, have been cultivated, the golden age has taken place. The ingenious M. Mercier carries this idea still farther in his work entitled, Memoirs of the year 2500; and supposes, that mankind, when that period arrives, will be so much improved, that vice and folly of every kind will be totally extirpated from the earth.

AGE, in history, is used to express certain periods, or divisions of time. Thus, among the ancient Greek historians, the time elapsed since the beginning of the world was divided into three ages. The first reached from the creation to the deluge, which happened in Greece during the reign of Ogyges; this they called the obscure or uncertain age, because the history of mankind is altogether uncertain during that period. The second, they called the fabulous or heroic age, because it is the period in which the fabulous exploits of their gods and heroes are said to have been performed. It began with the Ogygian deluge, and continued to the first Olympiad, when the third, or historical age, commenced.—This division, however, it must be observed, holds good only with regard to the Greeks and Romans, who had no histories earlier than the first Olympiad: the Jews, Egyptians, Phœnicians, and Chaldeans, (not to mention the Indians and Chinese, who pretend to much higher antiquity,) are not included in it. Among the Jews, the duration of the world is divided into three ages. First, the *seculum inane*, or void age, is the space of time from the creation to Moses. Second, the present age, denotes all the space of time from Moses to the coming of the Messiah; and, third, the age to come, denotes the time from the coming of the Messiah to the end of the world. Various other divisions of the duration of the world into ages have been made by historians.—The Sibylline oracles, supposed to be written by Jews acquainted with the prophecies of the Old Testament, divide the duration of the world into ten ages; and according to Josephus, each age contained 600 years. It appears, by Virgil's fourth eclogue, and other testimonies, that the age of Augustus was reputed the end of those ten ages, consequently as the period of the world's duration.—By some modern historians the space of time commencing from Constantine, and ending with the taking of Constantinople by the Turks in the fifteenth century, is called the middle age.—Others choose rather to date the middle age from the division of the empire made by Theodosius at the close of the fourth century, and extend it to the time of the emperor Maximilian I. in the beginning of the sixteenth century, when the empire was first divided into circles.—The middle is by some styled the barbarous age, and the latter part of it the lowest age. Others divide it into the non-academical and academ-

cal ages. The first includes the space of time from the sixth to the ninth centuries, during which schools or academies were lost in Europe. The second from the ninth century, when schools were restored, and universities established, chiefly by the care of Charlemagne. The several ages of the world may be reduced to three grand epochas, viz. the age of the law of nature, called by the Jews the void age, from Adam to Moses: the age of the Jewish law, from Moses to Christ: and the age of grace from Christ to the present year.

Age of Hebrew and Greek manuscripts of the scriptures. The Hebrew Bible is placed before us by critics as the most ancient book in the world. The truth of this pretension, involving its entire authority as an inspired book, is therefore a point of the last importance; and various criteria of the age of the Hebrew MSS. of the Old Testament have been given by different scholars. They may be divided into External Testimony and Internal Evidence. The former consisting of the subscriptions affixed by the transcribers, specifying the time when the manuscripts were copied, cannot always be depended upon, since cases have occurred in which the earliest dates have been superadded to the productions of modern copyists, to enhance the value of their labours. With respect to the latter, the marks are more decisive. Of these the following are stated by Dr. Kennicott and M. De Rossi as the principal. 1. The inelegance and rudeness of the character, although Jablonski lays down the simplicity and elegance of the character as a criterion of antiquity. 2. The yellow colour of the vellum. 3. The total absence or rare occurrence of the Masora and of the Keri and Ketib. 4. The writing of the Pentateuch throughout in one book without any greater mark of distinction appearing at the beginning of books, than at the beginning of sections. 5. The absence of critical emendations and corrections. 6. The absence of vowel points. 7. Obliterated letters being written and re-written with ink. 8. The frequent occurrence of the name Jehovah in lieu of Adonai. 9. The infrequency of capital and small letters. 10. The insertion of points to fill up blank spaces. 11. The non-division of some books of Psalms. 12. The poetical books not being distinguished from those in prose by dividing them into hemistichs. 13. Readings frequently differing from the Masoretic copies, but agreeing with the Samaritan text, with ancient versions, and with the quotations of the fathers. The conjunction of all or of several of these internal marks is said to afford certain evidence of the antiquity of Hebrew manuscripts.

The Greek manuscripts of the New Testament, which are extant, are written either on vellum or on paper, and their external form and condition vary like those of other ancient manuscripts. The vellum is either purple coloured, or of its natural hue; and is either thick or thin. Manuscripts on very thin vellum are held in the highest esteem. The paper also is either made of cotton, or the common sort manufactured from linen, and is either glazed or wire-marked, that is of the ordinary roughness. Not more than six manuscript fragments on purple vellum are known to be extant. The Codex Claromontanus is written on very thin vellum. All manuscripts on paper are of much later date, those on cotton paper being subsequent to the ninth century; those on linen to the twelfth. If the paper be of a very ordinary quality, Wetstein pronounces them to have been written in Italy, in the fifteenth and sixteenth centuries. The letters again, especially the capitals, which in the time of St. Jerome were called *uncial* i. e. initial, are of two kinds, either unadorned and simple, and made with straight thin strokes; or thicker, uneven, and angular. Some of these letters are supported on a sort of base, whilst others are decorated, or rather burthened with various tops. As letters of the former kind are those for the most part seen in ancient Greek manuscripts, whilst those of the latter resemble the paintings of semi-barbarous times; manuscripts written with the former are supposed to be as ancient as the fifth century, whilst those in which the latter are employed are thought posterior to the ninth. Before the Seventh century, Greek manuscripts were usually written in capital letters, and most without any divisions of words. Capitals were also in great use in the eighth century, and even so late as the ninth, but there is a striking difference in the forms of the letters after the seventh century. Great alterations took place in the eight, ninth, and tenth centuries. The Greek letters copied in the ninth century by the Latins are by no means regular, the α, ε, and γ, being inflected like the a, e, and y, of the Latin alphabet. Towards the close of the tenth century, small or cursive letters were adopted generally, and Greek manuscripts written in the eleventh century, and after it are in small letters, and greatly resemble each other with some few exceptions. In the Greek manuscripts of the thirteenth, fourteenth, and fifteenth centuries flourished letters occur but seldom. The most ancient manuscripts are written without accents, spirits, or any separation of the words; nor was it till after the ninth century that the copyists began to leave spaces between the words. Michaelis after Wetstein, ascribes the insertion of accents to Euthalius bishop of Sulca, in Egypt, A.D. 458.

Abbreviations are another evidence of the age of Greek manuscripts. See Abbreviations.

Age, in law, that special time when men and women are enabled to do what, for want of years, they are prohibited doing: thus, twelve is the age for taking the oath of allegiance in a leet; fourteen, or for a woman twelve, the age of discretion, for consenting to a marriage, or choosing a guardian, twenty-one, the full age. A person under the age of twenty-one may make a purchase; but at his full age, he may agree or disagree to it. Fourteen is the age by law to be a witness, although a child of nine years of age has, in some cases, been admitted to give evidence. No one can be chosen member of parliament under the age of twenty-one; ordained a priest before the age of twenty-four; nor be a bishop before thirty. 1 Inst. 78.

Age of a horse. See Horse.

AGE OF A TREE. Trees after a certain age waste. An oak at 100 years old ceases to grow. The usual rule for judging of the age of wood, is by the number of circles which appears in the substance of a trunk or stock cut perpendicularly, each circle being supposed the growth of a year; though some reject this method as precarious, alleging that a simple circle is sometimes the produce of several years; besides that, after a certain age, no new circles are formed.

AGE PRIOR, in law, is when an action being brought against a person under age, for lands descended to him, he, by motion or petition, shews the matter to the court, praying the action may be staid till his full age, which the court generally agrees to.

AGEDA, SYNOD of, in modern ecclesiastical history, an assembly of Jewish doctors, held A. D. 1650, so denominated from a plain on which they met, about thirty leagues distant from Buda in Hungary. On this occasion, no fewer than three hundred rabbies, with multitudes of other Jews of different nations, publicly convened, in order to examine and debate the question, whether the Messiah had appeared? R. Zacharia, of the tribe of Levi, was chosen president and speaker. The negative of the question was carried by a majority of voices, and it was agreed that the advent of the Messiah was delayed on account of their sins and impenitence. They agreed also in the circumstances that would attend his appearance; and were of opinion, that as a great conqueror, he would deliver them from every foreign yoke—that he would alter nothing in the Mosaic religion—that he was to be born of a virgin; and that his miraculous conception was to be a characteristic, by which he should be known to those who were strangers to the covenant. Some ecclesiastics, deputed from Rome, attended this meeting; and when they began to extol the worship, ceremonies, and authority of their church, a tumultuous outcry was excited of 'No Christ! no intercession of saints! no worship of images! no prayers to the Virgin! accompanied with loud clamours, rending of clothes, &c. Thus the conference of that day terminated; but on the 8th day, they agreed to hold another council, three years after this, in Syria. Some of the Jewish doctors are said to have expressed a desire of conversing with protestant divines; but the interference of so many monks deterred them, and made them fear some tragical conclusion of the assembly.

AGELASTUS, of *α* priv. and *γελαω*, to laugh, in ancient history, a surname of the grandfather of Crassus, who is said to have laughed only once in his life, at the wonderful event of seeing an ass eat thistles. It was also a surname of Pluto Cicero de Fin. v. Plin. vii. 19, &c. AGELASTIC, is an adjective of similar signification, i. e. morose, sullen.

AGELNOTH, or ÆTHELNOTH, surnamed the Good, Abp. of Canterbury, under Canute the Great, succeeded to that see in 1020. He was son of earl Agilmer, and when elected, dean of Canterbury. In going to Rome, to receive his pall, he is said to have purchased St. Augustin's arm, which was kept at Pavia as a relic, and which he sent over to England as a present to Leofric, earl of Coventry. He was much in favour with Canute, and Malmsbury observes, that this prince was excited to acts of piety, and restrained from excesses, by his regard for the Archbishop. He has also the reputation of manifesting a singular degree of British spirit on a memorable occasion: for when called upon to crown Canute's successor, Harold, in the absence of the legitimate claimant, Hardicanute, he altogether, according to some writers, refused to conduct the ceremony, alleging a promise which he had made to the late king, that he would place the crown only upon the head of the issue of queen Emma. Dr. Lingard represents him as appearing at the ceremonial, but refusing the episcopal benediction. He placed, according to to this writer, the royal insignia on the altar; and addressing the king and his surrounding prelates, said, 'These are the crown and sceptre which Canute entrusted to my charge. To you I neither give nor refuse them; you may take them if you please; but I strictly forbid any of my brother bishops to usurp an office, which is the prerogative of my see' Agelnoth wrote, 1. A panegyric on the Virgin Mary; 2. A letter to earl Leofric concerning St. Augustin; and other epistles. He died in 1038, in the 17th year of his archiepiscopate.

AGEM, in botany, a name sometimes given to the Persian lilac.

AGEMA, *Αγεμα*, vehemence, Gr. in Macedonian antiquity, was a body of soldiers, not unlike the Roman legion. Livy speaking of the army of Antiochus, says, 'Addita his ala mille ferme equitum, agema eam vocabant,' l. xxxvii. c. 40; and in another place, 'Delecta deinde et viribus, et robore ætatis ex omni cætratorum numero duo erant agemata; hanc ipsi legionem vocabant,' l. xlii. c. 51. Some writers suppose it derived from *αγω*, to lead, because the agema sometimes consisted of elephants, horse, and foot, who preceded generals and princes, as a sort of body guard. Arrian speaks of it as a wing of horse. *De Exped. Alex.* l. vii. p. 217, Gronov.

AGEMOGLANS, or AZAMOGLANS, from אגם, agem, barbarous; and עלאם, moglan, child; Arab. in the Turkish polity, are children purchased from the Tartars, or raised every third year, by way of tribute, from the Christians tolerated in the Turkish empire; who, after being circumcised and instructed in the religion and language of their tyrannical masters, are taught the exercises of war, till they are of proper age for carrying arms; and from this corps, the janissaries are recruited. Those who are thought unfit for the army, are employed in the lowest offices of the seraglio. The troops so raised, it is well known, become in their turn the real masters of the grand Seignior, and have frequently effected the most important revolutions in the state: an 'even-handed' justice in providence, which thus seems to make the success of this tyranny its own punishment.

AGEN, a city of France, on the banks of the Garonne, formerly the capital of Agenois, now the chief town in the department of Lot and Garonne. Vestiges remain of very ancient fortifications, but prove that its former circuit was not so great as the present. The palace

formerly called the castle of Montravel, was seated beyond the walls of the old city, on the side of the fosse, near other ruins of a castle called La Sagne. The situation of Agen is very convenient for trade, which here consists principally of corn, wine, brandy, and hemp. Prunes are also a considerable article of commerce with the Dutch, who take great quantities for long voyages. The chief manufactures are linen, camblets, serges, and sail cloths. The city was the residence of Julius Scaliger, and the birth-place of his celebrated son, Joseph. It is seated in a pleasant country; but, is itself rather a disagreeable place, the houses being ill-built, and the streets narrow, crooked, and dirty. It is 100 miles S. E. of Bourdeaux, and 408 S. S. E. from Paris.

AGENDA, among divines and philosophers, signifies the duties which a man lies under an obligation to perform: thus the phrase, the agenda of a Christian, or the duties he ought to perform; in opposition to the credenda, or things he is to believe.

Agenda, among ecclesiastical writers, also denotes the service or offices of the church. We meet with agenda matutina and vespertina, 'morning and evening prayers;' agenda diei, 'the office of the day,' whether feast or fast day; agenda mortuorum, called also simply agenda, 'the service of the dead.' It is also applied to church books, compiled by public authority, prescribing the order to be observed by the ministers and people, in the ceremonies and devotions of the church. In which sense agenda amounts to the same with what is otherwise called ritual, liturgy, acalouthia, missal, formulary, &c.

Agenda, among merchants, a term sometimes used for a memorandum book, in which is set down all the business to be transacted during the day, at home or abroad.

AGENDICUM, the classical name for Sens, in France. See Sens.

AGENFRIDA, or Agenfriga, in ancient customs, Saxon; from agen, own; and fria, lord; one who has the absolute property and dominion of a thing.

AGENHINE, in our old writers, signifies a guest that has lodged at an inn for three nights, after which time he was accounted one of the family; if he offended the king's peace, his host was answerable for him.

AGENOIS, a fertile district of France, in Guienne. It is twenty leagues long, and ten broad, and a portion of the department of the Lot and Garonne.

AGENOR, in fabulous history, a king of the Phœnicians, the son of Belus, and father of Cadmus and Europa.

Agenor, in natural history, a species of papilio eques, with black wings, sanguineous at their base; the posterior having a white disc with black spots. It is found in China.

AGENORIA, in mythology, αγηνωρ, Gr. strong, the goddess of courage and industry.

A'GENT, *n.* & *adj.* } *Ago, agens*, from αγω
A'GENTSHIP, } to lead, or conduct;
A'GENCY. } usually applied to one who conducts the affairs, or is entrusted with the commission of another.

The moral *agency* of the Supreme Being who acts only as a Ruler towards his creatures, differs from the moral *agency* of created intelligent beings.
Edwards.

This success is oft truly ascribed unto the force of imagination upon the body *agent*; and then, by a secondary means, it may upon a diverse body; as, for example; if a man carry a ring on some part of a beast, believing strongly that it will help him to obtain his love; it may make him more industrious, and again more confident and persisting, than otherwise he would be. *Bacon's Nat. Hist.*

So goodie *agent!* and you think there is no punishment due for your *agentship.*
Beaum. and Fl. Lover's Progress.

An *agent* is an acting being, some substance, not a manner of being. *Wollaston's Religion of Nat.*

It is the faculty of remembrance which may be said to place us in the class of moral *agents. Rambler.*

A few advances there are in the following papers, tending to assert the superintendence and *agency* of providence in the natural world.
Woodward's Preface to Nat. Hist.

——————Should God again,
As once in Gibeon, interrupt the race
Of the undeviating and punctual sun,
How would the world admire! but speaks it less
An *agency* divine, to make him know
His moment when to sink, and when to rise?
Cowper's Task.

Agent, Agens, in physics, that whereby a thing is done or effected; or that which has a power to act on another thing or being; or by its action induces some change in it. It is used in contradistinction to patient. The schools divide agents into natural and free.

Agents, natural or physical, are those immediately determined by the author of nature, to produce one sort of effect; with an incapacity to produce the contrary. These are again divided into univocal, i. e. such as produce effects of the same kind and denomination with the agents themselves; and equivocal, whose effects are of a different kind, &c. from the agents. The schoolmen reckon it necessary to the being of an agent, that it be contiguous to the object, distinct from it, have a power over it, a sphere of activity, and a proportion or rate of acting.

Agent, free or voluntary, in metaphysics, is he who may equally do any thing, or its opposite; as acting not from any pre-determination, but from choice. Such is the mind supposed to be, which has a spontaneous power of choosing or refusing.

Whether a man be a free, or a necessary agent? is a celebrated question among philosophers and divines. It may be thus stated: man is a necessary agent, if all his actions are so determined by the cause preceding each action, that no one past action could possibly not have come to pass, or have been otherwise than it was; nor one future action can possibly not come to pass, or be otherwise than it shall be. On the contrary, man is a free agent, if he be able at any time, in certain circumstances, to do different things; or, in other words, if he is not ever unavoidably determined in every point of time, by the circumstances he is in, to do that one thing he does, and not possibly to do any other. See Liberty, Necessity, and Will.

According to Dr. Price, the term agent evidently implies a power of self determination; and the epithet necessary, applied to agent,

forms a solecism both in sense and language. *Price's Review*, &c. p. 315, &c.

An AGENT, in political affairs, is the minister of a prince or state, at another court. In which sense, agents are commonly reputed a species of public ministers, or ambassadors: but they differ from them essentially, as agents are not invested with any representative character, although entrusted with the affairs and interests of their princes. See ENVOY.

In the exchequer, there are four agents for taxes.

AGENTS, in medicine, powers which act upon the body, in contradistinction from aliments, which are supposed rather to be acted on than to act.

AGENTS, of Bank and Exchange, are public officers, established in the trading cities of France, to negociate matters between merchants relating to bills of exchange, and the buying and selling of goods: the same with those who, among us, are called exchange-brokers.

AGENT, in military affairs, a person in the civil department of the army, between the paymaster-general, and the paymaster of a regiment, through whom every regimental concern of a pecuniary nature must be transacted. He gives security to government, or to the colonels of regiments, who are reponsible to government, for all monies which may pass through his hands, in the capacity of an agent,—and by the mutiny act it is provided, that if an agent shall withhold the pay of officers or soldiers, for the space of one month, he shall be dismissed from his office, and forfeit £100.(39th Geo. III. sec. 69.)

AGENT, navy, is a person employed on shore to manage the pecuniary and other concerns of navy officers and seamen: particularly to receive their pay, prize-money. &c. and apply it to their use. By an act of parliament passed in the forty-ninth year of his late majesty, entitled an act to explain and amend an act made in the forty-fifth year of his late majesty, for the encouragement of seamen, and the more effectually manning his majesty's navy during the war, all agents, who act for petty officers, seamen, and others, serving in any of his majesty's ships, to receive their pay, wages, prize, and bounty money, are obliged to take out a license from the Navy Pay-office; which license is liable to be immediately with-drawn, on any grounds being produced that they have abused the trust reposed in them.

AGENTS of the victualling office, are officers under the commissioners appointed to buy and contract for provisions, &c. Some of these are settled in the ports, where they have much the same office and authority as the commissioners in London.

AGENT and patient in common law, is where a person does, or gives, something to himself; so that he is at the same time both the doer and giver, and the receiver or party it is done to. Such is a woman, when she endows herself with part of her husband's inheritance.

AGENT, in chemistry. Ancient chemists, regarded all substances as composed of active and passive principles: the latter of which received impressions from, and were modified by the former, without exerting any reciprocal action. Spirit, oil, and salt, were active; earth and water, passive principles. This distinction evidently arose from the phenomena of solution, and the apparent energy which acids and other fluids exhibit in their combination with metals and solids in general. It is now however universally allowed, and indeed necessarily follows from the doctrine of affinity, that whenever two substances combine together, it is in consequence of a mutual attraction, which belongs as much to one element as to the other of a compound; this definition therefore of chemical agent is no longer adhered to, and though we still continue to use the expression of one body having a powerful action on any other, it is by no means intended to deny the equal reciprocity of chemical attraction. The general term agent signifies, therefore, in strictness, any substance capable of producing chemical action; and when, in explaining a process, the quality of agent is attributed to a body, it is only used as a designation of the substance whose presence determines the combination or decomposition; in which sense it is sometimes attributed to menstrua, or such bodies as in mixture have the greatest share of activity and motion: and it is sometimes also used for what we more usually call instrument. Thus fire, water, air, earth, and menstrua, are chemical agents.

AGENTE, in music, a term given by the Italians to the note of percussion that occasions and accompanies a prepared discord upon a binding note; which note was termed the patient.

In the preceding example, C is the patient, E prepares the discord, D is the moving note or agent, and B its resolution.

AGENTES in rebus, one of the ranks of officers in the court of the Constantinopolitan emperors, whose business it was to collect and convey the corn both for the army and household; carry letters and messages from court to all parts of the empire; regulate couriers, and their vehicles; to make frequent journies and expeditions through the provinces; inspect any motions, disturbances, machinations tending that way, and give early notice thereof to the emperor. Aquin. Lex. Mil. tom. i. Pitisc. Lex. Ant. tom. i. Cal. Lex. Jur. The agentes in rebus, are by some made synonymous with our post-masters, but their function was of great importance. They correspond to what the Greeks call πυροφοροι, and the Latins veredarii.

There were divers orders or degrees of agentes in rebus, as tribuni, primicerii, senatores, ducenarii, biarchi, circitores, equites, tyrones, &c. through all which they rose gradatim. Their chief was denominated princeps, which was a post of great dignity, being reckoned on a level with that of proconsul.

The princeps agentium in rebus resided at Constantinople, others of them were settled in

every part of the empire; and are also said to have served as interpreters.

AGEMETRIA, a defect in point of geometry, or a deviation from the strict principles and conclusions of that science.

AGER vectigalis privatus, in Roman antiquity, that whose property was granted to private persons on the reserve of a certain rent, or tribute.

AGER vectigalis publicus, that whose property was reserved to the public, and being let out to farm, the rents or profits accrued to the public treasury.

AGER is also used for a certain portion or measure of land, anciently allowed in the division of grounds to each citizen. In the early days of the Roman state, the ager was only two jugera, amounting to one English acre and a quarter. After the expulsion of the kings, seven jugera were allowed to a plebeian.—Under the tribunate of C. Licinius Stolo, in the year of Rome 379, a law was made to limit estates to 500 jugera, or 330 English acres, and to decree the distribution of the surplus in the possession of any individual amongst those who had no land. Under Julius Cæsar another Agrarian law was published, by which, those who enlarged their pittance of land, were to pay 50 aurei to the public.

AGER, or ACRE, See ACRE.

AGER NATURÆ, a name sometimes given to the womb.

AGER PICENUS, in ancient geography, a territory of Italy to the south-east of Umbria, reaching from the Apennine to the Adriatic: so called from the bird picus, under whose conduct the first settlers removed from the Sabines, of whom they were a colony.

AGERASY, from *a*, primitive, and *γερον*, old age, a vigorous old age.

AGERATUM, from *a* primitive, and *γερας*, old age because the flowers do not easily wither, *bastard hemp agrimony*: A genus of the polygamia æqualis order, belonging to the syngenesia class of plants; and in the natural method, ranking under the forty-ninth order, compositæ discoides. The characters are: common CAL. oblong, with many scales: the compound COR. uniform; the corollets hermaphrodite, tubular, and numerous; the proper corolla is funnel-shaped; the border four-cleft, and expanded: STAM. five capillary very short filaments; the anthera cylindric and tubular: PIST. an oblong germen; with a filiform stylus, and two slender erect stigmata: there is no pericarpium; the calyx unchanged: the seeds are solitary, oblong, and angular: the receptaculum is naked, convex, and very small. Of this genus there are three species; viz. 1. *ageratum altissimum*; 2. *ageratum conyzoides*; 3. *ageratum houstonianum*; all natives of warm climates. The two last are annual plants, and consequently can be propagated only by seeds; which, however, come to perfection in this country. The first species will bear the severest cold of this country, but its seeds do not ripen in it.

AGERATUM, or MAUDLIN. See ACHILLÆA.

AGERATUS lapis, in the ancient Materia Medica, a stone mentioned by Galen and others, said to be of the nature of the Phrygian stone, but more astringent; and as that was used in dyeing, this was in dressing of leather. We have no account of its external appearance, but probably it contained vitriol, and perhaps alum It is used by shoemakers to polish women's shoes.

AGERCITE, a sea-port town of Travancore, Hindostan, twenty miles north of Anjengo.

AGERIUM. See AGISTMENT.

AGESANDER, a sculptor of Rhodes, who lived about the fifth century, B.C. in the eighty-eighth Olympiad. In conjunction with his sons, Athenodorus and Polydoros, he executed the celebrated Laocoon, which was discovered in the sixteenth century in the baths of Titus, where it attracted admiration in Pliny's time. Julius II. handsomely rewarded the discoverer of this invaluable work, which was carried away from Rome by the French army, but afterwards was restored. Lessing, from the exquisite finishing of this group, thinks it was executed under the Cæsars; but Borghini and Winkelman deem it a production of the finest æra of Grecian art. In any case it has immortalized its sculptors. Agesander's name stands first on the plinth of the groupe.

AGESILAUS, I. king of Lacedæmon, of the family of Agidæ, and son of Dorysius, was contemporary with Lycurgus, the famous Spartan legislator. *Herod.* vii. 204.

AGESILAUS, II. king of the Lacedæmonians, the son of Archidamus II. was raised to the throne notwithstanding the superior claim of Leotychides. Upon his promotion, he advised the Lacedæmonians to anticipate the king of Persia, who was making great preparations for war, and to attack him in his own dominions. Being himself chosen to command this expedition, he gained so many advantages over the enemy, that if the league, which the Athenians and the Thebans formed against the Lacedæmonians, had not obliged him to return home, he would have carried his victorious arms into the heart of the Persian empire. He gave up, however, all these triumphs, to come to the succour of his country, which he happily relieved by his victory over the allies in Bœotia. He obtained another near Corinth: but to his great mortification, the Thebans afterwards gained several successive battles against the Lacedæmonians. These misfortunes at first raised some clamour against him. He had been sick during the first advantages which the enemy gained; but as soon as he was able to act in person, by his valour and prudence he prevented the Thebans from reaping the advantages of their victories; insomuch that it was generally believed, had he been in health at the beginning, the Lacedæmonians would have sustained no losses; and that all would have been lost had it not been for his assistance. It cannot be denied but that he loved war more than the interest of his country required; for if he could have lived in peace, he would have saved the Lacedæmonians several losses, and they would not have been engaged in many enterprises which in the end contributed much to weaken their power. In the decline of life, this prince accepted a command which reflected no credit on either himself or his country, i. e. that of the troops of Tachos, an adventurer who aspired to

the throne of Egypt: nor was his conduct in this expedition worthy his previous fame. For on being refused the supreme command in Egypt, he joined Nectaneb, the rival of Tachos; and aided him in expelling his former associate. He died the third year of the 104th Olympiad, being the eighty-fourth year of his age, and forty-first of his reign. Agesilaus would never suffer any picture or sculpture to be made of him, and prohibited it also by his will: this he is supposd to have done from a consciousness of his own deformity; for he was of a short stature, and lame in one foot. His fame went before him into Egypt, where they had formed the highest idea of him. When he landed, the people ran in crowds to see him: but when they beheld an ill-dressed, slovenly, lame man lying upon the grass, they could not forbear laughing, and applied to him the fable of the mountain in labour. He was, however, the first to jest upon his own person; and such was the gaiety of his temper, and the strength with which he bore the roughest exercises, that these qualities made amends for his corporeal defects. He was remarkable for plainness and frugality in his dress and way of living. Cornelius Nepos says, that, 'although great presents were sent him by kings, governors, and states, he brought none of them to his own house; that he changed nothing of the diet, and apparel of the Lacedæmonians. He was contented with the same house in which Euristhenes, the founder of his family, had lived: and whoever entered there, could see no sign of debauchery, or luxury, but many of moderation and abstinence; for it was furnished in such a manner, that it differed in nothing from that of any poor or private person.' Upon his arrival in Egypt, all kinds of provisions were sent to him; but he chose only the most common, leaving the perfumes, the confections, and all that was esteemed most delicious, to his servants. Agesilaus was extremely fond of his children, and would often amuse himself by joining in their diversions: one day when he was surprised riding upon a stick with them, he said to the person who had seen him in this posture, 'Forbear talking of it till you are a father.'—Hearing the king of Persia spoken of as the great king, on one occasion, he is reported to have said, 'I cannot conceive wherein he is greater than I, unless he be more just.' His life and actions are the theme of Xenophon's praise; and are recorded also by Diodorus Siculus, Plutarch, and Nepos.

This was also the name of a brother of Themistocles, who, being sent as a spy into the Persian camp, stabbed Mardonius instead of Xerxes: and a surname of Pluto.

AGESIPOLIS I. and II. reigned in Sparta, after Agesilaus II., the former fourteen years, and the latter only one year.

AGESISTRATA, the wife of Eudamidas II. and mother of Agis III. kings of Sparta, who was murdered in prison, along with her son Agis and her mother, by the Ephori, about A. A. C. 300.

AGEUSTIA, or AGHEUSTIA, of *a* privative, and *γευομαι*, to taste, in medicine, a defect in the sense of taste. This disease may arise from an organic affection, or an atonic state of the organs; from fur, mucus, aphthæ, ulcers, &c. on the tongue; or from a diseased secretion of saliva, and the taste may be entirely abolished by injuries done to the nerves of the tongue or palate. When the taste is diminished or depraved by fur or mucus, as usually happens in fevers, it is rarely possible to restore it by any other means than those which subdue the fever; but the tongue, teeth, and fauces, should be washed with detergent gargles, of which the aqua ammoniæ, or common sal volatile, properly diluted with water, is the most effectual in dissolving the mucus. The tongue may also be gently scraped when moist, and the teeth brushed. When the taste is depraved by a diseased secretion of saliva, the cure depends on restoring the natural secretion. If bile, or any saburra in the stomach, disorder the natural taste, recourse must be had to emetics, or the proper correctors of the offending cause: acidity is removed by alkalies, chalk, magnesia, and even by other acids.

AGGA, AGONNA, or AGOONA, a country on the Gold Coast of Africa, extending about twenty miles from east to west, and fifteen north to south. The chief towns are Winnebah, Agoona, Berahoe, and Fettah. On the coast the ground is very light and sandy, but improves in the interior, and at six or eight miles inland, is fertile for a tropical region, and the climate is more healthy than on many other parts of the coast. Not a tenth part of the land is under cultivation; the rest is the property of any one who chooses to cultivate it. The population has suffered severely from the inroads of the Ashantees, and cannot at present be estimated at more than 10,000 souls, of whom 7000 are women and children. The chief object of exportation is gold; their mode of procuring which is not very exactly known. Gold and cowries form the medium of circulation; 32,000 cowries go to the ounce of gold, valued at £4. The district is divided into a number of petty states, which are variously governed.

AGGADA, in Jewish antiquity, an ingenious tale, of which there are many in the Talmud. Several books are extant among the Jews under this title. R. San Israel Ben Juda has published Novella Aggadarum, or new explanations of the stories in the Talmud, discovering their hidden meaning.

AGGELATION, *n.* Lat. ad: *gelu, ice*

It is round in hail, and figured in its guttulous descent from the air; growing greater or lesser, according to the accretion or pluvious *aggelation* about the fundamental atoms thereof.

Brown's Vulgar Errors.

AGGENERATION, *n.* Ad: *genero, genui*; *γινομαι*, to produce.

To make a perfect nutrition, there is required a transmutation of nutriment: now, where this conversion or *aggeneration* is made, there is also required, in the aliment, a similarity of matter.

Brown's Vulgar Errors.

AGGER, in ancient authors, denotes the middle part of a military road, raised into a ridge, with a gentle slope on either side, to make a drain for the water, and keep the way dry. The term was also used for the whole road, or military way. Where highways were to be made in low grounds, as between two hills, the Romans used

to raise them above the adjacent land, so as to make them level with the hills. These banks they called aggeres. Bergier mentions several in Gallia Belgica, which were thus raised, ten, fifteen, or twenty feet above ground.—They are sometimes also called aggeres calceati; and are now generally known by the name choussees, or causeways.

AGGER, in the ancient military art, a work of fortification, used both for the defence and the attack of towns, camps, &c. In which sense it is the same with what was otherwise called vallum, and in latter times aggestum; and among the moderns, lines, cavaliers, terrasses, &c. The agger was usually a bank, or elevation of earth or other matter, bound and supported with timber; having sometimes turrets on the top, wherein the workmen, engineers, and soldiers, were placed. It was also accompanied with a ditch, which served as its chief defence. The usual materials of which it was made were earth, boughs, fascines, stakes, and even trunks of trees, ropes, &c. variously crossed, and interwoven somewhat in the figure of stars; whence they were called stellati axes. Where these were wanting, stones, bricks, or tiles, supplied the office: on some occasions, arms, utensils, pack-saddles, were thrown in to fill it up. We even read of aggers formed of the carcases of the slain; sometimes of dead bones mixed with lime; and even with the heads of slaughtered citizens. For want of the due binding of solid materials, aggers have occasionally given way, with infinite mischief to the men. The besiegers used to carry on a work of this kind, gradually approaching the place, till at length they reached the very wall. The methods taken, on the other side, to defeat them, were by fire, especially if the agger were of wood; by sapping and undermining, if of earth; and in some cases, by erecting a counter agger. The height of the agger was frequently equal to that of the wall of the place. Cæsar tells us of one he made, which was thirty feet high and 330 feet broad. Besides the use of aggers before towns, the generals used to fortify their camps with such works; for want of this precaution, armies have often been surprised and ruined. There were vast aggers made in towns and places on the sea side, fortified with towers, castles, &c. Those made by Cæsar and Pompey at Brundusium, are famous. Sometimes aggers were even built across arms of the sea, lakes, and morasses; as was done by Alexander before Tyre, and by M. Antony and Cassius. The wall of Severus, in the north of England, may be considered as a grand agger, to which belonged several lesser ones. See SEVERUS's WALL.

AGGER TARQUINII, Tarquin's agger, was a famous one built by Tarquin II. on the east side of Rome, to stop the incursions of the Latins. Criminals were thrown down from the top of this rampart. *Juv. Sat.* vi. 288; and *Sueton. in Cal.*

AGGER is also used for the earth dug out of a trench and thrown up on the brink of it. In which sense, Folard thinks the word to be understood, when used in the plural number, since we can hardly suppose they would raise a number of cavaliers, or terrasses. It is also used for a bank, or wall, erected against the sea, or some great river, to confine or keep it within bounds; called also a tumulus and moles; the Dutch, dyke; we, dam, and sea-wall.

AGGER also denotes a heap of earth, raised over the graves of the ancients. In which sense, it amounts to the same with what is sometimes called aggestum.

AGGER, in geography, a river of the circle of Westphalia, which waters the county of Marck and the duchy of Berg. It falls into the Sieg, below Siegberg.

AGGERHUUS, or CHRISTIANIA, the largest diocese or general government in the south part of Norway; and the richest, as well as most considerable, in the whole kingdom. It was formerly called Hammerslift, and Opseloe. It is bounded on the north by Drontheim, on the west by Bergen and Christiansand, on the south by the Skager-Rack, and on the east by Sweden; and contains several towns, six royal bailiwics, and the counties of Jarlsburg and Larwig. In 1769, the number of inhabitants amounted to 315,144; but they are now supposed to exceed 400,000. Excellent timber for ship-building is furnished here; and at Korsberg and Stroemsoe are some valuable silver mines; iron mines at Lariveg and Lassoe, and a copper mine at Quickul. Opseloe yields upwards of 500 tons of alum per annum, from a sort of black slate; and loadstones are found in several places.

This is also the name of a royal bailiwic, of several districts, and of a fortress in this diocese, on the west side of the bay, near which lies the city of Christiania. It is not known when it was built; but it has been repeatedly besieged by the Swedes, viz. in 1310, in 1567, and in 1717, by Charles XII., without success. The governor of Aggerhuus is the chief governor of Norway: he presides in the high court of justice, called Overhoflet, which judges, in the last resort, all civil causes above a certain value. In all causes surpassing that value, an appeal lies to the supreme court at Copenhagen. N. lat. 59°. 6′. E. long. 10°. 20′. The oldest church in this diocese, said to have been built about 700 years ago, and called Aggers, is situated about a quarter of a Norway mile north of the castle.

AGGERS-HERRED, a fief of Aggerhuus, which comprises three districts, with as many courts of judicature, viz. Ascher, East and West Barum, and Ager. Christiania is situated in this district.

AGGEROUT, or AGGEROUD, supposed to be the ancient Arsinoe, is situated at the extremity of the Red Sea, about two leagues from the port of Suez. Here terminated the famous canal, begun by Necos and finished by Ptolemy Philadelphus, for joining the Nile to the Red Sea. Since the time of Ptolemy, the Red Sea has retired two leagues, which is the distance of Aggeroud from Suez.

AGGLESTONE, otherwise called Stone Barrow, and vulgarly the Devil's Cap, is a remarkable monument of antiquity, situated in the N.E. extremity of the isle of Purbeck. Its dimensions are sixty feet in circumference at the bottom, in the middle eighty, and at or near the top ninety; and it is computed to contain 407 tons of stone.

The name seems to have been derived from the Saxon halig, or hælig, holy, and stoned, stan, stone, which expresses its ancient use; as it was probably a rock idol in the British age.

AGGLOM'ERATE, AGGLOMERA'TION. } Ad: *glomero*, to roll up thread. To gather together; to assemble in a mass.

An excessive *agglomeration* of turrets, with their fans, is one of the characteristick marks of the florid mode of architecture, which was now almost at its height.

Warton. History of English Poetry. ii. 223.

Besides, the hard *agglomerating* salts,
The spoil of ages, would impervious choke
Their secret channels.

Thomson's Autumn.

Worlds! systems! and creations!——And creations
In one *agglomerated* cluster, hung,
Great vine! on thee, on thee the cluster hangs.

Young. Night ix.

Thus we break the vast periods of time into centuries and years; and thus, if we would know the amount of moments, we must *agglomerate* them into days and weeks. *Blair.*

He seeks a favour'd spot; that where he builds
Th' *agglomerated* pile, his frame may front
The sun's meridian disk, and at the back
Enjoy close shelter, wall or reeds, or hedge
Impervious to the wind. *Cowper's Task.*

AGGLU'TINATE, *v.* AGGLUTINA'TION, AGGLU'TINANT, AGGLU'TINATIVE. } Ad: *gluten, glus*, glue. To stick or adhere together.

To the nutrition of the body there are two essentials required, assumption and retention; then there follow two more, concoction and *agglutination*, or adhesion. *Howell's Letters*, i. 5.

The body has got room enough to grow into its full dimensions; which is performed by the daily ingestion of food that is digested into blood; which, being diffused through the body, is *agglutinated* to those parts, that were immediately *agglutinated* to the foundation parts of the womb.

Harvey on Consumptions.

Rowl up the member, with the *agglutinative* rowler.

Wiseman.

AGGLUTINANTS, in pharmacy, more particularly comprehend that class of strengthening medicines, whose office and effect are to adhere to the solid parts of the body, and thus recruit and supply the place of what is wasted by the animal exertions. They are such as are easily formed into jellies, and the principal simples which come under this class, are isinglass, olibanum, gum Arabic, dragon's blood, cassia, sago, vermicelli, pulse, comfrey, plaintain, &c. If the term, says Dr. Cullen, has any foundation at all, it must have the same meaning with that of nutrient; and there is no propriety in using a doubtful theoretical term. Nor is the term less improperly applied to medicines that are suited to cement and reunite parts preternaturally separated, and therefore employed in wounds and ulcers. British surgeons neither know nor employ any such medicines: the business is the work of nature; and their concern is to remove impediments to its operation. *Mat. Med.* vol. i. 163.

AGGLUTINATION, in surgery, adhesion. The reunion of wounds was formerly supposed to be effected by means of certain applications, named agglutinants; but these remedies are now known to act only by keeping the separated parts in exact apposition. See Bell's Principles of Surgery; and the article WOUNDS. An unnatural agglutination of the eyelids, constitutes the disease, anchyloblepharon.

AGGLUTINATION, in astronomy, the meeting of two or more stars in the same part of the zodiac; also the seeming coalition of several stars, so as to form a nebulous star.

AGGLUTINATIO PILORUM, a healing or reducing the hairs of the eye-lids that grow inwards, to their natural situation. This may be done by mastic applied with a probe, which bends the hairs back into their proper order. Bitumen, the slime of a snail taken off with a needle, the juice of hawk's weed, the liquor of agglutinants, or ammoniac, produce the same effect.

AGGRACE', *v.* & *n.* AGGRATE'. } Ad: *gratia*, to treat with favour.

So goodly purpose they together fond
Of kindnesse and of courteous *aggrace*.

Spenser's Faerie Queene.

And in the midst thereof, upon the floor,
A lovely bevy of fair ladies sate,
Courted of many a jolly paramour,
The which them did in modest wise amate;
And each one sought his lady to *aggrate*. *Idem*

AGGRAMMES, in ancient history, a cruel king of the Gangarides. His father was a hairdresser, of whom the queen was enamoured, and having been made governor of the king's children by the queen, (in order the more easily to gratify her passion,) he killed them all, that Agrammes, his son by the queen, might be raised to the throne.—*Curtius*, ix. 2.

AG'GRANDIZE, *v.* AG'GRANDIZEMENT. } Ad: *grandis, grandior*, to advance; to ascend, Fr. *aggrandir*, to make greater; to increase the power, rank, wealth, or reputation.

If the king should use it no better than the pope did, only to *aggrandize* covetous churchmen; it cannot be called a jewel in his crown. *Ayliffe's Pareg.*

These furnish us with glorious springs and mediums; to raise and *aggrandize* our conceptions, to warm our souls, to awaken the better passions; and to elevate them, even to a divine pitch, and that for devotional purposes.

Watts's Improvement of the Mind.

It is true greatness that constitutes glory; and virtue is the cause of both: but vice and ignorance taint the blood; and an unworthy behaviour degrades and disennobles a man, more than birth and fortune *aggrandize* and exalt him. *Guardian.*

AG'GRAVATE, *v.* AGGRAVA'TION, AGGREGE'. } Ad: *gravis*; Fr. *aggrever*, to make heavy; to increase trouble, pain, or sorrow. Agredge or aggrege are used by Chaucer and Douglas.

And up he stertis in this ilk thraw
With thir wourdis Turnus to ouer charge,
Aggregeing on wraith and malice large.

Douglas, b. xi. p. 374.

She graunted; and that knight so much *agreate*
That she him taught celestial discipline.

Spenser's Faerie Queene, ix. 18.

I grant you, friends, if you should fright the ladies out of their wits, they would have no more discretion

but to hang us; but I will *aggravate* my voice so, that I will roar you as gently as any sucking dove; I will roar you an 'twere any nightingale.

Shakspeare's Midsummer Night's Dream.

Sins are so much the greater as they are universal; so far is evil from being extenuated by the multitude of the guilty, that nothing can more *aggravate* it.

Hall's Contemplations.

Good turns *aggravate* unkindnesses, and our offences are increased with our obligations. *Idem.*

Till over head a sheet
Of livid flame discloses wide; then shuts,
And opens wider; shuts and opens still
Expansive, wrapping ether in a blaze.
Follows the loosen'd *aggravated* roar,
Enlarging, deepening, mingling.

Thomson's Summer.

Oh! friendship's generous ardour then suppress,
Nor hint the fatal cause of my distress;
Nor let each horrid incident sustain
The lengthen'd tale to *aggravate* his pain.

Falconer's Shipwreck.

AGGRAVATION, in the Romish canon law, is particularly used for an ecclesiastical censure, threatening excommunication, after three admonitions used in vain. From aggravation they proceed to re-aggravation; which is the last step to excommunication.

AG'GREGATE, *v.* & *n.* Ad: *gregare.* AG'GREGATE, *adj.* *Adgregare*, says AGGREGATELY, Festus, est ad AGGREGA'TION, gregem ducere; AGGREGA'TIVE, to bring to the AGGREGA'TOR. flock; to collect into a company, or assemblage; to amass.

The reason of the far greatest part of mankind, is but an *aggregate* of mistaken phantasms; and, in things not sensible, a constant delusion.

Glanville's Scepsis Scientifica.

A great number of living and thinking particles could not possibly, by their mutual contact, and pressing, and striking, compose one greater individual animal, with one mind and understanding, and a vital conscension of the whole body; any more, than a swarm of bees, or a crowd of men and women, can be conceived to make up one particular living creature, compounded and constituted of the *aggregate* of them all. *Bentley.*

The *aggregated* soil
Death, with his mace petrific, cold and dry,
As with a trident, smote.

Milton's Paradise Lost.

Their individual imperfections being great, they are moreover enlarged by their *aggregation*; and, being erroneous in their single numbers, once huddled together, they will be errour itself.

Brown's Vulgar Errours.

The water resident in the abyss, is (in all parts of it) stored with a considerable quantity of heat; and more especially in those, where these extraordinary *aggregations* of this fire happen.

Woodward's Natural History.

They had, for a long time together, produced many other inept combinations, or *aggregate* forms of particular things, and nonsensical systems of the whole.

Ray on the Creation.

AGGREGATE, in botany, is a term used to express those flowers, which are composed of parts or florets, so united, by means either of the receptacle or calyx, that no one of them can be taken away, without destroying the form of the whole. They are opposed to simple flowers, which have no such common part, and are usually divided into seven kinds, viz. the aggregate properly so called, whose receptacle is dilated, and whose florets are supported by foot-stalks; such are the blue daisy, thrift, or sea spink, &c. the compound; the umbellati; the cymose; the amentaceous; the glumose; and the spadiceous.

AGGREGATÆ GLANDULÆ, in anatomy, the small glands in the cellular, which is next to the villous coat of the intestines; as these glands are not visible in an uninjected gut, many anatomists suspect them to be only little bits of separated wax.

AGGREGATÆ TERRÆ, in the Linnæan system of mineralogy, denotes the seventh order of earths, comprehending those that are formed of the aggregate earths of the preceding orders. To this order belong the six following genera, viz. granites, gneissum, porphyrias, amygdalites, breccia, and arenarius.

AGGREGATION, in physics, a species of union, whereby several things which have no natural dependence or connection with one another are collected together, so as in some sense to constitute one. Thus, a heap of sand, or a mass of ruins, are bodies by aggregation.

AGGRESS', AGGRES'SION, AGGRES'SOR. Ad: *gredior, gressus*, to step or go to; to advance against; to begin a quarrel; to commence hostile proceedings, assault or fall upon.

The glorious pair advance,
With mingled anger and collected might;
To turn the war and tell *aggressing* France,
How Britain's sons and Britain's friends can fight.

Prior.

There is no resisting of a common enemy, without an union for a mutual defence; and there may be also, on the other hand, a conspiracy of common enmity and *aggression*. *L'Estrange.*

Fly in nature's face!
But how if nature fly in my face first?
Then nature's the *aggressor*. Let her look to't.

Dryden.

It is a very unlucky circumstance to be obliged to retaliate the injuries of such authors; whose works are so soon forgotten, that we are in danger already of appearing the first *aggressors*. *Pope and Swift.*

AGGRESSES, in heraldry, pellets or balls.

AGGRESTEIN, in falconry, a disease of hawks.

AGGRIEVE', *v.* AGGRIEV'ANCE. Lat. *gravis*, heavy; Fr. *agrever*, to weigh down with grief; to depress; to vex.

Grete was pat linage & many to pam cheued,
& of pat ilk outrage pe fest þam sore *agreued.*

R. Brunne, p. 323.

For John, ther is a lawe that saieth thus,
That if a man in o point be *agreved*
That in another he shall be releved.

Chaucer. The Reeves Tale, vol. i. p. 165.

The dredful figures gan appere to me
And great Gods eke *aggreued* with our town.

Surrey's Æneid.

I saw alas! the gaping earth devour
The spring, the place, and all clean out of sight:
Which yet *aggrieves* my heart, even to this hour.

Spenser.

Sewell, archbishop of York, much *aggrieved* with some practices of the pope's collectors, took all patiently. *Camden.*

Of injured fame, and mighty wrongs received,
Chloe complains, and wondrously's *aggrieved.*

Granville

AGGROUPE'. See GROUPE.

Bodies of divers natures, which are *aggrouped* (or combined) together, are agreeable and pleasant to the sight. *Dryden.*

AGHABOE, a small town in Queen's County, Leinster, Ireland. Also a town in the county of Kerry, in Ireland.

AGHADES. See AGADES.

AGHAL GORI, a small city of Georgia, in the province of Kartel, situated in a narrow valley, in the neighbourhood of which are iron mines. The inhabitants are chiefly weavers of cotton and hemp, and they manufacture handkerchiefs, as also stuffs that are rough on both sides. The neighbourhood is very fertile.

AGHER, a town of Ireland, in the southern part of Ulster, not far from Clogher, which sent two members to the Irish parliament.

AGHOGILL, or AHOGILL, a town of Ireland in the county of Antrim, and province of Ulster.

AGHRIM, a town of Ireland, in the county of Wicklow, and province of Leinster, situated about thirteen miles S.W. of Wicklow.

AGHRIM, or AUGHRIM, in Galway; a small village, distant seventy-five miles from Dublin, and rendered memorable by a decisive battle fought there, and at Kilcommodon hill, the 12th of July, 1691, between general Ginckel and Monsieur St. Ruth, the commanders under king William III. and James the II. when St. Ruth, the general of the Irish army, with 7000 of his men, were slain; but of the English only 600. The victory was the more considerable, as the English army consisted of not more than 18,000 men; whereas the Irish were computed at 20,000 foot, and 5000 horse and dragoons. They lost likewise nine pieces of brass cannon; and all their ammunition, tents, and baggage; most of their small arms, which they threw away to expedite their flight; with eleven standards, and thirty-two pairs of colours.

AGIADES, in the Turkish armies, a kind of pioneers employed in fortifying camps, smoothing roads, and the like offices.

AGIAHALID, in botany, an Egyptian tree, called also licio and lycium, which resembles the wild pear.

AGIASMA, from *αγιος*, *holy*, among ancient writers, is sometimes used for the whole church, sometimes for the bema, or more sacred part, wherein mass was said.

AGIDÆ, the elder branch of the royal family of Sparta, so called from Agis, their second king.

AGILD, or AGILDE, from the Gr. *a*, privative, and the Sax. gildon, to pay, in our ancient customs, a person so vile, that whoever kills him was to pay no mulct for his death.

AG'ILE, *adj.* } *Ago, agilis*, able to act; ac-
AGIL'ITY. } tive, brisk, nimble.

Yet God hathe suffered theym [the fiendes] to keepe their gyftes of nature styll, as wytte, betwyc, strengthe, *agylytie*, and suche other lyke,
Sir Thos. More's Works, p. 863, col. 2.

He [the thief] was pursued close by a fierce mastiff dog, and was forced to save himself by leaping over a hedge, which being of an *agile* body he effected.
Bacon's Apophthegms.

The immediate and *agile* subservience of the spirits to the empire of the mind or soul.
Hale's Origin of Mankind.

With that he gave his able horse the head;
And, bending forward, struck his *agile* heels
Against the panting sides of his poor jade,
Up to the rowel head. *Shakspeare's Henry IV.*

Once more, I said, once more I will inquire,
What is this little, *agile*, pervious fire,
This fluttering motion, which we call the mind?
How does she act? and where is she confined?
Prior's Solomon.

To guide its actions with informing care,
In peace to judge, to conquer in the war,
Render it *agile*, witty, valiant, sage;
As fits the various course of human age. *Id.*

First he bids spread
Dry fern or littered hay, that may imbibe
Th' ascending damps; then leisurely impose.
And lightly, shaking it with *agile* hand,
From the full fork, the saturated straw.
Cowper's Tirocinium.

AGILITY. Among the ancient Greeks, the improving of agility was one of the chief objects of the institution of games and exercises. The athletæ made particular profession of the science of cultivating and improving agility. Agility of body is often supposed peculiar to some people; yet it seems less owing to any thing peculiar in their frame and structure, than to practice.

AGILENSY, in botany, a name used by some writers for the common hazel.

AGILLARIUS, in ancient law books, a keeper of cattle in a common field. The agillarius, or heyward of a town, or village, was to supervise the cattle, and keep them within their due bounds; and was otherwise called bubulcus, q. d. cow-wards, whence the reproachful term coward. If he was a cottager, or other servile tenant, he was exempted from the customary services, as being presumed to be always attending on his cattle, as a shepherd on his flock, who had therefore the like privileges. The agillarius of the lord of the manor, or a religious house, was an officer appointed to take care of the tillage and harvest-work, to pay the labourers, and see there were no encroachments made, or trespasses committed: the same in effect with what has been otherwise called fieldsman, and tithing-man; and among us bailiff.

AGIMERE, AGMEER, AJMEER, or RAJPOOTANA, an extensive province of Hindostan, bounded on the north by the provinces of Moultan and Delhi; on the south by Malwah and Gujrah; on the east by Delhi and Agra; and on the west by Sinde. It lies between 25° and 30° N. lat. and is about 350 miles long, by 220 in breadth. The province of Ajmeer is occasionally named Marwar; but this appellation is properly restricted to the Joudpoor territories. The northern division, comprehending Bicanere and neighbouring districts, is a barren plain, almost destitute of rivers and rivulets, and but very thinly inhabited; the central territory, which includes Joudpoor and Jyenagur, is more hilly, and better supplied with water, yet not in sufficient quantities for wet crops: the soil is remarkably saline, containing salt lakes and springs, and producing salt and salt-petre spontaneously. The southern division is very hilly and of difficult access; but, in general, well co-

vered with trees and shrubs, and watered by many mountain streams, besides the Banass and Chumbul rivers.

The three great modern divisions of Ajmeer or Rajpootana, are, 1st, The state of Odeypoor, named also Mewar, or the Rana of Chitore; 2ndly, Joudpoor, named also Marwar, and its sovereign occasionally described as the Rhatore Rajah, being of that tribe; 3dly, Jyenagur, Jeypoor, or Ambeer.

The city of Ajmeer, and the forty-six surrounding pergunnahs, belong to Dowlet Row Sindia, the Mahratta chief, and the district of Tonk Rampoorah, to the Holcar family.

The eastern quarter of the central division is occupied by the Jyenagur Rajah; and the south-eastern division by the Rajahs of Kotah, Boonde, and other petty Rajpoot chiefs tributary to the Mahrattas, and engaged in a constant state of hostilities with each other.

The western parts of the central division are subject to the Rajah of Joudpoor, whose dominions are of great extent; and the south-western are possessed by the Rana of Odeypoor.

From these principalities the Malwah Mahrattas, when they are strong enough, levy annual contributions, which is the easier effected, on account of their disunion and unceasing internal warfare. The barren and desolate region to the north, is very little known, having, from its poverty, attracted but little attention.

The constitution of these countries is feudal; each district, town, and even village, being governed by petty chiefs, dignified with the title of thakoor, or lord, who frequently yield but a nominal obedience to the person who is reputed to be their superior or sovereign. The rents are very low; but every village is obliged to furnish a certain number of horsemen at the shortest notice. The Rajpoots are hardy and brave, and extremely attached to their respective chiefs; they are much addicted to the use of opium—this destructive drug being produced by them on all occasions, and presented to visitors as betel is in other parts of India. They are usually divided into two tribes—the Rhatore, and the Chohan Seesodya Rajpoots.

The inhabitants, who are principally of the Rajpoot or military tribes of Hindoos, though occupying a vast territory, do not exceed five millions. The principal towns are Jyenagur, Joudpoor, Odeypoor, Ajmeer, Kotah, Boondee, Rantampoor, Chitore, Amber, and Shahpoorah. Both lead and copper mines are found in this province, which contains also a large salt-water lake, that yields a good revenue to the government.

Ajmeer, though extending over the centre of Hindostan, (its eastern frontier is within ninety miles of Delhi,) was never thoroughly subjugated either by the Patan or Mogul emperors. The Rajahs are mentioned by Ferishta so early as A. D. 1008; at which period they joined a combination of Hindoo princes against Mahmood of Ghizni, and in 1193, it was conquered, or rather overrun by Mahomet, the first Gauride sovereign of India. From this period it continued tributary to the throne of Delhi; and, on account of the refractory conduct of its princes, was frequently invaded by the emperors, who took and destroyed their chief towns. Yet the province never became a regular organized possession, like Delhi, Agra, and many much more remote countries, but remained in a sort of half-independent state, paying a tribute, and furnishing the imperial armies with a certain number of Rajpoot mercenaries, who were always held in high estimation, on account of their bravery and fidelity, and formed a counterpoise to the Moguls and Afghans. On Aurengzebe's death, in 1707, and the dissolution of the Mogul empire, which ensued, it continued for some time under a nominal subjection to the Delhi throne; but about 1748, assumed total independence. The interval since that period has been filled up by internal warfare, and invasions by the Mahrattas and other hordes of plunderers. During the latter part of the reign of Madhajee Sindia, and the commencement of that of Dowlet Row Sindia, they were very nearly subdued by the disciplined troops under generals Du Boigne and Perron in the pay of those chiefs. They have since recovered a little, not by any intrinsic addition to their own strength, but by the depression of their most dangerous adversary, Dowlet Row Sindia. In 1807, the Rajahs of Jyenagur and Joudpoor continued their mutual pretensions to marry the daughter of the Rana of Odeypoor, and engaged in hostilities, which were fermented and supported by Ameer Khan, Holkar, Sindia, and other depredators, who benefit by the dissensions among the Rajpoots. See *Abul Fazel, Rennel, Scott, Broughton, Maurice, MS. &c.*

AGIMEER, or AJMEER, the capital of the province of that name, is in Lat. 26°. 35′. N. Long. 74°. 48′. E. is situated in the centre of the Rajpoot states of Jyenagur, Joudpoor, and Odeypoor. In 1800 it was held by M. Perron. The boundary to the west is at the town of Meerta, which separates Ajmeer from Joudpoor. It is subject to Dowlet Row Sindia.

The fort of Ajmeer, named Taragur, (the house of the slaves,) is built on the north east end of a range of hills, and consists principally of a plain stone wall along the edge of the mountain, strengthened with a few round bastions. The city lies at the bottom of the hill, and is surrounded by a stone wall and ditch in bad repair. The streets are narrow and dirty, and most of the houses small, and in a state of decay. It possesses a palace, built in a garden by Shah Jehan; besides which, there are scarcely any remains of magnificence to be seen, either internally or externally.

The country round Ajmeer is a flat sandy amphitheatre, surrounded by low hills, in consequence of which the place is uncommonly sultry; but it is well supplied with water from two lakes, which are close under its walls. The most northern is six miles in circumference, and very deep; and, at particular seasons, both are covered with flocks of ducks and geese.

Ajmeer contains the tomb of Khaja Moyen ud Deen, one of the greatest Mahommedan saints of Hindostan, who flourished about 600 years ago. It is of white marble, but remarkable neither for beauty nor style of architecture. Although the distance from this tomb to Agra be 230 miles

yet the great and wise emperor Acber made a pilgrimage on foot to the tomb of this saint, to implore divine blessings on his family, which consisted only of daughters; but, after this pilgrimage received the addition of three sons. The peer zadas, or attendant priests, who subsist on the contributions at the tomb, exceed 1100 in number, and demand, or rather extort charity from all visitors. Madhajee and Dowlet Row Sindia, although Hindoos, were remarkable for their devotion to Mahommedan saints and customs. The latter bestowed a superb pall and canopy of cloth and gold on the tomb, and is particularly bountiful to the devotees and peer zadas. Four miles from the city is also a remarkable place of Hindoo pilgrimage, named Pooshkur, or Pokur. It is distant from Delhi 230 miles; from Bombay 680, and from Calcutta 1000 miles.

AGINCOURT, a village of the French Netherlands, in the department of the straits of Calais. Lon. 2°. 10′. E. Lat. 50°. 31′. N.; rendered famous by the battle fought near it in 1415, wherein Henry V. defeated the French, although the English army had to struggle with every disadvantage. After landing in France, it had been by various accidents reduced to 10,000 men, of whom not a few were sick, or slowly recovering from sickness;—they had to traverse a long tract of country, inhabited by exasperated enemies, from whom they were to procure provisions, lodgings, guides, intelligence, and every thing they wanted;—that country was defended by many strong towns, intersected by deep rivers, and defended by an army of 100,000, or (according to some contemporary writers,) 140,000 men. Henry, undaunted by all these dangers and difficulties, departed from Harfleur, marching his army in three lines, with bodies of cavalry on the wings. He proceeded by very easy journeys, that he might not fatigue his troops, or discourage them by the appearance of a flight; observing the strictest discipline, and paying generously for every thing he received; which induced the country people to bring provisions to his camp, in spite of all the commands they had received to the contrary. To keep his army from repining, the king fared as ill as the meanest soldier, always appearing with a cheerful countenance, and addressing them in the most friendly and encouraging language. They arrived at the village of Agincourt, in the county of St. Pol, on the evening of October 24th; and there beheld the whole French army, at a small distance, directly in their route. The king took an attentive view of it from an eminence; and being fully convinced, that it was impossible to proceed any further on his way to Calais without a battle, and equally impossible to return to Harfleur with so great an army in his rear, he resolved to hazard an action next morning, as the only means of preserving himself and his little army from destruction. The English army lodged that night in the villages of Agincourt, Maisoncelle, and some others; where they met with better accommodation than they had been accustomed to for some time past, and spent part of their time in mutual exhortations to fight bravely in the approaching battle. The king, overhearing some of his nobles expressing a wish, that the many brave men, who were idle in England, were present to assist them, is said to have cried out —'No! I would not have one man more:—if we are defeated, we are too many—if it shall please God to give us the victory, as I trust he will, the smaller our number the greater our glory.' The moon happening to shine very bright, Henry, with some of his best officers, carefully examined the ground, and pitched upon a field of battle, admirably calculated to preserve a small army from being surrounded by a great one. It was a gentle declivity from the village of Agincourt, of sufficient extent for his small army, defended on each side by hedges, trees, and brush-wood. Having placed guards, and kindled fires on all sides, the king and his army betook themselves to rest; except such as were of a more serious turn of mind, who, considering that as the last night of their lives, spent it in devotion. The French, exulting in their numbers, confident of victory, and abounding in provisions, spent the night in noisy festivity, and in forming fanciful schemes about the disposal of their prisoners and their booty. It was in general resolved to put all the English to the sword, except the king and the chief nobility, who were to be taken prisoners for the sake of their ransoms. On the morning of the 25th of October, A. D. 1415, the English and French armies were ranged in order of battle, each in three lines, with bodies of cavalry on each wing. The constable D'Albret, who commanded the French army, fell into the snare that was laid for him, by drawing up his army in the narrow plain between the two woods. This deprived him, in a great measure, of the advantage he should have derived from the prodigious superiority of his numbers; obliged him to make his lines unnecessarily deep, about thirty men in file; to crowd his troops, particularly his cavalry, so close together, that they could hardly move or use their arms; and, in a word, was the chief cause of all the disasters that followed. The French, it is said, had a considerable number of cannon of different sizes in the field: but, we do not hear that they did any execution, probably for want of room. The first line of the French army, which, consisting of 8000 men at arms on foot, mixed with 4000 archers, and 500 men at arms mounted on each wing, was commanded by the constable D'Albret, the dukes of Orleans and Bourbon, and many other nobles; the dukes of Alençon, Brabant, and Bar, &c. conducted the second line; and the earls of Marle, Dumartine, and Fauconberg, were at the head of the third line. The king of England employed various arts to supply his defect of numbers. He placed 200 of his best archers in ambush, in a low meadow, on the flank of the first line of the French. His own first line consisted wholly of archers, four in file; each of whom, besides his bow and arrows, had a battle-axe, a sword, and a stake pointed with iron at both ends, which he fixed before him in the ground, the point inclining outwards, to protect him from the cavalry; which was a new invention, and had a happy effect. That he might not be incumbered, he dismissed all his prisoners, on their word of honour to surrender themselves at Calais, if he

obtained the victory; and lodged all his baggage in the village of Agincourt, in his rear, under a slender guard. The command of the first line was, at his earnest request, committed to Edward, duke of York, assisted by the lords Beaumont, Willoughby, and Fanhope; the second was conducted by the king, with his younger brother Humphrey, duke of Gloucester, the earls of Oxford, Marshal, and Suffolk; and the third was led by the duke of Exeter, the king's uncle. The lines being formed, the king, in shining armour, with a crown of gold adorned with precious stones on his helmet, mounted on a fine white horse, rode along them, and addressed each corps with a cheerful countenance and animating speeches. To inflame their resentment against their enemies, he told them, that the French had determined to cut off three fingers of the right hand of every prisoner; and, to rouse their love of honour, he declared, that every soldier who behaved well, should henceforth be deemed a gentleman, and entitled to bear coat-armour. When the two armies were drawn up in this manner, they stood a considerable time gazing at one another in solemn silence. But the king, dreading the French would discover the danger of their situation, and decline a battle, commanded the charge to be sounded about ten o'clock in the forenoon. At that instant, the first line of the English kneeled down, and kissed the ground; and then starting up, discharged a flight of arrows, which did great execution among the crowded ranks of the French. Immediately after, upon a signal being given, the archers in ambush arose, and discharged their arrows on the flank of the French line, and threw it into some disorder. The battle now became general, and raged with uncommon fury. The English archers having expended all their arrows, threw away their bows, and, rushing forward, made dreadful havoc with their swords and battle-axes. The first line of the enemy was, by these means, defeated; its leaders being either killed, or taken prisoners. The second line, commanded by the duke D'Alençon, (who had vowed either to kill, or take the king of England, or to perish in the attempt,) now advanced to the charge, and was encountered by the second line of the English, conducted by the king. This conflict was more close and furious than the former. The duke of Gloucester, wounded and unhorsed, was protected by his royal brother till he was carried off the field. The duke D'Alençon forced his way to the king, and assaulted him with great fury; but that prince brought him to the ground, where he was instantly dispatched. Discouraged by this disaster, the second line made no more resistance; and, the third fled without striking a blow; yielding a complete and glorious victory to the English, after a violent struggle of three hours. The king did not permit his men to pursue the fugitives to a great distance, but encouraged them to take as many prisoners as they could on or near the field; in which they were so successful, that, in a little time, his captives were more numerous than his soldiers. A great proportion of these prisoners were men of rank and fortune; for many of the French noblesse being on foot, and loaded with their heavy armour, could not make their escape. Among these, were the dukes of Orleans, and Bourbon, the martial Boucicaut, the counts D'Eu, Vendome, Richemont, and Harcourt, and 7000 barons, knights, and gentlemen. The French left dead on the field of battle, the constable D'Albret, the dukes of Alençon, Brabant, and Bar, the archbishop of Sens, one marshal, thirteen earls, ninety-two barons, 1500 knights, and a vast number of gentlemen, besides several thousands of common soldiers. Even the French historians acknowledge, that the loss of the English was inconsiderable: those of our own contemporary writers, who make it the greatest, affirm, that it did not exceed 100, and that the duke of York, and the earl of Suffolk, were the only great men who fell on that side, in this memorable action.

AGIO, in commerce, an Italian word, signifying aid, and used chiefly in Holland, and at Venice, for the difference between the value of bank money, and current money. So that if a merchant stipulates to be paid either 100 livres bank money, or 105 cash, or current money, in such case the agio, is said to be five per cent. The bank agio varies in almost every place, and is greater or smaller, according as the currency is supposed to be more or less degraded below the standard of the state. At Amsterdam it used to be generally about five per cent.; and by a resolution adopted not long before the late period of confusion, the bank sold bank-money for currency, at five per cent. agio, and bought it again at four per cent, agio. In consequence of this resolution, the agio could never either rise above five, or sink below four per cent.; and the proportion between the market-price of bank, and that of current money, was kept at all times very near to the proportion between their intrinsic values. One part of the profit of the bank accrued from selling bank-money at five per cent. agio, and buying it in at four. At Venice, the agio was twenty per cent. fixed; at Genoa, from fifteen to sixteen per cent. The agio of the bank of Hamburgh, which is said to be commonly about fourteen per cent. is the supposed difference between the good standard money of the state, and the clipt, worn, and diminished currency poured into it from all the neighbouring states. See BANK and EXCHANGE.

AGIO is also used for the profit arising from discounting a note, bill, or the like. It is also used, though with some impropriety, for the rate of exchange of a sum negotiated, whether to profit or loss. It is also sometimes called AGAI.

AGIO of assurance is used, by some, for what we more usually call policy of assurance.

AGIOSYMANDRUM, from *αγιος*, holy; and *σημαινω*, to signify, or intimate; a wooden instrument used by the Greeks and other churches under the dominion of the Turks, to call together assemblies of the people. The agiosymandrum was introduced in the place of bells, which the Turks prohibited their Christian subjects the use of, lest they should make them subservient to sedition.

AGIRU, a name by which some writers designate the western part of the island of Corfu, in the gulf of Venice. It contains twenty vil-

lages, and 8000 inhabitants. The most remarkable place in it is a convent, called Palleo Castrizza.

AGIS, the son of Eurystheus, the second king of Lacedæmon, of the race of the Heraclidæ, was cotemporary with David, king of Israel, and Medon the first archon of Athens.

AGIS, I. of the Proclidæ race, the son of Archidamus II. and elder brother of Agesilaus II. kings of Sparta, reigned twenty-seven years, and was contemporary with Alcibiades; who was suspected of being too familiar with his queen, Timæa, on which account her son Leotychides was set aside from the succession, and Agesilaus raised to the throne.

AGIS II. king of Sparta, son of Archidamus III. and grandson of the famous Agesilaus, reigned only nine years, being defeated by Antipater, one of Alexander's generals, in the second year of his universal empire.

AGIS III. king of Sparta, the son of Eudamidas II. and the fifth in the direct line from Agesilaus II. He was a patriotic prince, and attempted the reformation of his kingdom, by restoring the laws of Lycurgus: but fell under the weight of an enterprize that could not but be disagreeable to all who had great possessions, and had been long accustomed to a voluptuous life. Agis however, in the flower of his age, set the example to his subjects, by practising the ancient discipline first in his own person: his clothes and his table being conformed to the primitive manners; although he is said to have been brought up voluptuously. When he sounded the minds of the people, he found the younger classes opposed his plan less than those who had enjoyed a relaxation for several years. But the greatest difficulty was expected to arise from the women; and Agis's mother did not at all approve of a reformation, by which she was to lose part of her beloved riches. However Agesilaus her brother, whom Agis had engaged in his interests, obtained a promise from her to second the enterprize, and she endeavoured to gain the Spartan ladies. An opposing party then applied to Leonidas III. the other king of Lacedæmon, to frustrate the designs of his colleague. Leonidas durst not oppose it openly, for fear of irritating the people, with whom the reform was generally popular, because they found their account in it: but he countermined it by sowing suspicions, as if Agis had aspired to tyranny, by pulling down the rich and raising the poor. Agis proposed his new laws to the senate, upon the discharge of debts, and a new division of the lands. Leonidas, being supported by the rich, opposed the measure so strongly, that there was a majority of one against it. But Lysander, one of the ephori, who had been a principal promoter of the reform, called him to account; whereupon Leonidas took refuge in a temple, whither his daughter, Chilonis, wife of Cleombrotus, followed him. He was summoned, but not appearing, was degraded of his dignity, which was conferred on his son-in-law Cleombrotus, and Leonidas was banished to Tegæa. The new ephori had Lysander and Mandroclidas tried for innovation; who persuaded the two kings to unite and turn out the ephori; which was brought about; but not without difficulty. Agesilaus, one of the ephori that succeeded those who were just turned out, would have caused Leonidas to be killed on the way to Tegæa, if Agis had not sent him a strong guard, a favour which was repaid with the most shocking ingratitude. The reformation might then have been established, if Agesilaus had not found means to elude the good intentions of the two kings. Whilst this was transacting, the Achæans asked assistance; which was given them, and Agis had the command of the troops. He acquired a good deal of reputation in this campaign, but upon his return, found his affairs so embroiled by the ill conduct of Agesilaus, that it was impossible for him to maintain himself. Leonidas was recalled to Lacedæmon. Agis retired into one temple and Cleombrotus into another. The wife of the latter behaved herself in such a manner that she became the admiration of every body. Leonidas was contented with banishing his son-in-law; but he applied himself entirely to the ruin of Agis. One of the ephori, who was unwilling to return what Agesistrata had lent him, was the diabolical instrument of the ruin of this family. Agis never went out of his sanctuary but to bathe. One day, as he was returning from thence to the temple, he was seized by the ephorus, and carried to prison, brought to his trial, condemned to death, and delivered to the executioner. His mother and grandmother used all possible importunity, that, as he was king of Lacedæmon, he might at least be permitted to plead his cause before the people. But the ephori were apprehensive lest his words might make too great an impression, and they ordered him to be strangled on the spot. The ephorus, who was the ungrateful debtor to Agesistrata, permitted the princess to go into the prison, as well as Agis's grandmother; but he gave orders to strangle them both. Agesistrata died in a manner that was extremely to her honour. Perceiving the fate of her son and mother, she kissed the corpse of Agis, and exclaimed, 'My son, thy too great moderation and humanity have ruined both us and thee.' Being told that, as she approved his actions, she must also die, she immediately prepared for death, exclaiming, 'May all this be for the good of Sparta! The wife of Agis who was a princess of great fortune and prudence, one of the finest ladies in Greece, and was passionately fond of her husband, was forced away from her apartment by king Leonidas, and obliged to marry his son, Cleomenes, then very young, and was afterwards the last king of Sparta. Thus failed the final attempt to restore the primitive virtue of the Spartans; an evidence, amongst many others, how difficult it is to bring about a reform amongst a people, who are once enervated by luxury. Not long after this, Sparta became a Roman province: and the son and grand-children of Leonidas perished miserably in Egypt.

AGIS, in anatomy, the thigh.

AGIST', *v.* } A law term, supposed to be
AGIST'MENT. } derived from the old law Fr. *giste*, a lying place; the lying or pasturing of cattle in another man's ground, on paying a certain sum of money to the proprietor

If a man take a horse or other cattle to graze and depasture his grounds, which the law calls *agistment*, he takes them upon implied contract to return them safe to the owner. *Blackstone.*

A forest hath laws of her own, to take cognizance of all trespasses; she hath also her peculiar officers, foresters, verderers, regarders, *agisters*, &c. whereas a chase or park hath only keepers and woodwards. *Howell's Letters.*

AGIST, in law, signifies to take in and feed the cattle of strangers in the king's forest, and to gather up the money due for the same. The officers appointed for this purpose are called agisters, or gistakers, and are made by the king's letters patent: there are four of them in every forest, wherein the king hath any pannage. The time for this is fifteen days before Michaelmas, and as many after, when the running of the cattle cannot prejudice the game. Manw. For. Laws, 8vo. Chart. de Foresta, 9 Henry, III. cap. 9.

AGISTMENT, from the French giste, a bed, or lying place: though Kennet derives it from ager, the field, or feeding-place for cattle; imagining agistment to have originally been the same with agrarium, agerium, or agroticum, the profit of feeding cattle on such a piece of ground. The term is applied to taking other men's cattle into any ground at a certain rate per week. It is so called, because the cattle are suffered agiser, that is, to be levant and couchant there; and many great farms are employed to this purpose, (2 Inst. 643.) Our graziers call cattle, which they thus take in to keep, gisements; and to gise, or juice, the ground, is when the occupier thereof feeds it not with his own flock, but takes in the cattle of others, to agist or pasture it. Agistment is likewise the profit of such feeding in a ground or field: and extends to the depasturing of barren cattle of the owner, for which tythes shall be paid to the parson.

AGISTMENT is also used metaphorically for a charge or burthen on any thing. In this sense we meet with terra ad custodiam maris agistata, i. e. charged with a tribute to keep out the sea.—So terræ agistatæ, are lands whose owners are bound to keep up the sea-banks. Agistment denotes likewise the duty or levy for repairing the banks and walls in Romney marsh, which was particularly called agistamentum: and the act of laying such a proportion of this duty on the several estates, was called agistatio. *Spelman.*

AGISYMBA, in ancient geography, now Zanguebar, a district of Libia Interior, situated to the S.E. of the Æthiopes Anthropophagi; the parallel passing through which, at 16°. S. of the equator, was the utmost extent of the geographical knowledge of the ancients to the south.

AGITATE, *v.* } Agito: *ago*, to act often;
AGITA'TION, } to move quickly, frequently,
AGITA'TOR. } and successively; to affect with a certain degree of violence; to disturb; to make a subject the matter of debate, and active examination; to discuss a point.

Putrefaction asketh rest; for the subtle motion, which putrefaction requireth, is disturbed by any *agitation*. *Bacon.*

A great perturbation in nature! to receive at once the benefit of sleep, and do the effects of watching. In this slumbry *agitation*, besides her walking, and other actual performances, what have you heard her say? *Shakspeare. Macbeth.*

Though this controversy be revived, and hotly *agitated* among the moderns; yet I doubt, whether it be not, in a great part, a nominal dispute. *Boyle on Colours.*

The project now in *agitation*, for repealing of the test act, and yet leaving the name of an establishment to the present national church, is inconsistent. *Swift's Miscellanies.*

Where dwells this sov'reign arbitrary soul,
Which does the human animal controul,
Inform each part, and *agitate* the whole?
Blackmore.

A kind of school question is started in this fable, upon reason and instinct; this deliberative proceeding of the crow was rather a logical *agitation* of the matter. *L'Estrange's Fables.*

AGITATION, in medicine, exercise, and more particularly applied to that of swinging. Maurice, prince of Orange, found this method a relief against the severe pains of the gout and stone. Bartholine mentions fits of the tooth-ach, deafness, &c. removed by vehement agitations of the body. Dr. Sydenham attributes the great benefits of riding to agitation, which is very efficacious in removing obstructions in the viscera.

AGITATION, in physics, is often used for an intestine commotion of the parts of a natural body. Fermentation and effervescence are attended with a brisk agitation of the particles; and it is one of the chief causes or instruments of mixtion. By the agitation of the parts of the blood and chyle, in their continual circulation, sanguification is in a good measure effected. Butter is made out of milk by the same means; in which operation, a separation is made of the oleous parts from the serous, and a conjunction of the oleous together. Digestion itself is only supposed to be an insensible kind of agitation. Agitation has been imputed as one of the symptoms of inspiration.

AGITATO, in music, agitated; with emotion.

AGITATOR, in antiquity, a term sometimes used for a charioteer, especially those who drove in the circus at the curule games.

AGITATORS, in English history, were officers appointed by the army in 1647, to take care of its interests. Each troop or company furnished two private men or inferior officers under this title, who represented the army whilst a council of the principal officers was appointed after the model of the house of peers; and thus a military parliament was formed in opposition to the parliament at Westminster. In their first institution Cromwell leagued himself with the agitators, whom he found to have greater interest than the council of war; and who undertook to make proposals relating to the reformation of religion and the state. The agitators as well as the council of officers were altogether moved by his direction, and conveyed his wish to the whole army. By means of these instruments he overawed the parliament, and reduced it to submission; and having gained possession of the king's person, to whom for some time he and his officers paid attention and respect, he contrived to terrify him by the menaces of the agitators,

and thus induced him to make his escape from Hampton-court, and to take refuge at Carisbroke castle, in the Isle of Wight. Cromwell being entirely master of the parliament, and free from all anxiety with regard to the custody of the king's person, applied himself seriously to quell those disorders in the army, which he himself had artfully raised and successfully employed, against both king and parliament. With this view, besides other measures which he adopted, he issued orders for discontinuing the meetings of the agitators; and pretended to pay entire obedience to the parliament, whom, being now fully reduced to subjection, he proposed to make, for the future, the instruments of his authority. But the levellers, (for so that party was called, because they wished to abolish royalty and nobility, to level all ranks of men, to introduce an universal equality both of property and of power, and who maintained that the meanest sentinel, if enlightened by the Spirit, was entitled to equal regard with the greatest commander,) having tasted the sweets of dominion, would not easily be deprived of it. They secretly continued their meetings; they asserted, that their officers, as much as any part of the church or state, needed reformation; and several regiments joined in seditious remonstrances and petitions. Separate rendezvouses were concerted; and every thing tended to anarchy and confusion. But this distemper was soon cured by the rough but dexterous hand of Cromwell. He chose the opportunity of a review, that he might display the greater boldness, and spread the terror the more widely. He seized the ring-leaders before their companions; held in the field a council of war; shot one mutineer instantly, and struck such dread into the rest, that they presently threw down the symbols of sedition, which they had displayed, and thenceforth returned to their discipline and obedience. *Hume's Hist.* vol. vii. p. 109. 8vo.

AGITATORS, MILIARIAN, were those who drove in the forum at Constantinople, a place adorned with statues, &c. after the manner of the circus at Rome, having a milium, or miliarium, in the middle.

AGLAIA, in mythology, the youngest of the three Graces.

AGLAIA, in botany, *αγλαια*, splendour and beauty, alluding to the shining verdure of the leaves, and elegance of the whole plant.—A genus of plants of the class and order, pentandria digynia, (rather perhaps pentandria monogynia.) Natural order trihilatæ, Linn. Meliæ, Juss. General character: CAL. Perianth. inferior, of one leaf, with five notches, minute, permanent: COR. Petals five, ovate, concave, fleshy, converging almost closely into the form of a globe. Nectary tubular, with five plaits, rather shorter than the petals: STAM. filaments none; antheræ five, ovate, included in the folds of the nectary: PIST. Germen ovate, superior; style none; stigmas two, oblong, erect: PERIC. berry ovate, smooth, watery, of one cell. Seed solitary, ovate, slightly compressed, with four furrows. Essential character: CALYX inferior, five-toothed. Petals five, converging in the form of a globe. Berry with one seed. It is a native of China and Cochin China.

AGLAURA, or AGLAUROS, in mythology, the daughter of Cecrops, founder and king of Athens, who had two sisters, Hersa, and Pandrosa. Minerva having concealed Ericthonius after his birth, in a basket, committed him to the custody of these three princesses, forbidding them to open it. Hersa and Pandrosa observed the order, but Aglaura unable to restrain her curiosity, opened the basket and found the infant with feet like serpents. Minerva punished her by means of Envy, who made her jealous of Hersa, the favourite of Mercury. When she attempted to prevent the access of this deity to his mistress, he struck her with his caduceus, and converted her into a rock.—Nevertheless she was honoured after her death in a temple at Salamis with a yearly sacrifice of a human victim; which Dephelus, king of Cyprus, in the time of Seleucus, changed into an ox.

AGLOPHOTIS, in botany, a name used for Piony.

AGLUAS, in mythology, a poor Arcadian, whom Apollo pronounced more happy than Gyges, because he had never travelled beyond his own ground.

AGLEED, among florists, the same as AGLET. The pendants at the ends of the chives of flowers, as in tulips.

AGLIA, among ancient physicians, a whitish cicatrice, or spot in the eye, formed by a congestion of humours.

AGLIBOLUS, in mythology, a title under which the Palmyrenes worshipped the sun.

AGLIONBY, (John,) an English divine, chaplain to king James I. a man of universal learning, who had a considerable share in translating the New Testament, in 1604.

AGLISH, a small town of Ireland, in the county of Waterford, where are the remains of an ancient fortification: the ruins of an abbey stand in the neighbourhood. Distant 101 miles from Dublin.

AGLITHES is used by Hippocrates for a clove of garlic.

AGMET, or AGMAT, a river, town, and district of Morocco, on the western declivity of the Atlas. The town is said to have been once considerable, and to have contained 6000 houses, but is now greatly declined; 18 miles S. E. of Morocco.

AGME, in surgery, a fracture.

AGMEN, in antiquity, a Roman army in march: in which sense, it stands contradistinguished from acies, which denoted the army in battle array; though, on some occasions, we find the two words used indifferently for each other. The Roman armies, in their marches, were divided into primum agmen, answering to our van-guard; medium agmen, *our main* battle; and postremum agmen, the rear-guard. The order of their march was thus: At the first signal with trumpets, &c. the tents were taken down, and the baggage packed up; at the second, the baggage was to be loaden on the horses and carriages; and at the third, they were to begin their march. First came the extraordinarii; then the auxiliaries of the first

wing, with their baggage; these were followed by the legions. The cavalry marched either on each side or behind.

AGMEN PILATUM, an army disposed in a narrow oblong form, or column; being withal close and compact; thus called, as resembling the figure of a pila or pier. This form was chiefly used in marching without their baggage, through bad ways, and close countries.

AGMEN QUADRATUM, an army arranged in a square form, the method ordinarily observed in the Roman armies. This was also called agmen grave, by the Greeks τετραγωνος ταξις. The three columns, in which the army usually marched, were considerably more in length, or breadth, than in depth; but as the baggage marched in the same order, the whole approached to the figure of a square.

AGMONDESHAM. See AMERSHAM.

AGMONIA, or ACMONIA, in ancient geography, a town of Phrygia Minor, (Cic. pro. Flacco, c. xv.) Also a city of Dacia upon the Danube, according to Ptolemy. The former town appears on many medals both of gold and silver.

AGNACAT, in botany, a species of pear tree, that grows in America, beyond the Terra de Labrador, toward the isthmus of Darien. It is of the figure and size of a pear tree, always covered with leaves, and of an extraordinary lustre. It bears a fruit like a pear, but green even when it is ripe; the pulp is of the same colour, and tastes sweet and somewhat like butter.

AGNADELLO, or AQUADELLO, a town of Italy, in the duchy of Milan, district of Ghiera d'Adda, between Lodi and Bergamo, where Louis XII. of France obtained a victory over the Venetians in 1509, as did the duke of Vendome over Prince Eugene in 1706; it is twelve miles north of Lodi.

AGNAN, a town of France, in the department of the Cher, in the form of an amphitheatre, at the foot of which runs the Cher, sixty miles from Bourges. It is in the arrondissement of St. Amand.

AGNANO, a circular lake of Naples, in the Terra di Lavora, surrounded with mountains, and about a mile in circuit.

AGNANTHUS, from αγνο, chaste, and ανθος, a flower, in botany, a genus of plants, called by Linnæus, cornutia.

AG'NATE, *adj.* } Ad: *nascor*, *natus*, (originally *gnatus*,) born to; a kin by the father's side.
AGNAT'ICK,
AGNA'TION.

By an attentive examination of the peculiarities in enunciation which each people have, in the one way or other, by a fair reciprocal analysis of the *agnate* words they reciprocally use, I think a much greater *agnation* may be found amongst all the languages in the northern hemisphere of our globe.

Pownall on the Study of Antiquities, p. 168.

This I take to be the true reason of the constant preference of the *agnatick* succession, or issue derived from the male ancestors through all the stages of collateral inheritance.

Blackstone's Law of Descent.

AGNATE, in law, any male relation by the father's side.

AGNEL, an ancient French gold coin, first struck in the reign of St. Louis, worth twelve sols, six deniers. The angel is also called sometimes mouton d'or, and agnel d'or. The denomination is supposed to have arisen from the figure of a lamb, struck on one side.

AGNELET, an ancient French silver coin, first struck under Philip the Fair, worth about twenty sols.

AGNELLUS, an archbishop of Ravenna, in the ninth century, who wrote the history of his predecessors in that see. This biography contains many curious facts, but is erroneous in regard to dates. It was published by Bacchini in 1708, and reprinted by Muratori in his collection of Italian historians. *Moreri.*

AGNEREINS, a small place in France, formerly the seat of a castellan, in the government of Dombes, now in the department of the Ain, arrondissement of Trevoux, from which it is distant 3 leagues to the N. E.

AGNES, St. one of the most considerable, and perhaps, the most fertile, of the Scilly Islands, lying in N. lat. 49°. 53′. and W. long. 6°. 20′. It is about three miles S. E. of St. Mary's, and nine leagues W. S. W. from the Land's End. The whole island contains about 300 acres of land, well cultivated both in corn and grass, but badly watered; and from 250 to 300 regular inhabitants.

The light-house, after which it is sometimes called Light-house Island, is its most important feature, and is a noble column of stone, fifty-one feet from the foundation to the lantern, standing on an eminence. The gallery is four feet high; and the lights rise eleven feet and a half above it. Twenty-one Argand lamps are placed in the respective centres of as many parabolic reflectors of copper, disposed in three clusters of seven each, on a frame standing perpendicularly to the horizon; and so constructed as to turn round on a common shaft or centre every two minutes; by which motion all parts of the horizon receive in succession, the benefit of these brilliant lights. This comparatively recent disposition of them was suggested by Mr. Adam Walker, a well known lecturer on natural philosophy. Prior to this the light was that of a stationary fire, emitted through sixteen large sashed windows. Its white appearance by day, and its well-regulated fire at night, make this light-house an invaluable sea mark. The care of it is vested in the Trinity House, who appear to have erected the original light in 1680. The present was completed in 1790.

Leland mentions a chapel here, dedicated to St. Warna, an Irish saint, who is said to have come here in a wicker-boat covered with hides. There is a well called after her name, which was formerly much resorted to. He also mentions the destruction of all the inhabitants of the island in his time, amounting to five thousand individuals, who were drowned in returning from a feast at St. Mary's. At present there is a small church here, where divine service is performed at irregular intervals, by a clergyman appointed by the Society for promoting Christian Knowledge. Other benevolent societies among the Dissenters also occasionally

send a minister here. On the east is the inlet of Gue, which is only divided from St. Agnes by the flowing of the tide.

Agnes, St. a parish and market town in the hundred of Pydar, Cornwall, five miles N. W. from Truro, 167 from London. It stands on the Bristol Channel, and is accessible only to fishing-boats. In the neighbourhood are some of the richest mines in Cornwall. It was formerly famous for St. Agnes's well, said to be of great sanative and restorative power. Market, Thursday.

AGNESI, (Maria Gaetana,) a lady of extraordinary genius, and most extensive acquirements, was born at Milan on the 16th of May, 1718. Her father, Pietro Agnesi of Milan, was royal feudatory of Monteveglia and its dependencies; and being a man of some rank and consequence, he was disposed, from paternal affection, to provide suitably for the education of his infant daughter, who gave the most striking indications of talent. From her tenderest years she discovered a wonderful aptness, and a vehement desire, for acquiring languages. Under the direction of proper masters, she studied at the same time the Latin and Greek, the French and German; and while the rapidity of her progress excited astonishment, such were the prodigious powers of her memory, that she could easily pursue those diversified objects without feeling the smallest degree of confusion. When yet scarcely nine years old, this surprising child delivered a Latin oration, to prove that the cultivation of letters is not inconsistent with the female character, before an assembly of learned persons, invited to her father's house. At the age of eleven, the young Agnesi could not only read Greek, and translate it instantly into Latin, but could even speak that refined language, and with the same apparent ease and fluency as if it had been her native tongue. Nor did these acquisitions absorb her whole attention; a nobler field was opened to the exercise of her mental faculties. She now began to read Euclid's Elements, and proceeded in algebra as far as quadratic equations. Thus prepared, she advanced with ardour to the study of natural philosophy; but not content with the sober truths there unfolded, she soared to the heights of metaphysics, and engaged in the most abstruse and intricate disquisitions of that contentious science. After this young lady had attained the age of fourteen, her father, anxious to forward her ardour for improvement, and willing to gratify her ambition for literary distinction, invited occasionally to his house a number of persons, the most respectable in Milan by their rank and learning. In the midst of this grave auditory, Donna Agnesi made her appearance, and without resigning the native delicacy of her sex, she maintained a succession of new theses on various difficult parts of philosophy, and handled the arguments with such dexterity and commanding eloquence, as singly to vanquish every opponent that entered the field of controversy. These disputations were all of them carried on in the Latin language, which she spoke with the utmost ease, purity, and copious elegance. Every thing conspired to heighten the impression produced on the admiring spectators. In the full bloom of youth, her person agreeable, her manner graceful, an air of gentleness and modesty gave irresistible charms to her whole demeanour. Such, for several years, was the great theatre of her glory. But having nearly completed the circle of philosophy, and exhausted the chief topics of discussion, she resolved at length to close that career with a solemnity suitable to the occasion. In the year 1738, Agnesi made her last brilliant display, before an august assembly, composed of the most learned and illustrious of the Milanese nobility, the senators, and foreign ministers, with the most distinguished professors in all the branches of science and literature. The substance of these philosophical conferences was afterwards published in a quarto volume, entitled Propositiones Philosophicæ, quas, crebris Disputationibus domi habitis, coram clarissimis viris, explicabat extempore, et ab objectis vindicabat Maria Cajetana de Agnesiis Mediolanensis. Agnesi now bent her whole attention to the culture of mathematics; and without guide or assistance, she composed a very useful commentary on L'Hopital's Conic Sections, which is said to exist still in manuscript. In the sublimer departments of that science, her studies were directed by the matured experience of Rampinelli, professor of mathematics in the university of Pisa; but she soon gave proofs of her amazing proficiency, in digesting a complete body of the modern calculus. This excellent work, entitled, Analytical Institutions, for the use of the Italian Youth, appeared in 1748, in two volumes quarto, and was highly esteemed by the best judges, and justly regarded as exhibiting the fullest and clearest view of the state of the science at that period. She was, in consequence, elected by acclamation, a member of the Institute of Sciences of Bologna; and the Pope farther conferred on her the title of Professor of Mathematics in the university of that city. But Agnesi was already sated with literary fame. That sun, which in its ascent had shone forth with such dazzling radiance, was, through the rest of its course, shrouded in clouds and darkness. The fever of genius had preyed on her mind, and the high fit of excitement was quickly succeeded by a hopeless depression of spirits. She repelled the seductions of human learning, and abandoned for ever her favourite mathematical pursuits. Renouncing the vanities of this world, she withdrew from society, embraced a life of rigid seclusion, and sunk by degrees into the langour of religious melancholy. She studied nothing but Hebrew, and the rhapsodies of the Greek fathers of the church. For upwards of twenty years she denied all access to strangers. The famous Lalande complains, in his 'Travels through Italy,' that he was not allowed the honour of visiting this prodigy; and Father Boscovich himself, whose religious principles must have been unexceptionable, experienced, notwithstanding his repeated importunities, a similar refusal. Indulging that gloomy temper, she retired into a convent, and assumed the habit of a Blue Nun. She sought to forget the world, and was herself forgotten. She died about the year 1770, but we have not been able to discover the precise period of her

demise. The Instituzioni Analytiche of Agnesi were translated into English many years ago, by Mr. Colson. Lucasian professor of mathematics at Cambridge. The translation was discovered among the papers of that ingenious mathematician, by the learned Baron Maseres, who put the manuscript into the hands of Mr. Hellins, as editor, and generously defrayed the expenses attending the publication.

AGNIFER, from agnus, a lamb, and ferre, to bring, an appellation applied, by some ecclesiastical writers, to John the Baptist, and used, in the same sense with præcursor, or forerunner.

AGNIL. See INDICUM.

AGNINA, in botany, lamb's tongue or plantain.

AGNINA LACTUTA. See LACTUTA.

AGNINA MEMBRANA, the same as the Amnios.

AGNO, a river of Naples, which, taking its rise in the mountainous parts of Terra di Lavora, washes the town of Acerra; and, passing between Capua and Aversa, falls into the Mediterranean, about seven miles north of Puzzuoli.

AGNODICE, in biography, an Athenian lady, who attended the lectures of Herophilus, in the disguise of a man, and acquired so much knowledge of the treatment of diseases, as to be in great request among her own sex; particularly in the practice of midwifery. At length the physicians, jealous of her fame, it is said, and ignorant of her sex, accused her of introducing herself to the women under the pretence of assisting them in their labours and complaints, but in reality from views of incontinence. Being cited to the areopagus, she made herself known: and the judges were so well satisfied with her conduct, and perhaps with the women for patronizing her, that they repealed a law then existing prohibiting women to practice any branch of medicine, and decreed that women of the rank of citizens might be allowed that liberty. A physician, M. Hecque, Eloy says, published a volume in the year 1708, entitled, De l'Indecence aux Hommes d'accoucher des Femmes, written with much ingenuity; in which he attributes the looseness in the morals of the present age, to the custom of admitting men to the general practice of midwifery, for in particular cases he acknowledges their assistance to be necessary. The argument against admitting men into the general practice is, that in ordinary cases, women are perfectly competent; but this is fully answered by the fact, that cases do, and must for ever occur, in which a kind of assistance is required that women are incapable of giving, if men were not to attend in ordinary cases, they would not acquire the expertness that is necessary to enable them to deliver in difficult ones.

AGNOETÆ, from *αγνοεω*, to be ignorant of; in church history, a set of ancient heretics, who maintained that Christ, considered as to his human nature, was ignorant of certain things, and particularly of the time of the day of judgment. Eulogius, patriarch of Alexandria, ascribes this heresy to certain solitaries in the neighbourhood of Jerusalem, who built their opinion upon the text, Mark xiii. 32. 'Of that day and hour knoweth no man, no not the angels that are in heaven, neither the Son, but the Father only.'—The same passage was made use of by the Arians; and hence the orthodox divines of those days were induced to give various explications of it. Some alleging that our Saviour here had no regard to his divine nature, but only spoke of his human: others, that the knowledge of the day of judgment does not concern our Saviour considered in his quality of Messiah, but as God only.

AGNOIA, in medicine, a word used by physicians, when a person in a fever does not know his acquaintance. When a rigour accompanies this symptom, Hippocrates says, it is dangerous.

AGNOITES. See AGNOETÆ.

AG'NOMEN, AGNOM'INATE, *v.* AGNOMINA'TION. Ad: *nomen*, Lat. a name in addition. A name given by the Romans in consequence of adoption, some great action, or a particular adventure; as Lucius Cornelius, Scipio Africanus. It came last in the order of names. Agnomination is applied to the repetition of words of similar sound; or to allusions founded on some other fanciful resemblance.

The British continueth yet in Wales, and some villages of Cornwall, intermingled with provincial Latin; being very significative, copious, and pleasantly running upon *agnominations*, although harsh in aspirations. *Camden.*

White is there usurpt for her brow; her forehead; and then sleek, as the parallel to smooth, that went before. A kind of paranomasee, or *agnomination*: do you conceive, sir? *Ben Jonson's Poetaster*, iii. 1.

Our bards hold *agnominations*, and enforcing of consonant words or syllables one upon the other, to be the greatest elegance: as for examples, in Welsh, Tewgeis, to dyrris, ty'r derryn, gwillt, &c. So have I seen divers old rhymes in Italian running so: Donne, Odenno, che Felo affronto affronta: In selva salvo a me: Piu caro cuore, &c.

Howell's Letters, ii. 40.

AGNOMEN, in antiquity, an epithet given to a person, either by way of praise or dispraise, or from some remarkable event, which became, as it were, an additional name, but peculiar to the person, and not descendible to his issue.—Thus, one of the Scipios obtained the agnomen of Africanus, and the other of Asiaticus, from the brave achievements which the one performed in Africa, and the other in Asia. The agnomen was generally the third in order, and sometimes the fourth of the Roman names; but it was always ranked last, even when there were more of them. Thus, in Marcus Tullius Cicero, Marcus is the prænomen, Tullius the nomen, and Cicero the agnomen. But in the case of the Scipios, who had previously three names each, viz. Publius Cornelius Scipio, the agnomen was the fourth, and the third, Scipio, was styled the cognomen, and was heritable, like the nomen or family name. The emperor Antoninus, not to multiply instances, had five names, viz. Marcus Ælius Aurelius Antoninus Boionius; of which, he received the second by adoption, from his predecessor Adrian; the third and fourth, by descent; and the fifth, was the agnomen, obtained by a victory over the Boionii.

AGNON, the Clanius of the ancients, a river of Campania, in Italy.

AGNOS, in ichthyology, a name given by

Athenæus, and other Greek writers, to the fish called callyonymus, or uranoscopus. It is a species of the trachynus, and is distinguished by Artedi, from the rest of that genus, by the name of the trachinus, with a great number of beards growing from the lower jaw.

AGNONA, a market-town of Italy, in Piedmont, with 1100 inhabitants.

AGNOUE, a small town of Naples, in the province of Abruzzo Citra, nine miles S. S. E. of Civita Borella.

AGNUS, a lamb, in zoology, the young of the ovis, or sheep. See Ovis.

Agnus Castus, in botany, the trivial name of a species of the vitex. See Vitex. The Greeks call it *αγνος*, chaste; to which, has since been added the reduplicative castus. The Athenian ladies, who made profession of chastity, lay upon leaves of agnus castus during the feasts of Ceres.

Agnus Dei, in the church of Rome, a cake of wax, stamped with the figure of a lamb, supporting the banner of the cross. These being consecrated by the pope with great solemnity, and distributed among the people, are supposed to have great virtues; such as, to preserve those who carry them worthily, and with faith, from all manner of accidents; to expel evil spirits, &c. The name literally signifies Lamb of God; this being supposed an image, or representation of the Lamb of God, who took away the sins of the world. They cover it with a piece of stuff cut in form of a heart, and carry it very devoutly in their processions.—The Romish priests and religious, derive considerable pecuniary advantages from selling these agnus dei's to some, and presenting them to others. The pope provides a regular supply, by consecrating them once in seven years; they are distributed by the master of the wardrobe, and received by the cardinals and other prelates, with great reverence, in their caps and mitres.—This ceremony they pretend to derive from an ancient custom of the church, wherein part of the paschal taper, consecrated on Holy Thursday, was distributed among the people, to perfume their houses, fields, &c.; in order to drive away devils, and to preserve them from storms and tempests. The agnus dei is forbidden to be brought into England, under pain of incurring a premunire; 13th Elizabeth, cap. 2.—Agnus dei is also a popular name for that part of the mass wherein the priest, striking his breast three times, rehearses, with a loud voice, a prayer beginning with the words agnus dei.—The masses of Giovanni Pietro Aloisio da Palestrina, are still the admiration of the world, although composed in the sixteenth century. The agnus dei is said to have been first brought into the missal, by pope Sergius I.

Agnus Scythicus, in natural history, a kind of zoophite, or plant-animal, said to grow in Tartary, resembling the figure and structure of a lamb. See Zoophyton. The Scythian lamb is also called agnus vegetabilis, agnus tartaricus, and by the people of the country, borometz, borumetz, or boranetz.—The usual account given of this extraordinary production is, that the Tartars sow in their ground a seed resembling that of a melon, but less oblong; from whence arises a plant called by them borometz, i. e. lamb, growing almost to the height of three feet, and having feet, hoofs, ears, and the whole head, except the horns, resembling that animal. In lieu of horns it has a peculiar sort of hair, not unlike horns: it is covered with a fine thin skin, which being pulled off, is worn by the natives as a cover to the head. The pulp within resembles that of the gammarus; and when wounded, a liquor oozes out like blood. It lives as long as there is grass and herbage around it; but when these are consumed, it wastes and dies. They say that wolves are fond of it, while no other beasts will feed on it. Deusingius seems to have been the first who suspected this account to be fabulous; and Kempfer, when in the country, made diligent enquiry concerning it, but could hear of nothing like it. As to the plants shewn under this denomination, in some repositories of rarities, they appear to be originally the roots, or stalks of certain vegetables, probably of the capillary kind, covered with a woolly moss, which, naturally bearing a semblance to the figure of a lamb, have been helped out and brought near to it by art, and the addition of new parts. Sir Hans Sloane, and Breynius, give us the figures and descriptions of such borometzes in their collections. It is from these plants that the Indian moss is gathered, famous for its use in staunching blood. Breynius and Libavius have written expressly on the agnus scythicus.

AGO', *a.*
AGON',
AGONE',
YGON',
AGOING.
} Participles more or less corrupted of the verb, to go. Those now used are employed adverbially.

For in swiche cas wimmen have swiche sorwe,
Whan that hir housbons ben fro hem *ago*.
Chaucer. The Knightes Tale, v. 1.

Hast thou not heard, how I haue ordeyned such a thynge a great whyle *a goo*, and haue prepared it from the beginnynge. *Bible*. 1539. 4 *Kings* xix.

For news the world is here turn'd upside down, and it hath been long *a going* so. *Howell's Letters*.

This, both by others and myself, I know:
For I have serv'd their sovereign, long *ago*;
Oft have been caught, within the winding train.
Dryden's Fabin.

I shall set down an account of a discourse, I chanced to have with one of them some time *ago*.
Addison's Freeholder.

AGOG', *v.* supposed to be derived from the Ang. Sax. ȝanȝan, to gang, or go, and signifies alert, eager, elate.

And worst of all, the women that doe go with them, set them *agog* that doe tarrie. *Golden Book*, y. 5.

Neither am I come to please thee, or set thee *agog* with a vain salutacion, but I am come vnto thee as a messagier of a matier bothe passyng ioyful, & also verai great. *Udall. Luke*, c. i. fol. 9. c. 2.

As for the sense and reason of it, that has little or nothing to do here: only let it sound full and round, and chime right to the humour, which is at present *agog*; just as a big, long, rattling name is said to command even adoration from a Spaniard: and no doubt, with this powerful senseless engine, the rabble-driver shall be able to carry all before him.
South's Sermons.

The gawdy gossip, when she's set *agog*,
In jewels drest, and at each ear a bob,

Goes flaunting out; and, in her trim of pride,
Thinks, all she says or does is justify'd.
Dryd. Juv. Sat. vi.

This maggot has no sooner set him *agog*, but he s him a ship; freights her, builds castles in the , and conceits both the Indies in his coffers.
L'Estrange.

So three doors off the chaise was stay'd,
Where they did all get in;
Six precious souls, and all *agog*
To dash thro' thick and thin.
Cowper's John Gilpin.

AGOGA, a ditch or drain for carrying off the ıter from a mine.

AGOGE, ductus, guide; in music, one of the b-divisions of the ancient Melopæia which pre-ribed rules respecting the progress of a melody, disjointed, or conjointed degrees, alternately, ıether ascending or descending; it also served denote the degree of movement, as well as the ıaracter of the piece executed.

Agoge Rythmica, the Greeks denoted by this rm, what we now understand by tempo, time measure.

AGOMPHIASIS, or Gomphiasis, in medicine, distemper in the teeth, consisting in their ing loose in the sockets.

AGON', *n.*, Agonis'tical, Agonis'tick, Ag'onize, Ag'ony. Gr. *αγων*, conflict, encounter. A combat among the ancients, particularly applied to wrestlers and prize-fighters. Agonize and agony pply to mental suffering accompanied with ex-essive pain.

And he was maad in *agonye*, and preiede the lenger, nd his swoot was maad as dropis of blood rennynge oun into the erthe. *Wiclif. Luke* xxii.

Betwixt them both, they have me done to dy,
Thro' wounds, and strokes, and stubborn handeling;
That death were better, than such *agony*,
As grief and fury unto me did bring.
Faerie Queene.

Thee I have missed, and thought it long deprived
Thy presence; *agony* of love? till now
Not felt, nor shall be twice.
Milton. Paradise Lost.

Never was there more pity in saving any, than in ending me; because therein my *agony* shall end.
Sidney.

Thou, who for me didst feel such pain,
Whose precious blood the cross did stain,
Let not those *agonies* be vain. *Roscommon.*

To propose our desires, which cannot take such effect as we specify, shall (notwithstanding) otherwise procure us his heavenly grace; even as this very prayer of Christ obtained angels to be sent him, as comforters in his *agony*. *Hooker.*

Dost thou behold my poor distracted heart,
Thus rent with *agonizing* love and rage;
And ask me what it means? Art thou not false?
Rowe's Jane Shore.

Or touch, if tremblingly alive all o'er,
To smart and *agonize* at every pore?
Pope's Essay on Man.

The lifted axe, the *agonizing* wheel,
Luke's iron crown, and Damien's bed of steel
To men remote from power but rarely known,
Leave reason, faith, and conscience, all our own.
Goldsmith.

I see before me the gladiator lie;
He leans upon his hand—his manly brow
Consents to death, but conquers *agony*.
Lord Byron's Childe Harold.

Agon, among the ancients, implied any dispute or contest either in bodily exercises, or the accomplishments of the mind; and therefore poets, musicians, painters, &c. had their agones, as well as the athletæ. Games of this kind were celebrated at most of the heathen festivals, with great solemnity, either annually, or at certain periods of years. Among the latter were celebrated at Athens, the agon gymnicus, agon Nemæus, instituted by the Argives in the 43d Olympiad, and the agon Olympius, instituted by Hercules 430 years before the 1st Olympiad. The Romans also, in imitation of the Greeks, instituted contests of this kind. The emperor Aurelian established one under the name of agon solis, the contest of the sun; Dioclesian another, which he called agon Capitolinus, which was celebrated every fourth year after the manner of the Olympic games.—Hence the years, instead of lustra, are sometimes numbered by agones.

Agon also signified one of the ministers employed in the heathen sacrifices, and whose business it was to strike the victim. The name is supposed to have been derived from hence, that, when standing ready to give the stroke, he asked, Agon? or Agone? Shall I strike?

Agon, among physicians, the struggle of death. See Agony of Death.

AGONALES, in heathen mythology, an epithet given to the Salii, or priests of Mars.

AGONALIA, in Roman antiquity, festivals celebrated in honour of Janus, or Agonius, three times a year.

AGONALIS Circus, now La Piazza Navona, a long, large, and beautiful street in the heart of Rome, adorned with fountains, and the obelisk of Caracalla, still retaining the form of that circus. The reason of the name Agonalis is doubtful. Ovid seems to derive it from the agones, or solemn games, there celebrated; supposed to have been the Ludi Apollinares, or Actiaci, instituted by Augustus: whence the circus was called Apollinaris: also Alexandrinus from the emperor Alexander Severus, who either enclosed or repaired the circus.

AGONATA, in entomology, the fourth class of insects in the system of Fabricius: comprehending the cancer, the pagurus, the hippa, the scillarus, the astacus, the squilla, and the gammarus. Linnæus has included this class under the genus Cancer.

AGONICHE, a river of Nova Scotia, British North America, which enters the bay of Fundy, in a south-east course, between the river Mechicor and St. John.

AGONISMA, in antiquity, the prize given the victor in a game or combat.

AGONISTARCHA, from *αγων*, combat, and *αρχος*, chief, in antiquity, seems to have been much the same with agonotheta: though some suggest a difference, making it the office of the former to preside at and direct the private exercises of the athletæ, which they went through by way of practice, before they made their appearance on the public theatres or amphitheatres.

AGONISTIC, Agonistica, the science of what relates to the combats or agones of the ancients. In which sense, agonistic amounts to much the same with athletic, and makes a branch of gymnastics

AGONISTICI, in church history, a name given by Donatus to such of his disciples as he sent to fairs, markets, and other public places, to propagate his doctrine; for which reason they were also called Circuitores, Circelliones, Catropitæ, Coropitæ, and at Rome Montenses. They were called Agonistici, from the Gr. *αγον*, combat, in regard they were sent as it were to fight and subdue the people to their opinions.

AGONIUM, in Roman antiquity, was used for the day on which the rex sacrorum sacrificed a victim, as well as for the place where the games were celebrated, otherwise called agon.

AGONIUS, a god whom the Romans invoked before they undertook any enterprize of importance.

AGONIZANTS, Roman friars, who assist those who are in agony.

AGONNA. See Agga.

AGONOS, in physic, barren. Hippocrates applies it to women who have no children, though they might have them, if the impediments were removed.

AGONUS, in ichthyology, the fish called by some sarrachus, by others, chalcis and sardella. It is in many particulars very like the alausa, or shad, called the mother of herrings, but smaller, never arriving at more than a foot in length; and is always lean and lank in spring, and fat in autumn. But the distinctions between it and the alausa, if real, are so very small, that Mr. Ray, and many of the most accurate naturalists, have suspected it to be the same fish, only in a different state.

AGONOTHETA, or Agonothetes, in Grecian antiquity, was the president or superintendant of the sacred games; who not only defrayed the expences attending them, but inspected the manners and discipline of the athletæ, and adjudged the prizes to the victors.

Agony of Death. Much of the terror of death arises from the pangs and convulsions wherewith the agony seems attended; though we have reason to believe that the pain in such cases is not extremely acute; a course of pain and sickness having usually stupified and indisposed the nerves for any quick sensations. However, various means have been thought of for mitigating the agony of death. Lord Bacon considers this as part of the province of a physician; and that not only when such a mitigation may tend to a recovery, but also when, there being no further hopes, it can only tend to make the passage out of life more calm and easy. Complacency in death, which Augustus so much desired, is certainly no small part of happiness. Accordingly the author last cited ranks euthanasia, or the art of dying easily, among the desiderata of science; and does not even seem to disapprove of the course Epicurus took for that end:

——Hinc stygias ebrius hausit aquas.

Opium has been applied for this purpose, with the approbation of some, but the condemnation of more.

The agony of Jesus Christ in the garden of Gethsemane has perplexed several commentators; and some learned persons seem studiously to have avoided the term agony in their translations, as Beza, Le Clerc, and Lenfant: in the translations of the Syriac version by Tremellius, Trostius, and others, we have timor, or fear, for agony. Lardner suggests that *γενομενος ο αγωνια*, (Luke xxii. 44.) might be translated being under great concern. The effect of the agony has been differently explained. Many expositors have thought with M. Le Clerc, that the expression *ὁ ἱδρωις αυτυ ωσει θρομβοι αιματος*, only implies, that the drops of sweat were large and clammy, like clots of gore. Grotius understands the expression metaphorically, as denoting excessive sweat; but Dr. Whitby (in loc.) observes, that Aristotle (Hist. Anim. lib. iii. c. 19 Oper. tom. i. p. 809. De part. An. lib. iii. c. Oper. tom. i. p. 1008.) and Diodorus Siculus (lib. xvii. Oper. tom. ii. p. 230.) mention bloody sweats, as attending some extraordinary agonies of mind. Leti also, in his life of pope Sixtus V. p. 200. and sir John Chardin, in his History of Persia, vol. i. p. 126, mention a similar phenomenon; to which Dr. Jackson (Works, vol. p. 819.) adds another from Thuanus, lib. p. 221. See Doddridge's Family Expositor, vol. ii. p. 517. Bartholinus (de Cruce, p. 184. 193 produces examples of sweats that have been actually mixed with blood. So does Maldonat in Mat. xxvi. 37. The possibility of this circumstance is ascertained by a fact well known in history, viz. that Charles IX. of France died of a malady, in which his blood gushed out of all the pores of his body. Voltaire (Univ. Hist. chap. 142.) describes it thus: 'Charles IX. died in his twenty-fifth year, the malady being very extraordinary, the blood gushing out of all his pores.'

AGONYCLITÆ, or Agonyclites, from *α* privative, *γονυ* knee, and *κλιγω*, to bend, in church history, a sect of Christians, in the seventh century, who prayed always standing, as thinking it unlawful to kneel.

AGOOD', *a*. In good. See Good.

At that time I made her weep *agood*,
For I did play a lamentable part.
Shakspeare's Two Gent. of Verona.

AGOONA, or Agonna. See Agga.

AGORÆUS, from *αγορα*, a market, in heathen antiquity, an appellation given to such deities as had statues in the market places; particularly Mercury, whose statue was to be seen in almost every public place.

AGORANOMUS, from *αγορα*, a market, and *νομος*, law, in Grecian antiquity, a magistrate of Athens, who had the regulation of weights and measures, the prices of provisions, &c. The agoranomi, at Athens, were ten in number, five belonging to the city, and as many to the Piræus; though others make them fifteen in all, of whom they assign ten to the city. To these a certain tribute was paid by all who brought any thing to sell in the market.

AGOSTA, or Augusta, a maritime town on the south-east coast of the island of Sicily, on a peninsula at the bottom of a gulf, eighteen miles north of Syracuse. It was built originally by the emperor Frederic II. and was a place of considerable opulence previous to the earthquake of 1693, which spread havoc and devastation throughout its whole extent. The subterraneous

vapours, and the rapid motion of the earth, set fire to the powder magazine in the citadel, split the water-side forts to their foundation, and precipitated the light-house into the sea. It has since been rebuilt on a regular plan, with low houses, in order to prevent such dreadful consequences on the recurrence of a similar calamity. The harbour also is now cleared, and forms one of the safest ports in the island. Number of houses 1835; population 15,000. Long. 15°. 14'. E. Lat. 37°. 16.' N.

AGOT, an island in the English channel, near the coast of France. Long. 2°. 4'. W. Lat. 48°. 38'. N.

AGOU, or AGOEN, a small island of Sweden, in the province of Helsingland, with a good harbour. Long. 17°. 14'. E. Lat. 61°. 32'. N.

AGOU, a town and territory of Whydah, on the Slave Coast of Guinea.

AGOSTUS, αγοστος, in anatomy, the arm from the fingers to the elbow; also the palm or hollow of the hand.

AGOUTI, or AGUTI. See MUS.

AGOWS, in geography, the inhabitants of a province of Abyssinia, which is bounded by the mountains of Amid Amid on the east; by Buré and Umbarma, and the country of the Gongas, on the west; by Damot and Gafat on the south; and by Dingleber on the north. They consist of two nations; the one near the fountains of the Nile, called the Agows of Damot, from their vicinity to that province, the other near the head of the Tacazzé, in the province of Lasta, called the Tcheretz Agows, from Tchera, a principal town, tribe, and district, near Lasta and Begemder. They are described by Mr. Bruce as one of the most considerable people in Abyssinia.

The country of the Agows is in a very elevated situation, and forms a kind of amphitheatre of lofty mountains; the climate is temperate and wholesome. In the shade, or in a house, the air is cool, as there is a constant breeze which mitigates the scorching heat of the sun, even at noon day, though the latitude is not much greater than 10°. But notwithstanding the exceeding temperature of the climate, the Agows do not live to any great age, which is probably owing to the oppression they suffer. Their country abounds with all the necessaries of life; and yet their taxes, tributes, and services, are so numerous, and their dependent condition so distressing, that they are only the manufacturers of the commodities they sell, in order to satisfy the exorbitant demands of their oppressors; and are constrained to live in a state of penury and misery, that is scarcely conceivable. Mr. Bruce informs us, that he saw a number of women, wrinkled and sun-burnt so as hardly to appear human, wandering about under a burning sun, each of whom had one and sometimes two children upon their back, and gathering the seeds of bent grass to make a kind of bread.

The Agows are said to be able to bring into the field 4000 horse, and a great number of foot; but their power has been much reduced by the incursions of the Gallas. Their riches, however, are still greater than their power; for though their province is hardly 60 miles long, and 30 miles broad, yet Gondar and the whole neighbouring country, depend for the necessaries of life, cattle, honey, butter, wheat, hides, wax, and a number of such articles, upon the Agows, who frequent the capital to the amount of 1000 and 1500 at a time, in order to dispose of these commodities. The Abyssinian princes have therefore compounded with them for an increase of tribute, in lieu of military service; but when they have deviated from this prudent practice, the Agows have been great sufferers. The butter which they carry to a great distance in this hot climate, is prevented from putrefaction by a root called moc-moco, resembling a carrot; which they bruise and mix with it, and thus they preserve it fresh for a considerable time. This root answers the purpose more certainly than salt, which could not be conveniently appropriated to this use, as it serves for money, and is used instead of silver coin as change for gold. Brides paint their feet, the palms of their hands, and their nails, with this drug. Mr. Bruce brought a considerable quantity of the seed, resembling that of coriander, into Europe. The Agows dispose of their commodities, not only at the market of Gondar, but to the neighbouring black savages, the woolly-headed Shangalla, and receive in exchange elephants' teeth, horns of the rhinoceros, gold, and fine cotton. This trade, which might be materially beneficial, is very much interrupted by the barbarity and fraud of both nations. Besides what they sell, and what they pay to the governor of Damot, the Agows present a tribute to the king of 1000 dabra of honey, each dabra containing about 60lb. weight: 1500 oxen, and 1000 ounces of gold. The clothing of the Agows consists of hides, which they soften and manufacture in a manner peculiar to themselves. Of these they form a kind of skirt, which reaches down to their feet, and is girded with a belt about their middle. The lower part resembles a large double petticoat, one fold of which they turn back over their shoulders, fastening it with a skewer across their breast before, and the married women carry their children in it behind. The younger sort are generally naked. The women are commonly thin, and, like the men, below the middle size. Barrenness is unknown among them. They are marriageable at nine years of age; at eleven they actually marry and bear children; and continue child-bearing to the age of thirty, and in some instances beyond that period.

The Agows are grossly idolatrous and superstitious. The Nile, or the spirit residing in that river, is the object of their worship; whom they address under the titles of 'the everlasting God, light of the world, eye of the world, God of peace, their Saviour, and father of the universe.' To this deity they present their supplications for seasonable rain, plenty of grass, and the preservation of a particular kind of serpents; at the same time deprecating thunder; and their prayers are pronounced very pathetically with a kind of tone or song. The shum or priest of the river, with whom Mr. Bruce conversed, pretended to have intercourse with a spirit which occasionally appeared to him, and revealed to him future events. This spirit, he said, was of the river, God. the father of mankind. Thunder was de-

precated, as the priest informed him, because it was hurtful to the bees, and their chief revenue was honey and wax. They prayed for serpents, because they taught the approach of good or evil. Serpents are kept in some of their houses; and they are fed with butter and milk, before they undertake a journey, or any affair of consequence; and if they do not eat, this is considered as a bad omen. Before an invasion of the Gallas, they say these serpents disappear, and are no where to be found. Fasil, a sagacious governor of the country, who was addicted to this species of divination, would never mount his horse, or go from home, if an animal of this kind, which he had in his custody, refused to eat. Once a year, on the first appearance of the dog-star, or, as others say, eleven days after, their devotion is attended with circumstances of peculiar solemnity; on which occasion, they sacrifice a black heifer, distribute parts of it to several clans, eat the carcase raw, and drink the water of the Nile. The bones are then burned to ashes; and the head is carried into a cavern, which they say reaches below the fountains of the river, and there they perform their secret worship, which no one is allowed to divulge. The Agows of Damot worship the Nile; and those of Lasta pay nearly the same worship to the Siris or Tacazzé. These last have a separate language, and are Troglodytes, who live in caverns. Mr. Bruce apprehends that Agow is a compound of two words, Ag-hoa, q. d. the shepherds of the river; and that the species of idolatry introduced by them is a proof that they originally came from Canaan, where they imbibed materialism instead of the pure Sabæan worship of the shepherds of Agaazi, which was, at an early period, the only religion of this part of Africa. The mountains in all the districts or clans of Agows are perforated in caves of a very large size, which some suppose were their ancient habitations when they were Troglodytes, or places of retreat when they were alarmed by the approach of their most formidable enemies, the Gallas. Others think it not improbable, that these caverns were used for religious purposes; that of Geesh, in particular, was without doubt, a place of secret worship paid to the river, as it is still appropriated to that use, not only by the inhabitants of the village, but by the assembly of the clans in general, who retire for the celebration of those rites, to which none but the heads of families in the Agows country are ever admitted. *Bruce's Trav.* vol. i. 401. vol. iii. 527.

AGRA, a kind of sweet scented wood, found in the island of Hainan, on the coast of China.

Agra Caramba, another sweet scented wood, which also comes from the island of Hainan.

Agra, a province of Hindostan Proper, situated between the twenty-fifth and twenty-eighth degrees of north latitude, whose capital, Agra, is in the possession of the British, together with a small tract in the vicinity, and all the country east of the Jumna. Several rajahs, allies of the British, possess the western and north-western districts. That portion of the province which is south of the Chumbul, is under the dominion of the Mahrattas.

The whole province, thus important to British interests, is one of the largest of the [illegible] divisions of Hindostan; being 250 miles [illegible] length, and 180 in its average breadth. It is bounded on the north by Delhi, on the south by Malwah, on the west by Ajmeer, and on the east by Oude and Allahabad. It is watered by branches of the Ganges, the Jumna, and the Chumbul, and contains, besides Agra, the strong fortresses of Bhurtpoor and Deeg, and the towns of Canoge, Kalpy, and Narwar. Bhurtpoor resisted the whole force of the British, under Lord Lake, in the last Mahratta war: and the siege is said to have cost our army a greater loss of men than it ever sustained in three of our greatest battles in India. The rajah is independent. Doeg, or Deeg, was defended by Holkar, at the same period, with ranges of batteries extending over two miles of ground; but it fell before the British attack. The portions of Agra, finally ceded to our arms, are part of the Benga[illegible] presidency.

No part of Hindostan contains a richer soil, or one that has been better cultivated, than portions of this province. The devastations of war, and its being divided among so many hostile masters, has much checked its general prosperity, but grain of all kinds, sugar, indigo, and cotton, are yielded, with little labour, in all the British districts. At Futtehpore and Sikri, are marble quarries, and some inferior copper mines are said to have been opened in the same neighbourhood; but they were never worked with any success. The province was formerly celebrated for its silks. It yields superior horses, and contains about 6,000,000 of inhabitants.

Agra, the chief city of the above province, is situated on the S.W. bank of the Jumna, in N. lat. 27°. 12′. and E. long. 77°. 56′. This place is connected with the whole of the modern history of India, during which it has passed into the hands of various masters. In 1509 it was first brought into notice, by the emperor of Hindostan, Secunder, the son of Balloli, transferring to this place, from Delhi, the seat of his government. In the reign of his successor, the nobles of Agra invited hither Baber, a Mogul prince of the house of Timur Bec, to take possession of the throne, and Ibrahim, their monarch, was killed on the plain of Paniput, with 16,000 of his followers. Acber, the grandson of Baber, was the ablest and most prosperous prince in the history of the Mahommedan empire in India. He divided Hindostan into soubahs, circars, and pergunnahs, and possessed an army of 600,000 men, horse and foot, with an annual revenue of upwards of £30,000,000 sterling. After him, this capital was for a while called Akbarabad, and to this prince it was indebted for a noble castle, which is said to have cost him 2,000,500 rupees. The Ayeen Acberry was a compendium of jurisprudence, compiled at Agra by the enlightened minister of Acber, Abul Fazul, under whose auspices it became the most considerable city of India, for extent and magnificence. The mausoleum of Acber is still to be seen here; but the chief ornament of the town is the Taje Mahal, or Crown of Edifices, an unrivalled tomb to the memory of the empress of Shah Jehan, her grandson, who died at

the year 1632. This is wholly built of the finest white marble, inlaid with precious stones, and is said to have cost the emperor 60 lacks of rupees, or about £750,000 sterling. Just before this period, Sir Thomas Roe, the first English ambassador that was sent to the emperor of Hindostan, appeared at Agra; and shortly after we read of a college of Jesuits, which was protected and patronized here by the father of Aurengzebe. This monarch converted the castle of Agra into a prison for his father, and transferred the seat of empire to its ancient capital, Delhi. During his reign, the Mogul empire reached its utmost limits of prosperity; and Agra has ever since been on the decline. The city is a long and narrow crescent, surrounded by the ruins of a strong wall of red stone, and a ditch one hundred feet wide. The houses are lofty, and well built of stone; but the streets are so narrow, as to admit of no two carriages passing. Its whole appearance is that of an empire which has been. From Agra to Lahore, a distance of 500 miles, the road was completely shaded by lofty trees.

In 1784, Agra finally passed from the dominion of the Moguls to that of the Mahrattas, from whom it was taken, in 1803, by general lord Lake. But our possession of it will ever be uncertain in the neighbourhood of the many rival states that divide the province, and particularly while the Bhurtpoor rajah is so very equivocally inclined, as at present, toward the British interests. Agra is 137 miles from Delhi, and 830 from Calcutta.

AGRARIÆ NAVES, was used for vessels placed to keep watch, or guard.

AGRARIÆ STATIONES, in the ancient military art, corps of guards posted in the fields, and in the open air

AGRA'RIAN, *adj.* } *Agrarius, agrestes*, from
AGRE'STICK. } *ager*, a field.

Agrarian, relating to the fields, especially applied to the division of conquered lands; agrestes, growing in the country, hence rural, rustic; unpolished; a word of doubtful authority.

He [Nimrod] was called a hunter, because he was so indeed; but not so only, but an oppressor too; his continual conversation with brute beasts, changed his humane disposition into a barbarous and *agrestick* behaviour.

Gregory, Posthuma, p. 222.

It appears that the jubilee could not be intended for an *agrarian* law.

Wren's Monarchy Asserted, p. 137.

AGRARIAN LAWS, among the Romans, those relating to the division and distribution of lands; of which there was a great number; but the principal are, the lex Cassia, in the year of Rome 268; the lex Licinia, in 386; the lex Flaminia, in 525; two Sempronian laws, in the year 620; the lex Apuleia, in the year 653; the lex Bæbia; the lex Cornelia, in 673; the lex Servilia, in 690; the lex Flavia; the lex Julia, in the year 691; the lex Ælia Licinia, the lex Livia, the lex Marcia, the lex Roscia, made after the taking of Carthage; the lex Floria, and the lex Titia. See AGER.

That called the agrarian law, by way of eminence, was published by Spurius Cassius, about the year of Rome 268, for dividing the conquered lands equally among all the citizens, and limiting the number of acres which each citizen might enjoy.—The Roman lands were of several kinds; some conquered from the enemies, and not yet brought to the public account; others brought indeed to the public, but clandestinely usurped by private great men; lastly, others purchased with the public money in order to be divided. Agrarian laws, either for dividing lands from the enemy, or the public lands, or those purchased with the public money, were easily passed without disturbance; but those whereby private rich men were to be deprived of their lands, and the common people put in possession of what had been held by the nobility, were never attempted without great commotions.

The agrarian law alluded to originated in the ambitious views of Cassius, who thus intrigued for gaining the favour of the people, and for attaining absolute power. The law has the appearance of equity, and could not fail to be agreeable to the people, whose misery it relieved. But as the lands, which Cassius wished to have distributed among the poorer citizens, had been unjustly usurped by the rich, the proposal alarmed the senators, partly because they were personally interested in it, and partly because they apprehended its dangerous consequences. The people were at first pleased; but when they understood that the Latins were to partake with them of the advantage, they were disgusted. To conciliate the Latins, and to engage their concurrence in his favour, were the objects which Cassius had in view; but the jealousy and dissatisfaction of the Roman people disappointed his hopes, and terminated in his death. As soon as he was found guilty of aspiring to the sovereignty, and sentence was passed upon him, he was carried by the questors to the Tarpeian rock, which fronted the forum, and thrown down from the top to the bottom in the presence of the people; such was the customary punishment of this crime amongst the Romans. His house was also demolished, and his estate sold by auction. With the money arising from it a statue of brass was erected to Ceres. The plebeians, when they afterwards found that the decree of the senate, for the distribution of lands, was not executed, nor any measures adopted for this purpose, reproached themselves with the condemnation of Cassius, as an act of imprudence, and even of injustice. In the year of Rome 299, the subject of the agrarian laws, which had been suspended for thirty years, was revived by the tribunes; and the people demanded, that as they shared with the patricians in the labours and dangers of the commonwealth, they might also share with them in the benefits accruing from them. But a new partition would have been attended with great difficulties; and it seemed impossible to proceed in this business, without manifest injustice to many persons in actual possession of the lands to be distributed, who had really bought them, and without occasioning great and universal commotions in the commonwealth. For these reasons the senate firmly opposed the establishment of the agrarian law.

About the year 377, C. Licinius Stilo, a rich

plebeian, and tribune of the people, attempted to restrain the overgrown power and wealth of the patricians, by proposing a law, which should restrict every Roman citizen to the possession of 500 acres, and oblige him to surrender the overplus, in order to be divided among the poorer citizens. His motion, though enforced by the influence of his colleague in the tribuneship, L. Sextius, was over-ruled; and new commotions occasioned by the approach of the Gauls, having engaged the public attention, the business of the agrarian law was deferred for nine years; and about the end of that time it was again revived, and the law was established: this was called the Licinian law; and the mover of it was soon afterwards condemned by his own law. Having been found to possess more than 1000 acres, 500 of them were distributed among the poor citizens, and he was compelled to pay the fine, which he had annexed to the violation of the law. In consequence of this abuse, the law itself was abolished. In process of time, however, the great and rich possessed themselves of almost all the lands that belonged originally to the state, either by purchase, or by paying a greater quit-rent, or by violence. Several regulations had been proposed for restraining these usurpations. At length, other measures having been found ineffectual, (A. U. C. 620 B. C. 134,) Tiberius Gracchus, urged by his mother Cornelia, proposed the revival of the Licinian law; and that the rich should quit the lands which they held contrary to the laws, after having received from the public the value of them; and that the citizens, whose circumstances required relief, should take possession of them. Many objections were urged against this mild and humane regulation, as Plutarch calls it: and the prosecution of it brought the commonwealth to the brink of destruction, and cost the two illustrious brothers, the Gracchi, their lives. Their efforts were of little avail, as the laws they laboured to introduce were gradually abolished after their death. Cicero, in speaking of the partition of lands and the remittance of debts, says (Offi. l. 2. n. 78.) 'that to undertake to dicharge debtors by the authority of the magistrate, or to pass the law so often proposed for the distribution of lands, is to sap the two principal foundations of the commonwealth: of which the one is peace between the citizens, which could not subsist, if creditors were to lose their fortunes by the discharging of debtors; and the other justice, which is entirely subverted, from the instant no one can assure himself of continuing peaceable possessor of his right.' The agrarian law of the tribune Saturninus, which was carried with violence A. U. C. 652, was of very short duration, and that of Rullus in the year 689, which was more exorbitant than any other; and gave up to a small number of citizens, under the pretext of relieving the poor, almost all the revenues of the commonwealth, afforded Cicero an admirable opportunity of displaying his eloquence in exposing it, and inducing the people to resist it. The exordium of his oration on this occasion has been much admired. Cic. II. in Rull. The agrarian law of Cæsar was presented to the senate in the beginning of his consulship, A. U. 693; and he urged in its favour, that a distribution of lands among the poor citizens was altogether useful, and necessary to deliver the city from a multitude of people with which it was overburdened, and often gave rise to seditions; to re-people and cultivate several parts of Italy, which were abandoned; to recompense the soldiers who had served the commonwealth, and to give subsistence to many citizens who wanted it. He proposed the execution of it in the mildest and most moderate manner; and that twenty commissioners should preside at the distribution of the lands, excepting himself out of the number. Notwithstanding these specious pleas, Cato inveighed loudly against the project of Cæsar, alleging that he did not so much apprehend the division of the lands, as the wages that would be required of the people by those who sought to inveigle them by this present. Cato was imprisoned for his opposition; and when another senator was asked by Cæsar why he departed before the senate broke up, he replied, 'because I had rather be with Cato in a prison, than with you in the senate.' Cæsar appealed to the people and having engaged the concurrence of Pompey and Crassus, the resistance of Bibulus, Cæsar's colleague in the consulship, and the vehement opposition of Cato were ineffectual. The law was authorised by the suffrages of the people. Cicero acquiesced in this measure, by observing a kind of neutrality; and argues to this purpose: 'Let us remain neuter, as if buried in a house in the country. Cæsar hopes that I will second him and invites me to it. See the advantages I shall gain by taking this party, the friendship of Pompey, and even that of Cæsar, if I desired it; a reconciliation with my enemies; the peace of the multitude; and the assurance of quiet in my old age; but after the conduct I have maintained in my consulship, and the principles which I have maintained in my writings, ought not my rule to be this maxim of Homer (Il. M. 243), 'the best of all counsels is, to defend one's country.' Cicero ad Attic. ii. 3. In persuading Cato to give up his resistance to this measure, he conjures him to consider, 'that if Cato has no need of Rome, Rome has need of Cato.' *Cic. pro. Sext.* p. 61.

Several have pleaded for the necessity of agrarian laws among us: but no author has entered so deeply into the subject as Mr. Harrington in his Oceana; which the reader who chooses may consult.

AGRARIUM. See AGISTMENT.

AGREABLE, an isle in the river of Fez, in Africa.

AGREDA, a frontier town of Spain, in the Castile, near the borders of Arragon, and eight miles south-west of Taracona. It is enclosed with a good wall.

AGREDULA, is a name given to a species of the frog. Also, a city of South America, in the province of Popayan, forty-two leagues from Quito, and thirty-seven from the South Sea. It was founded in 1561.

GREE', *v.* GREE'ABILITIE, GREE'ABLE, GREE'ABLENESS, GREE'ABLY, GREED', GREE'ING, GREE'INGLY, GREE'MENT. Fr. *agréer, grè*, from *gratum*, to maintain friendship, sociability, or consistency; to reconcile, suit, approve, allow, accept, consent, concur. A favourable and pleasing signification characterizes the root and its derivatives.

Whom I ne founde froward ne fell.
But toke *agree* all whole my plaie.
Chaucer. R. of R. fol. 136, col. 3.

ll fortune is blisful to a man, by the *agreability,* r the egality of hym that suffereth it.
Idem. Bœcius, b. ii. fol. 218, col. 1.

han ilk man smertlie tastis the wyne at tabil, ray and thare Goddis to be *aggreabil.*
Douglas, b. viii. p. 250.

nd thus the couenant that ye made wt death shall lisannulled: and your *agremente* that ye made with , shall not stande. *Bible,* 1539. *Isaiah* xxviii.

What *agreement* is there between the hyena and dog? and what peace, between the rich and the r? *Eccles.* xiii. 18.

The delight, which men have in popularity; fame, mission, and subjection of other men's minds; meth to be a thing (in itself, without contempla- ı of consequence) *agreeable* and grateful, to the ure of man. *Bacon's Nat. Hist.*

What you do, is not at all *agreeable,* either with so d a Christian, or so reasonable and so great erson. *Temple.*

It is a peculiar excellency of our religion, that it h not much employ men's care, pains, and time, ut matters of ceremonial observance; but doth efly (and in a manner wholly) exercise them in rks of subtantial duty, *agreeable* to reason, per- tive of man's nature, productive of true glory to d, and solid benefit to men. *Barrow.*

Must the whole man (amazing thought!) return
To the cold marble and contracted urn?
And never shall those particles *agree,*
That were in life this individual he? *Prior.*

It is very much an image of that author's writing; o has an *agreeableness* that charms us, without cor- ctness; like a mistress, whose faults we see, but ve her with them all. *Pope.*

No object is more pleasing to the eye than the sight a man whom you have obliged; nor any music so reeable to the ear, as the voice of one that owns you r his benefactor. *Spectator.*

AGREGAN, or AGRIGAN, or island of St. avier, one of the Ladrones or Marianne islands, ı the South Pacific ocean, situated between agon and Assonsong. It is forty-eight miles ı circuit, very mountainous, and contains seve- al volcanoes. North lat. 19°. 4′. East long. 4°. 6′.

AGREVE, ST., a town of France, in the Vivarais. It is the head of a canton in the de- partment of the Ardèche, arrondissement of Tournon, and contains 2540 inhabitants. Seven leagues and a half north-west of Privas.

AGRESSES. See AGGRESSES.

AGRESTA, a name that has been sometimes given to the juice of unripe grapes.

AGRESTI DA FORLI, (Livio,) an histo- rical painter, the disciple of Pierino del Vaga. He is commended for the richness of his inven- tion, the goodness of his colouring, and the cor- rectness of his design. Many of his works, both in fresco and oil, are in the Vatican, where he was employed by Gregory XIII. There are also at Rome, several altar-pieces of his hand. He died in that city, in 1580.

AGRIA, a river in Upper Hungary, on the banks of which is a town of that name.

AGRIA, called by the Germans Eger, a small but strong town in Upper Hungary, with a bishop's see: is situated on the Agria, forty- seven miles, north-east of Buda, and fifty-five, west of Cossovia, has a citadel called Eriow. In 1552 it was besieged by the Turks, with 70,000 men: but they lost 8000 in one day; and were obliged to raise the siege, though the garrison consisted only of 2000 Hungarians, assisted by the women, who performed wonders on this oc- casion. However, it was afterwards taken by Mahomet III. in 1596; but, was retaken by the emperor, in 1689; since which time, it has con- tinued under the dominion of the house of Aus- tria. Lon. 20°. 10′. E. Lat. 48°. 10′. N.

AGRIA, in botany, holly.

AGRIA, in medicine, a malignant pustule, of which there are two sorts. The one is small, with a roughness, redness, and slight corrosion of the skin; it is of a round figure, its centre is smooth, and it spreads slowly. The other sort ulcerates with a violent redness and corrosion, so as to make the hair fall off; it is of an unequal form, and turns leprous. It is cured by poultices of pelitory of the wall.

AGRIÆ, in natural history, an order of quad- rupeds, which have no teeth, but have a very long cylindric tongue. Of this order, there are only two known genera, the myrmecophaga, and the manis.

AGRIAMPELOS, from αγριος, wild, and αμπελος, vine, the wild vine; and, according to Gerard, the black briony.

AGRICOLA, (Cneius Junius,) born at Frejus Province, was, in Vespasian's time, made lieu- tenant to Vettius Bolanus, in Britain; and, upon his return, was ranked by that emperor among the patricians, and made governor of Aquitania. This post he held three years; was afterwards chosen consul, and at last appointed governor of Britain, where he greatly distinguished himself. He reformed many abuses occasioned by the avarice of former governors, put a stop to extor- tion, and caused justice to be impartially ad- ministered. Vespasian dying about this time, his son Titus, knowing the great merit of Agricola, continued him in the government. In the spring he marched towards the north, where he made some new conquests, and ordered forts to be built for the Romans to winter in. He spent the following winter in concerting schemes to bring the Britons to conform to the Roman cus- toms. He considered that the best way of diverting them from rising and taking arms, was to soften their rough manners, by proposing to them new kinds of pleasure, and inspiring them with a desire of imitating the Roman manners. Accordingly, he adorned the country with mag- nificent temples, and many other fine buildings. The British nobles at length sought education for their sons; and those, who before had the ut- most aversion to Roman language, now began to study it with great assiduity; they wore like- wise the Roman habit; and, as Tacitus observes,

they were brought to consider those things as marks of politeness, which were only so many badges of slavery. Agricola, in his third campaign, advanced as far as the Tweed; and in his fourth, he subdued the nations betwixt the Tweed and the friths of Edinburgh and Dumbritton, into which the rivers Glotta and Bodotria, (the Clyde and the Forth,) discharge themselves; and here he built fortresses to shut up the nations yet unconquered. In his fifth, he marched beyond the friths; whence he made some new acquisitions, and fixed garrisons along the western coasts, over against Ireland. In his sixth campaign, he passed the river Bodotria, ordering his fleet (the first which the Romans ever had in those parts,) to row along the coasts, and take a view of the northern parts. In the following spring, the Britons raised an army of 30,000 men; and the command was given to Galgacus, who, according to Tacitus, made an excellent speech to his countrymen on this occasion. Agricola likewise addressed his men in strong and eloquent terms. The Romans gained the victory, and 10,000 of the Britons are said to have been killed. This happened in the reign of the emperor Domitian, who growing jealous of the glory of Agricola, recalled him, under pretence of making him governor of Syria. Agricola died soon after; and his death was suspected to have been occasioned by poison given him by that emperor. Tacitus, the historian, married his daughter, wrote his life, and laments his death in the most pathetic manner.

AGRICOLA, (George,) a German physician famous for his skill in metals, was born at Glaucha, in Misnia, in 1494. The discoveries which he made in the mountains of Bohemia, gave him so great a desire of investigating every thing relating to metals, that though he had engaged in the practice of physic at Joachimstal, he still prosecuted his study of fossils with great assiduity; and at length removed to Chemnitz, where he entirely devoted himself to it, and spent in pursuit of it, the pension he had received from Maurice, duke of Saxony, and part of his own estate; so that he reaped more reputation than profit from his labours. He wrote several pieces on this and other subjects; and died at Chemnitz, in 1555, a firm papist. In his younger years, he seemed not averse to the Protestant doctrine; and he highly disapproved of the scandalous traffic of indulgences, and other corruptions of the church of Rome; but in the latter part of his life he attacked the Protestant religion; which rendered him so odious to the Lutherans, that they suffered his body to remain unburied for five days together; so that it was obliged to be removed from Chemnitz to Zeits, to be interred.

AGRICOLA, (John,) a Saxon divine, born at Eisleben in 1492. He was chaplain to count Mansfield, when he attended the elector of Saxony to the diet of Spire, in 1526, and that of Augsburg, in 1530. But he was of a restless ambitious temper, rivalled, and wrote against Melancthon, and gave count Mansfield occasion to reproach him severely. He obtained a professorship at Wittenberg, where he became founder of the sect of Antinomians; which occasioned warm disputes between him and Luther, who had before been his friend. Though he was never able to recover the favour either of the elector of Saxony, or of Luther, he acquired great fame at Berlin, where he became a preacher at court; and was chosen in 1548, in conjunction with Julius Phlug and Michael Heldingus, to compose the famous Interim, which made so much noise in the world. He died at Berlin, in 1566.

AGRICULTURE.

A'GRICULTURE, *n.*
AGRICUL'TURAL,
AGRICUL'TURIST.
} *Ager*, a field, *colo*, *cultum*, to till; the culture of the fields.

He strictly adviseth not to begin to sow before the setting of the stars; which notwithstanding, without injury to *agriculture*, cannot be observed in England.
Brown's Vulgar Errours.

The disposition of Ulysses inclined him to war, rather than the more lucrative, but more secure, method of life, by *agriculture* and husbandry.
Broome. Notes on the Odyssey.

1. AGRICULTURE, properly defined, is the art of cultivating and improving the territorial surface so as to render it fertile and productive. Viewed in its most extensive sense, it divides itself into two great branches, TERRITORIAL ECONOMY, and HUSBANDRY; the former including the improvement and general management of landed property; the latter in a more limited sense, the manual practice of agriculture. Combining both these divisions, which are in themselves collateral, agriculture is the most important science to which the human intellect can be directed—the parent of all other science and art—alike interesting all nations and all ages—born with the birth of time—given to man in the primeval state of his being, and spreading an influence over the whole circle of his wants, comforts, pleasures, passions, luxuries, arts, manufactures, commerce; together with his physical peculiarities of constitution, his natural, moral, political, and civil relations. From this view of its importance, we cannot wonder that it should have attracted the attention of mankind, in the earliest periods of the world, and have furnished employment for the highest classes of society; since this alone preserved them from all the miseries of famine, and afforded a more permanent subsistence than either the bow or the chase. When God created man, and placed him in the garden to till the ground, it seemed to imply that the resources of animal life were treasured up in the soil; all nations have acted upon this general principle instinctively; and the rich harvests that waved over the ancient site of Chaldea and Phœnicia, or adorned the rich and fertile vale of Egypt, evinced that the soil, when cherished by cultivation, was capable of producing in great abundance, not only the

necessaries, but the luxuries of life. The Chaldeans and Phœnicians carried this valuable art to a pitch of improvement little short of excellence. The Chinese consider it as the most noble and honourable of all employments; and have placed it from time immemorial, under the protection of their princes and nobility. The Egyptians were so sensible of its importance, that they worshipped even the animals that laboured in it. The Greeks thanked the gods for so unexpected a present; and those of Athens, withdrawing their subjects from war, employed them solely in cultivation. Hesiod, contemporary with Homer, was the first who wrote on the subject, in his poem, entitled 'Weeks and Days;' besides whom Democritus of Abdera, Xenophon, Tarentinus, Architas, Aristotle, Theophrastus, and other eminent Greek writers have successively employed themselves upon the same interesting topic. So assiduous were the Carthaginians in the study of agriculture, that their general Mago wrote no fewer than twenty-eight books upon it, which, being translated, at the command of the senate, into the Roman language, are said to have been the model on which Virgil composed his Georgics. The estimation in which this art was held in Rome, is known to most of our readers; the most illustrious citizens deeming it their most honourable employment. Generals, who put themselves at the head of her armies, pushed her conquests, and carried her eagles round the world, could handle the plough as well as the sword; they retired from the conquest of kingdoms to the cultivation of their farms; and thought it a reward for their labours, when they could obtain a manumission from the service of the state to enjoy the rural pleasures of the country. M. Cato, that illustrious censor, general, lawyer, orator, and politician, devoted to this subject a Latin volume, dedicated to his son. Varro composed an agricultural treatise, replete with Greek and Latin erudition, and his example was followed by other illustrious Romans. Virgil adorned the subject with the language of the Muses; and in the majesty of his verse, finely embellished those first principles of husbandry, which were laid down in the writings of Hesiod and Mago. Agriculture stood upon the Roman capitol in the robes of Ceres, and overlooked a considerable portion of the civilized world.

2. In modern times, however, agriculture has been carried to the greatest perfection, and assumes an aspect decidedly superior to what it did in Rome. The political advantages enjoyed by all classes in our free and commercial country; the recent discoveries in geology, chemistry, botany, &c.; the establishment of agricultural societies in many of the most important parts of Europe; the endowment of professorships of rural economy, in many celebrated universities; and the numerous publications that have issued from the press—all combining their influence, have awakened an unparalleled spirit of inquiry in all classes, have given a tone to the public mind, and directed it from science to art; from objects purely intellectual, to their bearings upon other subjects of practical utility. The preparation of land for tillage by means of enclosure, drainage, embanking, &c. requiring, as it does, scientific investigation, have called into existence a new profession of artist agriculturists, under the name of land-surveyors, and land-engineers. The changes in occupancy, successive valuation, and transfer of landed property, have given birth to the professions of land valuators, and land agents. From the frequent wide dimensions of landed property, especially by estates which descend by right of primogeniture, have arisen the lower orders of agriculturists, as hinds, land-stewards, bailiffs, &c. under whom are placed the inferior or working classes, as ploughmen, carters, spades-men, shepherds, &c.

3. In this article we shall confine ourselves to three topics. First, a sketch of those sciences that are connected with agriculture; a knowledge of which is necessary to every farmer who would conduct his operations on the surest and most advantageous principles; these are, botany, mineralogy, meteorology, physiology, &c. referring our readers to these respective articles for complete treatises on them. Secondly, a general view of soil, and of the principles on which the farmer ought to proceed in ameliorating them by ploughing, manures, &c. and by a proper rotation of crops, in order to raise the fertility of his land to the highest pitch: and here we add a slight sketch of those general principles of animal nature with which the scientific farmer will become acquainted. Thirdly, a brief history of agriculture, ancient and modern, with a rapid sketch of its present state.

4. With respect to the practical rules and details of agriculture, they will be found under the article HUSBANDRY. By far the largest portion of the territorial surface of the British empire is cultivated under, first, the arable system; secondly the grazing, for rearing and fattening cattle and sheep; thirdly, the dairy for butter and cheese; or fourthly, the modern and most improved system, called the convertible, in which the arable and grazing alternate. Under the article HUSBANDRY, all the rules and details necessary to carry on these respective systems in the best manner, and to the greatest advantage, will be given. There are, however, other products of the soil, which in some particular parts of the kingdom are the objects of the agriculturist; these, as not interesting to farmers in general, we shall notice, not under husbandry, but under their own heads; such as orchards, including the manufacture of cider and perry; cherry, filbert, &c. orchards:—hops, including their preparation for the market, as well as their culture; carraway, coriander seed, &c. and woods and plantations.

5. In the present article, agriculture, and those we have just enumerated, the cultivator of the soil will learn all he requires to know. The proprietors of the soil we refer to the article LANDED PROPERTY for information respecting the valuation, sale, and purchase of estates; the laws regarding them; the duties of a land steward; leases, &c.: and to the article LANDSCAPE GARDENING for information regarding the ornamental laying out of ground. The articles LAND-SURVEYING and RURAL ARCHITECTURE, will complete the circle of agricultural information in all its branches.

6. SECT. I. SKETCH OF THE SCIENCES CON

NECTED WITH AGRICULTURE.—The object of agriculture in that view of it which we are now presenting to the reader, is to augment the quantity, and to improve the quality of vegetable and animal substances, with the least possible expenditure. To do this effectually, the student ought to have a scientific initiation into the leading principles on which his art is founded, with all their collateral branches and relations. He ought to have acquired mensuration and algebra, a rapidity of sketching objects both animal and vegetable; also of taking off and forming geometrical plans, especially he ought to have studied chemistry, hydraulics, and other sciences; without which he cannot proceed in the prosecution of his object on the basis of any fixed and established principles. It is true, agriculture in common with other arts, may be pursued without any philosophical knowledge of its theory; established practices may be imitated: but the mere routine practitioner cannot derive advantage from favourable occurrences, nor guard against the recurrence of others that are unfavourable; for unforeseen events he will have no resource but ordinary expedients, no grammar but his own observations; while the man of science, referring events to their true causes, has recourse to general principles, and meets every accident with scientific and appropriate remedies.

7. A due acquaintance with systematical botany, vegetable and animal anatomy, chemistry, physiology, and pathology, if united with practical knowledge in the art of agriculture, will enable the farmer to derive the greatest advantages from his profession.

With respect to the first of these, viz. systematic botany.

8. CLASSIFICATION.—The vegetable kingdom is divided into classes, orders, genera, species, and varieties. A class is an assemblage of plants distinguished by some common peculiarity; an order is a division of a class known by some character; a genus is formed by a still more limited coincidence; and each individual which remains unchanged when raised from seed, is called a species; any accidental deviation from which, forms a variety, and returns by seed to its original specific character.

9. VEGETABLE ANATOMY forms another leading branch of botany necessary to be understood by every intelligent agriculturist, before he can carry on cultivation upon any fixed and scientific principle. The structure of plants has commonly been considered as EXTERNAL and INTERNAL. With respect to the former, the organs of perfect plants are CONSERVATIVE and REPRODUCTIVE.

10. CONSERVATIVE ORGANS.—The conservative organs are those parts of a plant which are absolutely requisite to its growth; as, the root which absorbs the alimentary juices of the soil; the trunk, which springing immediately from the root, ascends in a vertical position above it; the branches or divisions of the trunk, diverging mostly from its upper extremity; the leaf generally issuing from numerous points toward the extremities of the branches or the stem, and presenting besides an upper and under surface, a base, apex, midrib, and lateral nerves; and the frond, a compound incorporation of the leaf, leaf-stalk, and branch or stem, apparently forming one organ, the parts of which do not separate from each other by means of the fracture of any natural joint, but adhere together even in a state of decay, as is the case in ferns and palms.

11. CONSERVATIVE APPENDAGES.—Accessory or supernumerary appendages, as gems, glands, tendrils, stipulæ, ramenta, armature, and pubescence, form an accompaniment to the conservative organs, although not invariably; they are however permanent wherever they are found, and vary in different species. Gems or bulbs are organized substances; the rudiments of new individuals detaching themselves from the parent plant, and fixing themselves in the soil. Glands are small and minute substances of various forms, protruding mostly from the leaf and petiole, and supposed to be the organs of secretion. The tendril is generally a thread-shaped spiral process, issuing from the stem, branch, or petiole; and occasionally from the expansion of the leaf, by which plants of climbing disposition adhere to other plants, or adjacent substances, for their support. Stipulæ are foliaceous appendages accompanying the leaves, of which they seem to present a new miniature species. Ramenta are oblong appendages issuing from the surface of the plant, strongly resembling the stipulæ, although not necessarily accompanying the leaves. The armature consists of auxiliary parts adapted by nature to defend the plant. The pubescence includes all sorts of vegetable down, surrounding the surface of the plant.

12. RE-PRODUCTIVE ORGANS.—The re-productive organs including the flower, flower-stalk, receptacle, inflorescence, and ovary, are those parts necessary to the propagation of the species by terminating the old individual, and beginning the new. The flower, distinguished by the beauty of its colouring and odoriferous excellence of its perfume, emerges from the extremity of the branches, root, stem, and occasionally the leaves; and forms the apparatus destined by nature for the production of the fruit. The flower-stalk is a partial trunk or stem, supporting the flower or flowers, if they are not sessile. The receptacle, the seat of the flower, is the point of union between its different parts, or between the flower and the plant, whether it be sessible or mediate. The inflorescence is the mode of aggregation, arrangement, or distribution of the flowers upon the plant. The ovary or fruit is the seed vessel that succeeds the flower. The appendages to the re-productive organs, besides being of a finer and more delicate texture than those proper to the parts conservative, are many of them peculiar, as the involucre, spathe, bracte, &c. proper to the flower, and others, as the persisting calyx, exemplified in the pomegranate, to the fruit.

13. IMPERFECT PLANTS, EXTERNAL STRUCTURE OF.—Imperfect plants are those that are defective in some of the more conspicuous organs; and are commonly distributed into filices, equisitaceæ, lycopodinæ, musci, hepaticæ, algæ, lichenæ, and fungi. Of these the three former

die down to the ground in winter; but are furnished with a perennial root, from which issues annually a frond, producing fructification. The moss tribe are for the most part perennial, and herbaceous plants, approaching to shrubby, consisting of a root surmounted with a tuft of minute leaves, furnished with a stem and branches, on which the leaves are closely imbricated; and the fructification terminal or lateral. The hepaticæ resemble the mosses; but chiefly constituting fronds, and producing their fruit in a capsule that splits into longitudinal valves. The algæ, commonly called sea weeds, include many plants that are not even aquatic; whose herbage is nevertheless frondose, rarely admitting the distinction of root, stem, and leaf. This tribe with that of the lichenæ, are important to agriculture. The fungi, forming the connecting link between the vegetable and animal kingdoms, are a tribe of plants whose herbage is a frond of a fleshy, pulpy texture, rapid in growth, and short lived in duration, producing seeds in an exposed membrane, or interspersed throughout its whole mass.

14. Internal Structure. — The internal structure of plants, without a knowledge of which the agriculturist will neither understand well the process of vegetation, nor be able to apply remedies in cases of vegetable sickness, are reducible into component parts, which are again resolved into constituent and primary organs. These are subject to the three following divisions, the *decomposite*, *composite*, and *elementary*.

15. Decomposite Organs.—The decomposite organs, constituting the elementary parts of the individual are, 1. The *seed*, distinguished into two primary divisions, viz. the integuments, and nucleus or embryo, and envelopes. The integuments are exterior and interior; the former of which, the original cuticle of the nucleus, is detachable on the maturity of the fruit; the latter lining the exterior testa, immediately envelopes the nucleus, and in the ripe walnut, for instance, forms a fine net-like membrane. The nucleus within the tegument consists, for the most part, of the albumen, an organ like the white of an egg forming its exterior portion; the vitellus, an organ of a fleshy, firm contexture, situate, when present, immediately within the albumen and the embryo, or germ of the future plant, occupying the centre of the seed, of which it forms the most essential part. Of the embryo, the cotydelon, or seed lobe, is that portion which incloses and protects the plantlet, and springs up in the germinating process into what is called the seminal leaf, if the lobe is solitary, and the seed monocotyledonous; and into seminal leaves, in the case of a plurality of lobes, and a dicotyledonous seed, (exemplified in the garden bean), or a polycotyledonous seed, as in lepidium satirum, and genus pinus. The plantlet, or miniature of the future plant is the interior and essential part of the embryo, and the seat of vegetable life. 2. The *pericarp*, by a diversity of modification, rather than of substance, assumes numerous varieties of contexture in different species. The valves of the capsule, but particularly the partitions which divide it into cells, are composed of a skinny membrane, or epidermis, covering a pulp, indurated, and covered with longitudinal fibres. The pome is composed of a fine double epidermis, enclosing a soft fleshy pulp, with numerous longitudinal fibres, passing through it in the direction of its longitudinal axis. The valves of the legume consist of an epidermis inclosing a pulp lined with a fine membrane, and of numerous longitudinal fibres, forming the seam. The nut-shell is composed of an indurated pulp, covered with an epidermis, and interspersed with longitudinal fibres. The drupe consists of an epidermis, surrounding a fleshy pulp, occasionally so interwoven with longitudinal fibres, as in the case of the cocoanut, to consist wholly of threads: the berry is an epidermis, which is a soft pulp. The scales of the strobile are a tough epidermis, with an interior pulp, spongy, and often highly indurated, interspersed with longitudinal fibres, pervading the axis. 3. The *flower-stalk* is a prolongation of the stem, for the support of the flower; or it is a partial stem, striking out from the parent, and consists of an external envelope or epidermis, a soft pulpy mass, or parenchyma, and a contexture of longitudinal threads, originating in the stem, and passing along the interior of the parenchyma. The organs of the flower are in reality a prolongation of the elementary parts of the stem on which it diverges and spreads its beauty under different modifications, although the longitudinal fibres are seldom found except in the calyx and corolla. 4. The *leaf-stalk*, or *petiole*, with respect to the leaf answers the same purpose as the former, with respect to the flower, exhibits the same organization and component divisions. 5. Of *germs* there exists four species, the bud and bulb, peculiar to perfect plants; the propago and gongylus to those which are imperfect; the former of which are denominated compound germs, being furnished with a single envelope, the latter simple germs, because provided with a plurality. The bud consists of scales, overlapping each other, and converging towards a point in the apex, cemented often by a mucilaginous substance, exuding from their surface. These scales, by dissection, under the microscope, consist, like the divisions of the calyx, of an epidermis enclosing a pulp, interspersed with a net-work of fibres, unaccompanied, however, with longitudinal threads. On stripping off the scales of a leaf bud, the remaining part will be found to consist of the rudiments of a young branch, terminated by a bunch of incipient leaves, imbedded in a white species of down, complete in all their proportions, and curiously folded in the bud. Bulbs are either radical or caulinary, and exhibit several distinct varieties, solid, coated, or scaly; protruding, after the natural order of their species, the stem, leaf, and flower. The propago, peculiar to certain genera of imperfect plants, consists, as exemplified in the lichens, of a pulpy mass, forming an irregular granule, either naked or enveloped with a fine epidermis. The gongylus simple like the former, and peculiar to certain genera of imperfect plants, consists, as exemplified in the fuci of a pulp slightly indurated, and moulded into a small globular granule of a firm contexture, surrounded with an epidermis, or envelope.

6. The *caudex* includes the whole body of both the trunk and root; and is, with respect to its inward modification and external appearance, exceedingly different in different tribes. The first general mode for its internal structure, is that in which an epidermis encloses an homogeneous pulp or mass of fibres, as exemplified particularly in the algæ and fungi. The second is that in which it encloses several heterogeneous substances. This mode is divided into several varieties; as first, when an epidermis incloses a soft pulpy mass, interspersed with longitudinal nerves and fibres, extending from the base to the apex, and disposed in a manner peculiar to a tribe or genus. Another variety, when a strong bark surrounds a circular layer, or layers of longitudinal fibres, interwoven with divergent layers of pulp; thus forming a substance concentrating a certain medulla, or pith.

16. Composite Organs.—The composite organs are the epidermis, pith, pulp, layers, cortical and ligneous, vegetable fibre, &c. The epidermis is the envelope of the whole plant, exhibiting a different appearance and texture in proportion to the solidity of the parts which it encloses. The pulp is a soft juicy substance, forming the principal mass of the succulent parts, and has been compared to an accumulation of hexagonal cells formed of the doublings and foldings of a fine delicate membrane. The pith is a spongy substance, enclosed within the centre of the root, stem, and branches, in the direction of their longitudinal axis, forming the substance of the bark. The cortical layers lie immediately under the cellular integument, and, where that member is wanting, beneath the epidermis. In some cases they are themselves external. They are composed of two elementary bundles of longitudinal fibres, constituting a network, and the meshes are supplied by a mass of pulp more or less indurated. The innermost of these layers, denominated the fibre, is extremely fine and delicate, and in some cases, beautifully reticulated and varied by bundles of longitudinal fibres. It was used by the ancients to write upon before the invention of paper; that of the daphne lagetto is said to be as beautiful and delicate as the finest lace, and to be used by the inhabitants of the countries where the tree is native, in the place of neck-cloths. On a right knowledge of these layers depends the agriculturist's success, in grafting, which is effected by uniting the liber of the graft and stock. The ligneous layers concentric and divergent, constitute the wood, and are seated in the intermediate portion between the bark and the pith.

17. Vegetable Chemistry.—For vegetable chemistry, including the various products of vegetables, whether simple, as carbon, oxygen, hydrogen, nitrogen and other elementary principles, forming by their modifications, the peculiar character and properties of plants; or compound, as gluten, gum, tannin, acids, oils, resins, balsams, alkalies, earths, metallic oxides, campha, charcoal, &c. which are capable of still further decompositions, we must refer to the article Chemistry; also to Dr. Thomson's Chemistry, &c.

18. Germination of the Seed.—With respect to germination, the first part of vegetation, it may be premised that all plants spring originally from seed, on the internal state, or outward circumstances of which the conditions of germination depend. Seeds to germinate must be mature. There are, nevertheless, some seeds whose germination commences in the seed-vessels, while attached to the parent plant, and before the fruit is ripe, as the garden-radish, pea, lemon, agave vivipara of East Florida, nelumbo, or sacred bean of India, &c. In general, seeds will retain the productive faculty for years, if properly taken care of; and when sown are properly defended from the immediate action of the rays of the sun. Warmth is a capital principle in germination. Seeds, though sown in winter, do not germinate till the return of spring, when the temperature has been raised to a proper degree; which, however, varies in different seeds, as is evident from observing the different periods at which they germinate as the summer progressively advances. Germination is accelerated in proportion to the degree of heat. Seeds that will germinate in a cool climate in a given time, on being removed nearer the tropics, have their germination accelerated; and seeds removed from a warmer to a colder climate, have their germination proportionably contracted. Seeds that usually require twelve hours to germinate in our ordinary degree of heat, by increasing the temperature, may be made to germinate in three; but too powerful a degree of heat destroys the vital principle. Moisture is a necessary condition to germination, but there may be too much water or too little; if too little, the seed dies for want of moisture; if too much, it rots in the earth. Different degrees of moisture are, however, necessary in different plants. The access of atmospheric air is a capital consideration in the germination of seed, which is evident from the fact, that no seeds will germinate in a vacuum, although after lying in a vacuum they will vivify on the admission of air. It appears from experiments made by Achard, that no seed will germinate in nitrogen, hydrogen, or carbonic acid, gas, except when mixed with oxygen; whence it appears that oxygen is the only constituent part of the atmosphere really essential to the vegetating process. Humboldt found that seed, previously steeped in water, impregnated with the oxymuriatic acid, exhibits a more rapid germination. Cress-seed, the ordinary period of which is thirty-two hours, treated after this manner, germinated *in three*.

19. Period of Germination.—In germination, generally speaking, grasses are the most rapid; next to these, cruciform plants; then leguminous plants; then labiate plants; then umbeliferous plants; to which succeed the last and slowest in the series, viz. rosaceous plants. Of the periods which the most common seeds require, the following may, for general *purposes*, be sufficient:—

Wheat, millet-seed . .	1 day
Barley	7 *days*
Orache	8
Spinage	3
Beans	3
Mustard	3
Lettuce	4

Aniseed	4 days
Melon	5
Cress-seed	5
Cucumber	5
Radish, beet-root	6
Purslain	9
Cabbage	10
Parsley	40
and sometimes	50
Hyssop	30
Almond	1 year
Chesnut	1
Peach	1
Rose	2
Filbert	2
Hawthorn	2

20. The first symptom of germination is the prolongation of the radicle, bursting through its integuments, and shooting downwards in the soil. Some persons account for this on the principle of gravitation; others from a sort of vegetable instinct, directing infallibly to that situation best suited to the acquisition of nutriment. The next stage of the process exhibits the evolution of the cotyledon or cotyledons, unless the seed is acotyledonous or the cotyledons hypogean, as in the acorn. In the case of seeds furnished with cotyledons, the next visible step is the extrication of the plumelet, or first real leaf from cotyledons, and its expansion in the open air, after which, if congenial to the nature of the species, are developed the rudiments of a stem, and the plant is complete—the radicle descending into the earth, the plumelet ascending into the air. For the philosophy of germination, we must refer the reader to VEGETABLE PHYSIOLOGY.

21. NOURISHMENT OF PLANTS.—The future nourishment of the plant may be considered as derived from the following sources, water, gases, vegetable extracts, salts, earths, manures.

22. WATER.—If plants are deprived of water the leaves become flaccid, and assume a withered appearance; but if the roots are again supplied with water, the weight of the plant is increased and its freshness restored. And since many plants, as tulips, hyacinths, marine plants, and others, will thrive if the root be fixed in the water independent of the soil, it cannot be doubted but that water answers the purpose of a vegetable aliment. But it does not follow that water is the sole food of plants, as Van Helmont, Boyle, and others supposed, or that it is sufficient to form all the substances contained in vegetables, without any other auxiliary. Overflowing the ground with water greatly increases the fertility of any soil. It is well known how much Egypt owes to the annual overflowing of the Nile; and even in this country the overflowing of any ground is found to be attended with great advantage. This was practised by Mr. Bakewell of Leicestershire, famous for his improvements in the breed of cattle; and he found it fully answer an annual manuring of any other sort. It is also recommended by Dr. Anderson of Monkshill, in his Essays on Agriculture. The fertilizing quality of water will easily be accounted for on the same principles. When grown vegetables are covered with water, their growth, however vigorous before, is immediately stopt, unless they be of the aquatic kind; they die, are dissolved, and putrified; in which case their finer parts are undoubtedly absorbed by the earth; and thus the floating, as it is called, of fields with water, answers the purpose of fallowing with very little trouble. This is not all; for stagnate water always deposits a sediment, which, mixing with the dissolved parts of the vegetables all over the field, forms an excellent manure; and when the water is allowed to run off, the heat of the sun soon brings the highest degree of putrefaction on the dead vegetables: the effluvia of which mixing with the mud deposited from the water, makes it exceedingly rich.

23. GASES.—That atmospheric air is necessary to the life and vigour of the plant, may be seen by looking at the different appearance of those plants which are exposed to a free circulation of air, from those which are deprived of it. If a plant is placed even under a glass, to which no new supply of air can have access, it withers and dies. Of the component parts of air required by the plant, may be enumerated a portion of carbonic acid gas, especially in the higher stages of vegetation; and oxygen, which is of capital importance in every stage of the process. The flower-bud will not expand if confined in an atmosphere deprived of oxygen, nor will the fruit ripen; nitrogen, though it constitutes by far the greater proportion of atmospheric air, is incapable of affording any nutriment to plants. Seeds will not germinate, neither will plants vegetate in it, except for a very limited time. Hydrogen gas is also unfavourable to vegetation, notwithstanding the opinion of Dr. Priestley, that it not only serves for vegetable food, but constitutes the true and proper pabulum of the plant. Although both these gases are found in the constitution of plants, by chemical analysis, they are derived in some other form than air, the former, nitrogen, perhaps on the extractive principles of vegetable mould, and hydrogen as an element of water.

24. VEGETABLE EXTRACT.—Another part of food for plants consists of vegetable extract or mould. When plants have attained the maturity of their species, they begin to decay: and after their dissolution, are converted into vegetable dust. with a probability of its being again converted into vegetable nourishment, and entering the plant. The whole of it however, cannot enter the plant, because not soluble in water; but the portion that is soluble, and therefore capable of being absorbed by the root, is what is called vegetable extract. There are two ways in which decayed animal and vegetable substances communicate nourishment to the plant. By the first, floating in the atmosphere, they attach themselves and enter the plant in solution imbibed by the pores; by the second, they enter the root by means of the soil.

25. SALTS.—Salts form a considerable part of the food of plants, different salts being requisite in different species; trefoil, lucerne, and clover, have their growth much accelerated by sulphate of lime, (gypsum) wheat by phosphate of lime; barley by nitrate of soda, or potash. Salts, as nitrate, muriate, and sulphate of potash or soda,

are found in most plants. It is not however, determined in what way salts assist vegetation, whether by hastening the putrefaction of animal substances contained in the soil, or by attracting the humidity of the atmosphere.

26. Earths.—Earths, as they are found in different proportions in plants, are derived chiefly from the soil, probably by solution in water, especially as all earths hitherto found in plants are known to be in a slight degree soluble. The experiments of Woodward tend to prove that they are absorbed by the root. Giobert mixed lime, alumina, silica, and magnesia in the same proportions as they are commonly found in fertile soils; and after moistening them with water, sowed different grains in them. These, although they germinated, did not thrive; and perished when the nourishment of the cotyledons was exhausted. This, in his opinion, established the fact that though beneficial to the growth of some species, and requisite to the health of others, earths are not capable of affording any considerable nourishment to the plant. The supply of food received from the earth depends upon the mechanical or chemical constitution of the soils. The former may be altered by pulverization, consolidation, watering, draining, &c.: the latter by the addition of earths, and other substances, the supply of manures liquid and solid, by irrigation, distribution of dungs, &c. On the whole therefore, we may conclude that although vegetables will grow in any kind of earth, and flourish vigorously, if plentifully supplied with water, yet some kinds of soil are found much more proper for supplying them with nourishment than others. The inference which some would draw from experiments on plants set in mere sand, &c. are not quite fair: viz. that the earth is of no other use to vegetation, than to afford a proper support to the plant, that it be not easily moved out of its place; because the experiments made on single vegetables are always performed in, or very near houses, where the air is not so pure as in the open fields, and consequently where they have an opportunity of receiving as much nourishment from the air, as may compensate the want of what they would have derived from the earth, if planted in a rich soil.

27. Lord Kames, in the Gentleman Farmer, mentions an experiment wherein a pea was planted in some cotton spread on water, in a phial. It sprung up, and pushed roots through the cotton into the water. The plant grew vigorously, and, at the time of his writing, the experiment carried large pods full of ripe seed. From this experiment, or others of a similar kind, however, a farmer would not be thought to act very judiciously, who should conclude that nothing more was requisite to produce a plentiful crop, than to keep his fields constantly soaking with water, and apply his labour only for that purpose, without regarding either tillage, manure, or the difference of soils. Experience has shown, that by certain operations performed on the earth itself, it is rendered much more capable of supplying vegetables with plenty of nourishment, than if such operations were omitted; and, that some kinds of soil cannot, without certain additions, be rendered so fit for this purpose as others; and this is what constitutes the difference between a rich, and a poor soil.

28. That species of earth which is capable of supplying the vegetable kingdom with nourishment in the greatest plenty, is found best in well cultivated gardens. It is not, however, even in these, found in perfect purity; being constantly mixed with greater or less proportions of sand, small stones, &c. It can be had by itself, and entirely separated from all other substances, only by suffering vegetable or animal bodies to putrefy. By undergoing this operation, they are at last resolved into a kind of earth, which appears perfectly the same, from whatever substance it is produced. Of this earth, Dr. Lewis gives us the following characters. It is indissoluble in acids, somewhat tenacious when moistened with water, friable when dry, and acquires no additional hardness in the fire.—The chemistry of nature, and that of art, however, are so very dissimilar, that an account of the chemical properties of this earth, can be but of very little service to the practice of agriculture; however, to those above-mentioned we may add, that when it is distilled with a violent fire, a volatile alkaline spirit, and fœtid oil, similar to those of hartshorn, or other animal substances, are obtained.

29. As the volatile alkali is produced in great plenty by distilling putrid substances, either animal or vegetable: the obtaining an alkaline spirit from this kind of earth, is a strong argument of its being much impregnated with the putrid effluvium, mentioned above, as the proper vegetable food contained in the air and water. Indeed, considering that this kind of earth is produced by putrefaction, it is next to an impossibility that it should not be impregnated with putrid steams, as much as earth can be; and, if the earth which is most impregnated with these steams, is found to afford the greatest quantity of nourishment to vegetables, we have thence an addditional proof, that they live on the putrid matter emitted from dead animals and vegetables like themselves.

30. That we may be the more ascertained of this, it must be considered, that the earth, which is the greatest source of nourishment to vegetables, is capable of absorbing putrid effluvia in much greater quantity, before it is saturated, than either the air or water. The burying of dead bodies affords a proof of this. They are laid but a small depth under ground; yet the abominable stench emitted by the carcase, is retained in the earth, and never penetrates so as to become offensive. That earth may be saturated with this putrid matter, as well as air or water, is certain; and, in case of such a saturation, either of these will take up the superfluous quantity, and become noxious; but unless the earth is fully saturated, both will deposit part of what they contain in the earth, and thus become more salutary than before.

31. That earth is capable of attracting putrid effluvia from the air, perhaps, may not be readily granted; but, if we consider the exceeding great salubrity of the air in the country, and the healthiness of those who follow the plough, or are employed in digging the ground, we must

allow, that when the ground is turned up, it communicates no kind of noxious quality to the air; which it would certainly do, if it emitted a putrid effluvium. So far from this, the smell of moist earth is always agreeable and wholesome; and here our theory is confirmed, by the celebrated Baron Van Swieten, late physician to the empress of Hungary. 'Physicians,' says he, 'usually advise their patients to rustication, not only that they may enjoy a pure and freely circulating air, but that, as their strength increases, they may, disengaged from all care, exercise their body by the slighter labour of agriculture, and other country amusements.'

32. There may, perhaps, be another cause why rustication will be of benefit in consumptions. It is well known, that, after some days drought, on the falling of rain that moistens the earth, there arises a grateful smell, which we all are sensible of; and, this is commonly attributed to the vegetables, which, before sapless, but now refreshed by rain, perspire more copiously. Reaumur observed, that a like fragrancy is also perceptible after rain, when the corn has been cut down in the fields, where there only remains dry stubble. He further observed, that this fragrancy does not diffuse itself to any thing at a great distance, without being much diminished, and soon entirely gone.

33. This property of emitting a fragrant smell is likewise taken notice of by Dr. Home, in his Principles of Agriculture and Vegetation. Some physicians have prescribed a bath of earth for the cure of consumptive patients; and Dr. Solano de Luque was of opinion, that the earth had the property of absorbing contagious miasmata into it: but whether it can absorb these miasmata from living bodies or not, it certainly can absorb them from dead ones; for a piece of putrid meat will be much sweetened by lying for a short time in the ground.

34. From all this we cannot indeed infer that putrid air is sweetened by mere earth; but we discover what is more important, viz. that though earth is the common receptacle of all putrid matters, both animal and vegetable, there is a change made on both of them when in it, which cannot be made either by air or water. Thus, if the carcase of a small animal is left to putrefy in the air, it becomes exceedingly offensive, and continues so from first to last. The same thing happens if it is left to putrefy in water. But, in earth, the case is quite different. After the carcase is consumed, the earth which has imbibed all the putrid steams, instead of exhaling an offensive odour, diffuses an agreeable one; and thus we may see that it is endued with a power no less remarkable than that of attraction or repulsion, and which we may call transmutation. With regard to water, the case is more evident; for the most putrid water will be sweetened by percolation through earth, or even running in a channel for some time on its surface; but, if it contains any impurities of the saline kind, they will not be separated.

35. We must admit the existence of this power of transmutation, whatever we imagine the vegetable food to consist of; for it is impossible to solve the phenomena of vegetation by attractions and repulsions. If we suppose the vegetable food to be salt, let us attract and repel salt as we will, it remains salt from first to last. Let us suppose it water, the case is the same; and, by mere attraction, nothing but masses of salt, or pools of water, could be produced. The case is the same on our own hypothesis; for, supposing plants composed of the putrid effluvia of others, and of dead animals, if nature was endued with no other power than attraction or repulsion, the vegetable would be a corrupted mass like that of which it was composed.—This power resides only in the earth and vegetables: air and water can indeed act as powerful solvents, but cannot transform or compound.

36. Process of vegetable nutrition. With regard to the process of vegetable nutrition we perceive a great similarity to what is observed in the animal economy; the food whether imbibed from the atmosphere or taken up from the soil, in the form of gases, or other fluids, passes into the body of the plant and forms what is, in popular language, called the sap. This ascending into the leaves is elaborated, like the blood of animals in the lungs, after which it enters the general circulation of the plant, and becomes the great instrument of circulation. The intro-susception (as it has been called) of plants is by absorption or inhalation, as chyle into the animal lacteals, or air into the lungs: the former expresses the reception of non-elastic fluids, the latter those which are gaseous. Non-elastic fluids are absorbed by the epidermis. That leaves inhale air has been demonstrated; and the inhaling power which, according to Saussure, is the effect of their organization, in the opinion of Dr. Priestley is performed chiefly by the upper surface. It has also been thought that other parts of the plant absorb moisture and inhale gases, by means of pores in the epidermis.

37. Diffusion of the sap.—The fluids absorbed from the soil, as we have already shown, are called sap; a lymph which before it can distribute nourishment to the different parts of the plant must either be conveyed to some viscus by which its elaboration shall be propelled upon some mechanical principle; or be immediately diffused over the whole body of the plant. The sap is in motion at all seasons of the year more or less, even the severity of the winter not entirely suspending its operations. Buds receive a gradual development throughout the whole winter; roots follow the same process; evergreens retain their leaves; and many of them, as the laurustinus, arbutus, and the tribe of the mosses protrude their blossoms, thus affording infallible evidence that the motion of the sap is not wholly suspended. Various opinions have been entertained with respect to the medium through which the sap ascends from the lower to the upper extremity; some imagining it to be by the bark, wood, and pith indiscriminately; others by the intervening medium between the bark and the wood. By steeping the extremities of branches of the fig, elder, honeysuckle, and filbert, in coloured infusions, the fact is now ascertained that the sap

ascends through the vessels of the longitudinal fibres, and constitutes the woody part of herbaceous plants. With respect to the manner in which the sap enters into the leaves, it was found, by means of the coloured infusion, that its medium is through the centre of the bundles of tubes or fibres extending in a longitudinal direction along the interior of the leaf-stem, extending upwards to the extremity of the leaves and in their direction downwards, penetrating the bark and alburnum, the tubes of which they join, still proceeding obliquely till they reach the pith. In case of the fruit-stalk, the central vessels were detected as before; but the colouring infusion was found to have penetrated the fruit also, diverging round the cone, afterwards converging in the eye of the fruit, and terminating in the stamen. Thus was discovered the mystery of the sap's course in the nourishment of vegetable life. It is received by the pores of the epidermis into the longitudinal vessels of the root. It is conducted thence to the collar, conveyed by the longitudinal vessels of the alburnum to the base of the leaf, stalk, and peduncle, from which it receives its final transmission to the extremities of the leaves, flower, and fruit. It appears also from the fact of a branch continuing to live, when the tubes directly leading to it, were cut in the trunk; that the sap, though propelled most copiously in the direct line of ascent, is at the same time circulated in a transverse direction. For the various theories respecting the cause of the sap's motion, see VEGETABLE PHYSIOLOGY.

38. ELABORATION OF THE SAP.—On boring a tree in the proper season, the sap that issues being different from the moisture of the soil, proves that the latter in its absorption has undergone a change, either in passing through the glands of the cellular tissue, which it reaches through the medium of a lateral communication; or in mingling with the juices contained in the cells, and being in its passage impregnated with a portion of them. The incipient stage of this elaboration effected within the interior of the plant, must remain a mystery, although its future progress and change may be more evident. The process of elaboration is chiefly in the leaf, when the sap exhaling a light fluid on the principle of perspiration, parts with some of its substance, thus altering its proportions and consequently its properties. The glutinous exudation found on the leaves of the maple, poplar, and lime tree, together with clear watery fluid, in a high state of elaboration, conglomerating into large drops and trickling down the leaves of the poplar and willow in hot calm weather, afford sufficient evidence of sensible perspiration. For further information on the subject of elaboration we must refer the reader to VEGETABLE PHYSIOLOGY.

39. DESCENT OF THE JUICE. When the sap has been duly elaborated in the leaf it assumes the appellation of the cambium, or proper juice of the plant; and in this state is found in the bark, or between the bark and the wood. It may be frequently distinguished by a peculiar colour, and was regarded by Malphighi as being to the plant what the blood is to the body, the immediate principle of nourishment and life; in which state it is supposed to be conveyed to all parts of the plant by an appropriate set of vessels. The most scientific experiment on this subject is that of Dr. Darwin. A perfect stalk of the euphorbia heliscopia, with its leaves and seed-vessels, was placed in a decoction of madder-root. After remaining so for several days, the colour of the decoction was distinctly seen passing through each leaf. Many of the ramifications going from the mid-rib towards the circumference on the upper side of the leaf, were observed to be tinged with red, and on the under side was observed a system of branching vessels, originating in the extremities of the leaf, and carrying, not a red, but a pale milky fluid. These, after uniting in two sets on each side of the mid-rib, descended with it into the leaf-stalk, and were the proper vessels for returning the elaborated sap, distinguished by the appellation of veins, as those on the upper surface by that of arteries. Knight, in his subsequent experiments, detected in the leaf-stalk, besides the vessels, which he calls central tubes, through which, together with their appendages, the spiral tubes, the coloured infusion ascended, another set of vessels surrounding the former, which conveyed in one direction or other, a fluid that was not coloured, and which proved eventually to be the descending juice. These vessels extended upwards to the summit of the leaf; and downwards to the base of the leaf-stalk, penetrating the inner bark, whence the sap descends through the channel of the bark, or rather between the bark and alburnum, by means of the longitudinal vessels of the inner bark, down to the root. The descent of the juice has been ascribed to gravitation. Gravitation certainly has its influence, as is evident in the practice of gardeners; who to prevent the descent of sap in young shoots of trees which have grown upright, bend them down after being fully grown, by which means they produce larger buds, and often blossoms instead of leaf-buds.

40. ORDER OF DEVELOPMENT.—The production of the different parts or organs is not the same in herbaceous and annual plants as it is in woody and perennial plants, the former comprising apparently but one act of the vital principle, the parts being unfolded in immediate succession; whereas in the latter, the process is carried on by gradual and definite stages, from the opening of the spring, to the approach of winter, when the functions of vitality are in a great measure suspended, till the spring next succeeding, rouses them again to action. The embryo of the plant, when it first emerges from the seed, consists of a root, plumelet, and incipient stem; and in dissection exhibits an epidermis enveloping a soft pulpy substance, furnished perhaps with a central longitudinal fibre or perhaps an accumulation of them.

41. UNFOLDING OF COMPOSITE ORGANS.—The unfolding of the composite organs requires to be separately considered in reference to the annual plant, and the perennial. With respect to the organization of the former plant, and the

original shoot of the latter, both proceed the the first year on the same general principle. A perennial of one year's growth, taken up in the beginning of winter, when the leaves have fallen away, is found to consist of root and trunk, the extremity of which is spotted with one or two buds. By being cut in two transversely, the trunk is found to consist of bark, wood, and pith. The pith seems merely a modification of the original pulp, but the pith and pulp are afterwards subject to a more complete conversion of their parts, and are organized in the several ramifications and divisions of the future plant. A perennial of two years is found to have increased in height by the addition of a perpendicular shoot, consisting like the former one, of bark, pith, and wood; and in circumference to have received the augment of a new layer of wood and bark, formed between the wood and bark of the former year. This covering of the original cone has excited considerable difference as to its origin. The same difficulty occurs each succeeding year, as long as the plant continues to live; a new layer being formed exterior to the one preceding it, increasing the diameter of the parent stock, the outermost layer of bark and innermost layer of wood originally tangent, being the growth of the first year, the second layer of bark and second layer of wood, the produce of the second year, &c. The tree also insinuates itself in height by means of an additional shoot, or branch every year after the manner of the first. Malphighi supposed the new layer of wood was formed from the fibre of the preceding year; but it appeares from the discoveries and experiments of Knight, that the leaf gives the elaboration requisite to the formation of new parts. The medullary canal is filled with an interior layer, formed by a sort of cambium, deposited by the medullary tubes. These layers from the periods at which they are deposited, are of different degrees of solidity. The conversion of the alburnum into perfect wood, is attributed by some to the loss of sap which the tree sustains after it has exceeded the bounds of maturity: by Knight and others its induration in the winter is attributed to a deposit left in the preceding summer, consisting of the proper juice of the tree in a state of congelation. Whether there be a circulation of vegetable juices in plants, analogous to that of the blood, is a question that has been repeatedly agitated, but has met with many supporters and many opposers.

42. Decomposite Organs.—The progress and development of the decomposite organs, as the root, stem, branch, bud, leaf, flower, and fruit, comes next under consideration. The root, like the upper surface, is augmented annually by the addition of a new layer; and by the accession of a new shoot, emerging from the extremity of the preceding fibre. The root, provided it meets no obstacle, descends perpendicularly to a considerable depth. The root of some young oak trees taken up by Du Hamel, was found to be four feet, while the upper part did not exceed six inches. If the root in its descent meets with an obstacle, it takes an horizontal direction, by sending out lateral shoots. When a root ceases to elongate itself, it shoots out lateral fibres, which are the more vigorous as they are nearer the trunk, which is attributed to the easy access of oxygen in the upper division; although the reverse of this is the case, provided the roots are horizontal, owing, as has been thought, to the more ample supply of nutriment it receives from the earth. Roots when injured send out lateral branches; and where the soil has been loosened, extend themselves to a considerable length. The strength acquired by roots, where difficulties are to be overcome, almost exceeds belief; they will penetrate through the hardest soil, to reach a soil that is more nutritive; they will insinuate their fibres into crevices of walls and rocks, which they have been known to burst and overturn.

43. The stem, as we have already observed, receives an augment of an additional layer, and a new shoot annually; not produced like the increment of the root, by the super-addition of vegetable particles to the extremity; but by the principle of intro-susception. The extension of the shoot is also rapid during the period it remains herbaceous; but slow after the time of its induration; and the small cone, rising during the first year, increases no more after the first winter, when it is perfectly consolidated. Palms, however, are to be regarded as an exception.

44. Branches, which in their development assume all the varieties of position, originate in a bud, and form a cone consisting of pith, wood, and bark. The lower branches are parallel to the earth; even though the tree itself stand obliquely on the slope of a hill; a circumstance which, for the most part, has been attributed to the forming of a greater proportion of buds on the side forming the obtuse angle with the base, from its greater exposure to the action of the atmosphere.

45. The bud is not common to all plants, nor to plants of all climates; numerous shrubs, and all annuals being destitute of them; also plants growing within the tropics, the leaf protruding immediately from the bark. But to the woody plants in cold climates, no new part is added but what emerges out of a pre-existent bud itself, clothed with new buds, each of which, surrounded with glutinous scales, forms the cradle of a new infant shoot, to burst its way the following spring. Of the natural origin of the bud much uncertainty of opinion seems to exist; but its development is by the action of the proper juice of the plant elaborated in the preceding buds, and originally in those of the plumelet.

46. The leaves, before they diverge from the expanding bud, are complete in all their parts, which proves that the infant individual, like the shoot itself, effects its final development by the intro-susception of new particles, augmenting at once the whole of its dimensions; though this rule is not without exception, as in the case of the liliaceous plants, &c.

47. The flower, which, according to Knight, is a prolongation of the wood, pith, and bark, is complete in all its parts, like the leaves. Interesting anomalies, connecting themselves with all the above considerations, present an interesting

and instructive field of research to the practical agriculturist; but, referring the reader for the consideration of them to the science of agriculture, we shall proceed to make some observations on the sexuality of vegetables.

48. Vegetable Sexuality, and Impregnation of the Seed.—The sexuality of plants was well known to the Greeks, from their mode of cultivating palms and figs. Aristotle, Theophrastus, Pliny, Galen, and Dioscorides, appear to have had some indistinct notions of the same subject. Pliny investigated all the various facts and evidences connected with this intricate subject, and at length established it upon the basis of logical induction. The male and female organs of vegetable generation are the stamens and pistils; and the substance, by which the impregnation of the seed is effected, is the pollen. This, when the above organs are near to each other, is dispersed by the elastic spring with which the anthera flies open. In many cases it is, however, conveyed from the anther to the stigma, by the instrumentality of insects, who, in their search for honey, settling upon a male flower, become covered with pollen, and afterwards fly to other plants of the same species; by which, females, though remote, form plants of the opposite sex. The fecundation of the ovary has, nevertheless, given rise to a great diversity of opinion. One class of experimentors imagined that the embryo, pre-existent in the ovary, is quickened by the pollen, or transmitted through the stylus. Others, observing that the embryo never makes its appearance till after fecundation, imagined that it must pre-exist in the pollen of the anther, from which it passes through the styli into the ovary. Others consider the embryo exists neither in the pollen nor ovary; but is produced by the generating union of the male and female organs; the fecundating virtue of the former consisting in a fluid which issues from the pollen when it explodes; and that of the latter, a fluid exuding from the surface of the stigma. Hybrid productions unite the properties of both the male and female, from which they originate. On impregnation, the flower declines; the stamens, petals, and calyx, for the most part, decay; whilst the ovary swells, and advances to perfection; its colour is deepened and enriched, its appendages are added, and its figure ultimately conformed according to its respective species.

49. Propagation.—Propagation is carried on by means of the seed, which when it has reached maturity, detaches itself from its parent plant; and dropping into the earth originates the germinating process of a new individual. Sometimes by the elasticity of the pericarp, which opens with a sudden spring, it is thrown to a distance from the plant, after the seed has been discharged from the original stem; some species, as barley and wild oats, are provided with instruments for their dispersion, the awn of barley, with its little teeth, by mere contraction and distension, the effects of drought and moisture, often travels many feet from the stalk on which it grew. Winds, birds, and animals, together with the streams, rivers, and currents of the ocean—all become instrumental in effecting a still wider dispersion of the germinating principle replenishing the earth with the numerous variety of plants for the perpetuating of the vegetable kingdom. The propagating of plants by means of germs, including bulbs and buds, also by leaves, slips runners, layers, offsets or suckers, together with the scientific application of grafting and budding, belong properly to the science of horticulture.

50. Pathology.—Pathology, the next thing requisite for an extensive cultivator to understand, includes the injuries, diseases, and that natural decay to which plants are liable. Injuries, wounds, and accidents, may be considered in the following order: 1. *Incision;* this, if it merely affects the epidermis, heals up without leaving a scar; if it penetrates the interior of the bark it heals, but leaves a scar; but if it penetrates into the wood, it never heals properly; but new wood and bark are formed Incisions are often requisite for the vigour of the plant. 2. *Boring*, which is done to make them part with their sap; and, like the former, closes up by the formation of new bark and wood. 3. *Girdling;* a practice common in North America, especially when the farmer wishes to clear his land of timber. It is the practice of making parallel and horizontal notches in the trunk of the tree, penetrating through the alburnum; and afterwards scooping out the intervening portion. 4. *Fracture*, which happens when a tree is bent far back by storms, hurricanes, or any other means. If bark only of the cortical, or woody fibres, are affected, and the stem but small, the parts will reunite by being put back in their natural position, and propped up; but if the stem is large, and the fracture attended with contusion, a cure is not to be expected, the herbaceous substance exuding from between the wood and fibre, seldom sufficiently insinuating itself into the interstices to produce induration. 5. *Pruning* may be mentioned; the only precaution necessary to which, is, that of cutting the branch in a sloping direction, so as to prevent the rain from lodging on the exposed surface of the section. For more particulars upon which, as also upon grafting, which is a wound both of the stick and graft, uniting to each other by means of an herbaceous substance, exuding in the ordinary manner, we refer to horticulture. The destruction of buds and leaves, inflorescence, failure in the produce of flowers, seeds, &c. premature inflorescence, and decortication, are the effects of those general accidents to which trees are liable.

51. Diseases of Plants.—The common diseases of plants are; 1. *Blight*, arising from various causes, exceedingly detrimental to the interest of the farmer. It is often occasioned by the cold easterly winds of spring, which kill the infant shoots of the plant, by stopping the circulation of the juices. The juices thus stopped in their passage, swell and burst the vessels; and supply nutriment to the numerous tribes of insects that make their speedy appearance, and are generated in them. These are commonly supposed to be the cause of the disease, and in the farmer's opinion are wafted on the east wind. In the spring the blossoms, that so delight the be-

holder by their premature protrusion, are commonly subject to a similar disease, by means of the spring frosts. Another species of blight originates in pestilential vapours, and commonly occurs in the middle of the summer, after heavy showers, succeeded by immediate sunshine. In hop grounds, the centre is the point at which it originates. It was this species which damaged the vineyards of ancient Italy, and at present greatly injures our agricultural produce. Wheat crops are often entirely destroyed by this means. Blight often arise from fungi; and for the most part attacks our grains and grasses: this blight assumes the appearance of a rusty-looking powder, and soils the finger. The blades of some wheat attacked in 1807, exhibited the appearance of a number of rusty looking patches, dispersed over the surface, containing thousands of small globules collected in groupes under the epidermis. Sir J. Banks ascertained these to be patches of a small fungus, the seeds of which, floating in the air, enter the pores of the leafy envelope, or exist in the manure, and pass into the root by means of the pores. This blight, which the farmer calls red-rust, generally confines its attack to the stalk and the blade. It is, however, to be distinguished from another species called red-gum, which attacks the ear only. 2. Smut; the next disease converts the farina of the grain with its integuments and a portion of the husk, into a species of fine sooty dust. It is seldom general in a crop; and it is said may be prevented by steeping the seed, before it is sown, in a weak solution of arsenic. The disease called bags, or smut-balls is prevented in the same way. 3. Mildew, is a thin whitish coating, covering the leaves of vegetables, and causing their decay and death. On wheat it assumes the shape of a glutinous exudation; and is found particularly when the days are hot, and the nights without dew. Mildew is said, in cases of cultivated crops, to be prevented by manuring with soot; and sulphur was found by J. Robertson, the only specific cure. 4. Honey-dew is a sweet clammy substance, coagulating on the surface of leaves during hot weather. With respect to its origin, agriculturists are not agreed. 5. From long continued rain, or too much watering, plants and vegetables are subject to a disease called the dropsy, which is generally incurable. It consists of a preternatural swelling of particular parts, gives fruits a watery taste, and occasioning an immoderate protrusion of roots from the stem, prevents the ripening of seed. 6. Flux of juices is another disease to which vegetables are liable, as the tears of the vine, or spontaneous extravasation of sap, exudation of gum, chilblains, &c. 7. Gangrene, etiolation, contortion, suffocation, and consumption, are calamities, incident to vegetables, to meet which every agriculturist should be prepared. But although the plants should be subject to none of the before mentioned accidents and diseases, decay after a few years, according to the vigour of its species, is nevertheless certain. Many vegetable subjects die annually, others which are as to their composite organs perennial, are subject to a decay of the temporary organs. The falling of the leaves, the fall of the flower, and the fall of the fruit are sufficiently familiar, and are frequently compared in the animal economy to the moulting of birds, &c., because after shedding its foliage, by the powerful blasts of winter, the tree clothes itself as fresh as ever by the warmth of the succeeding spring. The temporary organs at last decay, old age creeps upon the system, the root no longer receives nourishment from the soil, or what it receives is feebly propelled; elaboration is difficult, the descent of the juice is almost totally obstructed, the bark becomes thick, and covered with lichens, or moss, the shoots decay first, then the branches, the trunk, and last of all the root; and nature hastens their decomposition till it crumbles away to mould.

52. As the subject of the diseases of plants is one of the utmost importance to the farmer, we shall add to this scientific arrangement of their nature, some miscellaneous remarks and facts.

53. Tournefort divides the diseases of plants into five classes: first, those which arise from too great an abundance of juice; second, from too little; third, from its bad qualities; fourth, from its unequal distribution; and fifth from external accidents.

54. Too great an abundance of juices causes at first a prodigiously luxuriant growth of the vegetable, so that it does not come to the requisite perfection in a due time. Wheat is subject, in some climates, to a disease of this kind; it vegetates excessively, without ever carrying ripe grain; and the same disease may be artificially produced in any grain, by planting it in too rich a soil. Too much rain is apt likewise to do the same. When a vegetable is supplied too abundantly with juices, it is very apt to rot; one part overshadowing another in such a manner as to prevent the access of fresh air; upon which putrefaction soon ensues, as has been already observed.

55. In grass, or any herbaceous plant, where the leaves only are wanted, this over-luxuriancy cannot be called a disease, but is a very desirable property; but in any kind of grain it is quite otherwise. Dr. Home, in his Principles of Agriculture and Vegetation, classes the smut in grain among the diseases arising from this cause. He says that too great an abundance of juices in a vegetable will produce diseases similar to those occasioned by repletion in animal bodies; viz. stagnations, corruptions, varices, cariosities, &c. along with the too great luxuriancy just mentioned, which he expresses by too great an abundance of water shoots. Hence he is induced to class the smut among diseases arising from this cause; it being a corruption happening most in rainy seasons, and to weak grain.—Like other contagious diseases, he says, the smut may be communicated from the infected to healthful grain. As a preventative, he recommends steeping the grain in a strong pickle of sea-salt. Besides the effect which this has upon the grain itself, it is useful for separating the good from the bad; the best seed falling to the bottom, and the faulty swimming on the top of the liquor.

56. Dr. Home says, dung is a preventative of diseases arising from too great moisture; in proof of which he relates the following experi-

ment. 'Two acres of poor ground, which had never got any manure, were fallowed, to be sown with wheat; but the scheme being altered, some dung was laid on a small part of it, and the whole sowed, after it had got five furrows, with barley. A great quantity of rain fell. The barley on that part which was dunged was very good; but what was on the rest of the field turned yellow after the rains, and when ripe was not worth the reaping.'

57. The want of nourishment in plants may be easily known by their decay. The only remedy is, to supply them with food, according to the methods above directed, or to remove from their neighbourhood such other plants as may draw off the nourishment from them. In the Memoirs of the Academy of Sciences for 1728, M. Du Hamel mentions a disease, which he calls le mort, that attacks saffron in the spring. It is owing to another plant, a species of trefoil, fixing some violet-coloured threads, which are roots, to the roots of the saffron, and sucking out its juice. This disease is prevented by digging a trench, which saves all the unaffected.

58. The bad qualities or unequal distributions of the juices of plants, are the occasion of so few of the diseases to which vegetables in this country are subject, that we need not mention them. Most of the diseases of our plants are owing to external accidents, particularly to the depredations of insects. The insects by which the greatest devastations are committed in this country are, snails, caterpillars, grubs, and flies. The snails and caterpillars feed on the leaves and young shoots, whereby they often totally destroy the vegetable. Where the plants are of easy access, these vermin may be destroyed by sprinkling the vegetable with lime-water; for quicklime is a mortal poison to these creatures, and throws them into the greatest agonies the moment they are touched with it. On trees, however, where this method cannot so well be followed, fumigation is the most proper; and for this purpose nothing is better than the smoke of vegetables not perfectly dry. In some cases the eggs of these destroying creatures may be observed, and ought immediately to be taken away. On fruit trees, as apples, pears, medlars; on some forest-trees, the oak and dwarf-maple especially, and the white and black thorn in hedges, a kind of little tufts are to be observed, resembling, at first sight, withered leaves twisted by a cobweb about the uppermost twigs or branches. These contain a vast number of little black eggs, that in the spring produce swarms of caterpillars which devour every thing. To prevent this, all the twigs on which these cobwebs appear should be taken off and burnt as soon as possible. This ought to be done before the end of March, that none of the eggs be allowed sufficient time for hatching.

59. The grubs are a kind of worms which destroy the corn by feeding upon its roots; they are transformed every fourth year into the beetles called cock-chaffers, may-bugs, &c. They are very destructive when in their vermicular state, and cannot then be destroyed, because they go deep in the ground. When become beetles, they conceal themselves under the leaves of trees, where they seem asleep till near sun-set, when they take their flight. It is only then that they can be destroyed, and by a very laborious method, namely, by spreading pack-sheets below the trees in the day-time, when the beetles are in their torpid state, then shaking them off and burning them. Some time ago they made great devastations in the county of Norfolk, that several farmers were entirely ruined by them; one gathered eighty bushels of these insects from the trees on his farm. In 1574, there fell such a multitude of these insects into the Severn, that they stopped and clogged the wheels of the water-mills.

60. Turnips, when young, are apt to be much destroyed by a multitude of little black flies, thence called the turnip-fly. As a preventative of these, some advise the seed to be mixed with brimstone; but this is improper, as brimstone is poisonous to vegetables. The best method seems to be the fumigation of the fields with smoke of half-dried vegetables. For this purpose weeds will answer. This fumigation must be often repeated, to drive away the innumerable multitudes of these insects which are capable of destroying a large field of turnips. Some suppose that the fly is either engendered in new dung, or enlivened by it; and therefore advise the manure to be laid on in the autumn preceding, by which it loses all its noxious qualities, while its nutritive ones are retained, not being exhaled by the sun. The method is ascertained by experiments; and another material advantage accruing from autumn manuring for turnips is, that all the seeds contained in the dung, and which, being carried on the land with it, vegetate almost immediately, are mostly killed by the cold of winter, and the few that remain seldom escape destruction by the plough-share.

61. The following method of sowing has also been recommended as a preventative of the fly:—'About midsummer, when it rains, or there is an apparent certainty of rain approaching, sow your turnip-seed; if about the full moon, so much better. In this case, neither harrow, brush, nor roll, after sowing. The natural heat of the ground at that season, and the consequent fermentation occasioned by copious rain, will give an astonishingly quick vegetation to the seed, which in a few days will be up and out of danger from the fly. At all events, sow not if it rains; it is better to wait a month, or even longer, for rain, than to sow (merely for the sake of sowing about the usual time) when the ground is parched with heat. By the scorching of the sun, the oil and vegetative quality of the seed are exhausted; and the few weak plants that come up will be destroyed by the fly before they can attain strength to put forth their rough leaves. The fly infests the ground abundantly in dry hot weather, but does no injury in rain. The full of rain will sufficiently wash the turnip-seed into the ground without harrowing it in; which, instead of merely covering, too often buries the small seed at so great a depth, as never afterwards to get above ground.'

62. The following remedies are also recommended as having often proved successful. A small quantity of soot sown over the land at their first appearance. Branches of elder, with

the leaves bruised, drawn in a gate over them. Musk mixed with the seed before it is sown. And sulphur burnt, under it, after moistening it with water in which tobacco has been steeped. But showers on the plants as soon as they appear above ground are esteemed the best preservatives. They enfeeble and kill the fly, and hasten the plants into the rough leaf, when they are out of danger. The sweet smell of turnip has been thought to attract the fly; upon which supposition, the remedy appeared to consist in overpowering that smell by one which is strong, fetid, and disagreeable. Hence it has been recommended, that upon an acre of turnips sown in the usual way, a peck or more of dry soot be thrown after the ground is finished, and in as regular a way as the seed is sown.

63. Some years ago, an insect, called the corn butterfly, committed such ravages while in its vermicular state, in France, that upwards of 200 parishes were ruined by it; and the ministry offered a reward to the discoverer of an effectual remedy against this destroying worm. The cure which was at last discovered, was, to heat the corn in an oven so much as not to destroy its vegetative power, but sufficiently to destroy the small worms which made their nest in the substance of the grain, and at last ate the substance completely. Though insects can bear a great deal of cold, they are easily destroyed by a slight degree of heat; nor is the vegetative power of corn easily destroyed, even kept for a long time in a pretty strong heat. This method must therefore be effectual for destroying all kinds of insects with which grain is infested: but care must be taken not to apply too great a heat; and the adjusting of the precise degree necessary to destroy the insect, without hurting the corn, will require attention.

64. The curled disease in potatoes has long been a subject of investigation and experiment among farmers; and the knowledge of its cause and cure seem yet to remain a desideratum. See Potatoes. The 'Agriculture Society' at Manchester, a few years ago, offered a premium for discovering by actual experiment the cause of the disease in question; and many letters were, in consequence, addressed to them upon the subject. As these contain some interesting remarks, though very little decisive on the subject, we shall give a short extract from them.

Letter I. The writer of the first letter ascribes this disease to an insect produced by frost or bad keeping before setting. In autumn 1776, he got up a bed of potatoes to lay by in winter, leaving plenty in the ground as regular as possible; and, before the severity of winter came on, covered part of the bed with straw and peas-haulm, and left the other part of the bed uncovered. That part of the bed which was covered was quite free from curled ones; but the uncovered part produced many curled, owing, as the writer says, to frost.

II. This writer had about a quarter of an acre of potatoes, well manured with cow and horse dung, and took great care in picking the fine smooth-skinned potatoes for sets; yet nine out of ten were curled. He attributes the cause of this disease to a white grub which he found near the root, about half an inch long, with eight or ten legs, its head brown and hard; as, upon examining a number of the curled roots, he found them all bitten, from the surface to the root, which stopped the progress of the sap, and threw the leaf into a curl. The uncurled were not bitten. First, he put soot to the insects in the rows for two days; and after that, he put lime to them for the same time, but they still kept lively; next he put a little salt, which destroyed them in a few hours. From which he infers, that if coarse salt were put into the ground at the time the land is preparing for potatoes, it would cure this distemper.

III. In this letter, the cause of the disease is attributed to the method of earthing the stems while in cultivation; and it is recommended to take the sets from those potatoes that have not bred any from the branch covered.

IV. According to this writer, the disorder proceeds from potatoes being set in old tilled or worn-out ground. Hence he says, that no sets ought to be used from such land; and that, to have good sets, they should be procured from land that was purposely fallowed for them; from fresh ley land, where they are not curled; or from ley land that was burnt the preceding spring, To make certain of getting good sets, he recommends crabs to be gathered from potatoes growing on fresh land free from curl, and the next spring to sow them on fresh ley land; and coutinue to sow them on fresh ley land yearly. All the good potatoes he saw, either on fresh ley land or on old tilled land, were raised from sets that grew upon fresh ley land last year; and where he has seen curled potatoes, he found, upon enquiry, that the potatoe sets grew upon old tilled and worn-out land last year.

V. In 1772, this writer planted some potatoes by accident full nine inches deep; when taken up, many of the plants were rotted, and a few curled. He kept the whole produce for seed, and planted two acres with it in 1773, not quite six inches deep. The crop was amazingly great; and he did not observe any curled plants among them. In 1774, many of these were planted in different soils; yet they were so infected with the curled disease, that not one in twenty escaped. In 1775, the disease became general. In 1776, it occurred to him that the good crop of 1773 was owing to the accidental deep setting of 1772; and that the reason why the same seed became curled in 1774, was their being set so near the surface in 1773. In 1777, he took some potatoes from a crop that was curled the year before, and after cutting the sets, left them in a dry room for a month. Half were planted in ground dug fourteen days before; the other half having been steeped in a brine made of whitesters ashes for two hours, were also planted in the same land at the same time. The steeped ones came up ten days before the others, and hardly any missed or were curled. The unsteeped ones generally failed, and those few that came up were mostly curled. He therefore advised, First, that the potatoes intended for next year's sets be planted nine inches deep. Secondly, that they remain in the ground as long as the season will permit. Thirdly, That these sets be well defended from frost till the beginning of

March. Fourthly, that the sets be cut a fortnight before planting. Fifthly, that they be steeped, as above, two hours in brine or ley. Sixthly, that the dung be put over the sets. And, seventhly, that fresh sets be got up every year from sandy soils near the coast, or on the shore. At planting, the hard dry sets should be cast aside, for they will probably be curled. Curled potatoes always proceed from sets which do not putrefy in the ground.

VI. This writer had five drills of the old red potatoes, and four of the winter whites, growing at the same time in the same field. The drills were prepared exactly alike. Among the red not one was curled. The winter whites were nearly all curled. He says he has found by experience, that the red never curl.

VII. Two of this writer's neighbours had their sets out of one heap of potatoes. They both set with the plough, the one early and the other late, in the season. Most of those set early proved curled, and most of those set late smooth; the latter on clay land. A few roods of land were also planted with small potatoes, which had lain spread on a chamber floor all the winter and spring till the middle of May. They were soft and withered; they proved smooth and a good crop. Middle sized potatoes, withered and soft, which had been kept in a large dry cellar, and the sprouts of which had been broken off three times, produced a smooth and good crop. Hence he was led to think a superfluity of sap, occasioned by the seed being unripe, might cause the disease. To be satisfied of this he asked the farmer whether he had set any of the same potatoes this year, and what was the nature of his land? He told him, he had; that they had been set on his farm fourteen years without ever curling; that the soil was a poor whitish sand of little depth; that he let those he designed for keeping grow till they were fully ripe. Hence he concludes, the only sure way to prevent the curl, is to let the potatoes intended for seed stand till they are fully ripe, and to keep them dry all the winter.

VIII. This writer set a quantity of red potatoes, without having a curled one amongst them. His method is, when the sets are cut, to pick out such as are reddest in the inside. On digging them up at Michaelmas, he mixes none of the curled seed among the others. The curled are easily distinguished by their stalks withering two months before the rest of the crop. The cause of the curled disease he attributes to potatoes being of late years produced from seed instead of roots, as formerly. Such will not stand good more than two or three years, use what method you please. Last spring he set the old red and white russets, and had not a curled potatoe amongst them. On the lime-stone land about Denbigh, in North Wales, they have no curled potatoes. If this be owing to the nature of that land, perhaps lime might prevent the disease.

IX. According to this writer all sorts of grain wear out and turn wild if sown too long on the same land; the same will hold good in all sorts of pulse, peas, beans, and potatoes. Those who have most curled potatoes generally plant very small sets. Eleven years ago he bought a parcel of fresh sets, of the golden dun kind, and has used them without change to the present year, without any being curled. This he principally attributes to his having always planted good large sets. To prevent the evil, cut the sets from clear and middle sized potatoes, gathered from places as clear of the curl as possible; preserve them till spring; if any are harder, or crash more in cutting than usual, cast them aside. He also recommends the raising a fresh sort from the crab produced on the sorts least affected, which in Lancashire are the long duns.

X. Set potatoes with the sprits broke off, and they will (says the writer of this letter) be curled ones; if set with the sprits on, they will not be curled. Again, take a potatoe which is sprit, and cut an off set, with two sprits; break one sprit off, and let the other stay on, and set it; the former will be curled, and the latter will not. When the potatoes are holed, take them out before they sprit, and lay them dry until you set or sow them, and you will have none curled.

XI. This writer was at the expence of procuring sets from fifty miles distance, and where this disease was not known. The first year's trial was successful; the year following he procured sets from the same place, but one fifth of his crop was infected. By way of experiment, he planted sets from roots which had been infected the year before, and some of these produced healthy plants, free from all infection. He supposed the cause to be some insect, which, living on the leaves, gave them that curled and sickly appearance, as is the case in the leaves of many shrubs and trees; he made the following experiments. On a piece of ground that had not been dug for twenty years, he planted four rows of sets, which he knew to be perfectly clear; the drills were two feet distant, the sets one foot distant in each drill. He then planted on the same ground four rows with sets from curled potatoes, at equal distances; in each row were about twenty sets. Lot I. the curled state. No. 1. Without manure; 2. In salt; 3. In soot; 4. In quicklime. Lot II. the clear sets. No. 1. Without manure; 2. In salt; 3. In soot; 4. In lime. Those planted in salt and soot in both lots were destroyed. In Lot I., No. 1. and 4., all curled. Lot II., No. 1. and 4., quite clear. This experiment was made on a supposition that the insect lodged in the set, and must be destroyed on planting. But of that he is not satisfied. He repeated salt, soot, and quicklime, on the branches of several curled potatoes. Salt destroyed all he touched with it. Lime and soot had a partial effect on the plants. After some time, they appeared almost as healthy as the rest. Thus, although he has done little towards the cure, he flatters himself he has pointed out the cause, the insects on the curled plants being not only very numerous, but visible to the naked eye.

XII. This writer ascribes the cause of the disease to the frost, and bad keeping in winter and spring before setting. They are liable to be damaged by frost after they are set, but this may be prevented by covering. If it be asked, why frost did not injure them formerly; he answers, it is only the *new* kinds which are apt to curl, and less care is now taken of the seed

than formerly. Let them remain in the ground covered with haulm or litter till they are wanted for setting; and, if no frost touches them afterwards, they will be free from the disease.

XIII. This writer says, the red potatoe was as generally planted as the winter white and the Lincolnshire kidney are now. The first, being a later potatoe, did not sprout so early as the others. The white sprout very early, and therefore should first be moved out of the place where they have been preserved in winter. Instead of that, they often remain till their roots and sprouts are matted together. On separating them, the sprouts are generally rubbed off, and they are laid by till the ground is ready; during which interval they sprout again; but these second sprouts, being weak and languid, shrink, sicken, and die; and the fruit at the roots will be small, hard, ill-shaped, and of a brown colour. Now, if pulling off the sprouts once or more, before the sets are put in the ground, be the cause (as he believes it is) of the curled disease, an easy remedy is at hand. When the potatoes intended for sets are dug up, lay them in a west aspect as dry as possible; in such a situation they will not sprout so soon. The best time for removing most sorts is the first fine day after the 24th of February. Cut them into sets, and let them remain covered with dry sand till the ground is prepared, which should be a winter fallow. Lay the sets in without breaking off any of the sprouts, for the second will not be so vigorous. This accounts for one sprout out of three from the same set being curled. The two stems not curled rose from two later eyes, and were first sprouts. The sprout curled was a second, the first having been rubbed off.

XIV. This writer says, that, last spring, one of his neighbours cut and set, by drilling, some loads of the largest potatoes he could procure; and more than half of them proved curled. Being a few sets short of the quantity wanted, he planted some very small potatoes which he had laid by for the pigs. These being fully ripe and solid, there was not a curled plant among them. He thinks the others being curled was owing to their not being fully ripe. A crop of potatoes, set in rows on ground that had borne a crop of them the preceding year, were mostly curled; but many plants came up from seed left in the ground the former season, and there was not a curled one among them.

XV. Of late years, this writer says, great improvements have been made in setting potatoes and cutting the sets. The ground is dressed cleaner and dunged stronger. Many people, in drilling, wrap up the sets entirely in the dung; by which means, though their potatoes are larger, the disease seems to be increased. They also cut their sets out of the richest and largest potatoes, which is perhaps another cause of this evil. In cold countries, where they set their own seed, which has grown on poor land, with less dung, they have no curled plants. On the contrary, when they bought rich and large potatoes for seed, they have been curled in great quantities. He believes the richness and largeness of the seed to be the cause of the evil; for he does not remember to have seen a curled stem which did not spring from a set of a large potatoe.

XVI. This writer apprehends the curled disease in potatoes to proceed from a defect in the *planta seminalis*, or seed-plant; and from comparing curled ones with others, there appeared to be a want of, or inability in the powers of expanding or unfolding the parts of the former; which, from this defect, forms shrivelled, starved, curled stems. On examining some of the sets at the time of getting the crop, he found them hard and undecayed; so hard, indeed, that some of them would not be soft with long boiling. Some have thought that the fermentation is occasioned by too great quantities being heaped together; but this writer has seen an instance, wherein a single potatoe, preserved by itself, when set, produced stems of the curled kind. He thinks the disease is occasioned by the potatoes being taken from the ground before the stamen, or miniature plant, is properly matured and ripened. For the potatoe, being a native of a warm climate, has there more sun, and a longer continuance in the ground, than in its exotic state; consequently, it has not the same natural causes to mature the seed-plant as in its native state. We ought, therefore, to give all the opportunities our climate will admit for nature to complete her work, and fit the stamen for the next state of vegetation, especially in those intended for seed. But if the potatoe be taken up before the seed plant be fully matured, or the air and sap vessels have acquired a proper degree of firmness or hardness, it must, when thus robbed of further nutrition, shrivel up; and when the vessels, in this immature state, come to act again in the second state of vegetation, they may produce plants which are curled. Before the present mode of setting them took place, people covered them, while in the ground, with straw, to protect them from frost. If it be asked, why one set produces both curled and smooth stems? he answers, we suppose every eye to contain a *planta seminalis*; that all the embryos or seed plants, contained in one potatoe, are nourished by one root; that, as in ears of corn, some of these seed plants may be nourished before others. One of his neighbours, last year, set two rows of potatoes, which proving all curled, he did not take them up; and this year there is not a curled one among them. Such potatoes, therefore, as are designed for seed, should be preserved as long in the ground as possible.

XVII. This writer advises such sets to be planted as grow in moss land; and, he says, there will not be a single curled one the first year. This is affirmed by the inhabitants of two townships, where they raise amazing quantities. A medical gentleman sowed the one year two bushels of sets from one of the above places; and had not one curled; but on sowing them again the following year he had a few.

65. Although there seems to be a diversity of opinions among the above writers, occasioned by the different appearances of their crops, and respecting the means proper to prevent or cure the disease, the following general propositions may be fairly drawn from the whole: 1. That some

kinds of potatoes are (cæteris paribus) more liable to be affected by the disease than the rest; and that the old red, the golden dun, and the long dun, are the most free from it. 2. That the disease is occasioned by one or more of the following causes, either singly or combined: First, by frost, either before or after the sets are planted: Second, From planting sets out of large unripe potatoes: Third, From planting too near the surface, and in old worn-out ground: Fourth, From the first shoots of the sets being broken off before planting; whence there is an incapacity in the planta seminalis to send forth others sufficiently vigorous to expand so fully as they ought. 3. That the most successful methods of preventing the disease are, cutting the sets from smooth middle-sized potatoes, that were fully ripe, and had been kept dry after they were taken out of the ground; and, without rubbing off their first shoots, planting them pretty deep in fresh earth, with a mixture of quicklime, or on lime-stone land.

66. A correspondent of the Bath Society is convinced, that, whatever may be its cause, the fault itself is inherent in the seed; and has communicated the following method of avoiding it: 'I made a hot bed in the following manner, which method I have used ever since: I laid horse dung, &c. as in making hot beds, about eighteen inches thick; over which I spread a layer of fine rich mould about four or five inches thick; upon the top of this I laid, in different divisions, a certain number of potatoes of various sorts, some of my own growth, and others brought from different parts, and covered these lightly over with more mould; they soon came up. I then observed which was freest from the blight or curl; for if there were not more than one defective in forty or fifty, I concluded I might set of that sort with safety. This method I have now practised near twelve years, and never lost my crop, or any part thereof worth mentioning; whilst my neighbours, who followed the old method, were frequently disappointed in their crops; and to the best of my knowledge, all those of my neighbours who have of late been persuaded to take the trouble of using the same means as myself, have never failed of success in one instance; nor do I ever think it will fail, if duly attended to; the fault being some hidden cause in the seed, unknown at present, and I believe incurable by any means, at least which have yet come to my knowledge. My reason for planting my hot bed so soon is, that if the frost hinders the first experiment, or they all prove bad, I may have time to make a second or third with different sorts of seed, before the proper season arrives for planting in the fields and grounds appointed for the great and general crop.'

67. The principles of agriculture may be reduced to a very small compass, viz. imitating the native habitations and propagating the species of the several plants. To improve their qualities, as also to increase their number, the chief thing requisite is, to facilitate their mode of nutrition, by removing all obstacles, by draining, and numerous other operations above and below the soil; also by supplying food, as by manuring, &c. The manure best adapted is decayed plants of their own species; some containing peculiar substances in their composition, as wheat for instance, which contains gluten and phosphate of lime. It is also important to ameliorate the climate, by increasing or diminishing its temperature, according to the nature of the plant: to shelter and shade some species of vegetables by means of walls, hedges, banks, or sloping surfaces, to receive more directly or indirectly the solar rays, with numerous other iota, which a slight practice of agriculture will suggest; as thinning away the leaves immediately overshadowing fruits and flowers, blanching, shading cuttings, seeds, &c.; imitating, by artificial applications of water, the dews and showers of heaven; cutting ridges for surface drainage conduits, &c. To improve the quality, and increase the number of particular parts of vegetables, it is needful frequently to amputate all other parts that are unnecessary, as in pruning the vine; and to form new varieties, we must take advantage of their sexual difference, and imitate the example of animal nature in crossing the breed.

68. Preservation of Fruits.—In the preservation of the fruits, when produced, considerable judgment is necessary. The great object is to prevent, as long as possible, the process of chemical de-composition. The air around depriving them of their carbon, the moisture within enfeebling the affinity of their component elements; and together with heat tending greatly to promote their de-composition; potatoes, turnips, &c. are best preserved by drying them in the sun, and burying them in a dry soil, a few degrees above the freezing point of temperature. By drying in the sun, and afterwards burying in dry cool pits, closed, so as to shut out the air, some may be effectually preserved for many years; the internal air becoming carbonic acid gas, in which no animal can live, and in which without oxygen, no seed will vegetate.

69. Drying in ovens answers the same purpose as drying in the sun, and is one of the most obvious modes of preserving vegetables for use: it destroys, however, in most cases, the principle of life in seeds, as also in the roots and sections of the shoots of ligneous plants, and thus prevents the possibility of future germination. It is of capital importance in preservation, after the vegetables are thoroughly dried, so to bury them, as effectually to exclude the atmospheric air, by which means, not only decomposition is prevented, but the ravages of insects, vermin, and even vegetation. It was no proof of the skill of our ancestors, when they changed this practice of the ancients, for the less successful mode of enclosing in granaries and storehouses. The Romans preserved their corn in chambers hewn out of dry rock, a practice, the advantages of which, set forth by their most valuable writers, are justified by modern experience. The Moors, from time immemorial, have been accustomed to bury their corn in the sides of hills, by which famines have been frequently prevented, and supplies readily obtained after the

most deleterious seasons. The Chinese at the present time bury their store-grain in deep pits in dry soil, a practice which has distinguished them from the earliest history. The origin of these expedients, are all obvious imitations of what commonly takes place in nature: they are applications of natural principles of which the whole circle of sciences, with all the numerous modifications and practises founded upon them, are but a varied development, and as such, may be satisfactorily explained by chemistry and physiology. The instinct of animals has guided men of genius in many cases to the discovery of them; as in the winter store of the hedge-hog, in the repository of the ant, whilst the successful preservation of vegetable substances on this inferior scale, has demonstrated their practical importance more effectually than a thousand arguments.

70. MINERALOGY.—Our next object in the present article, will be to exhibit the science of agriculture in its immediate connexion with the mineral kingdom, including all the primary elements concerned in vegetation. Earths are the production of rocks, exposed on the earth's surface; and soils are earths mixed with certain proportions of the de-composed matter, arising from the bodies of dead plants and animals. With respect to its geological structure, the under surface of the earth presents four distinct species of rocky substances. The first, consisting chiefly of granite and marble, are called primitive; and are supposed to be co-eval with the formation of the world. The second series, sometimes called transition rocks, appear to be of more recent formation; and are probably the result of some great catastrophe. Of these, clay-slate is the most remarkable, to which may be added, trap or whinstone, sandstone, &c. Secondary rocks, as sandstones, limestones, conglomerations of fragments of other rocks, &c. form a third series. They probably owe their formation to local revolutions, and are indicated by their soft fragile texture, superincumbent situation, and horizontal position. The fourth and last series consists of irregular strata, of alluvial or earthy depositions from water assuming the modification of immense beds of clays, sands, or marls. Earths are variously composed according to the rocks or strata from which their elementary particles have been derived. Those formed from slate-rocks commonly assume the modification of blue clays; those from sandstones are called siliceous throughout their several varieties. The additions made by the decay of animal and vegetable substances, have given rise to the appellation of soils, which differ from earths inasmuch as they contain a greater or less portion of animal or vegetable matter. They are also distinguished by their friable texture, dark colour, and by the presence of some vegetable fibre or carbonaceous matter. The depth of soil upon cultivated grounds is only a few inches below the surface, unless in crevices where they have been carried by the rains.

71. SECT. II.—A GENERAL VIEW OF SOILS, AND THEIR CULTIVATION. Soils are divided into two grand classes, primitive and secondary; the former consisting chiefly of inorganic matter, the latter of both organic and inorganic in mixtures. These two classes may be subdivided into orders depending on the presence or absence of saline, metallic, and carbonic matter. These orders form certain genera, calculated from the prevailing metals, earths, salts, carbon, &c. The species, the next inferior to the genera, is founded on their various mixtures. Varieties dependent upon colour or texture form component divisions of the species and sub-varieties of the varieties, according to the relative dryness, richness, brightness, moisture, &c. To determine the genera of soil, the first thing is to ascertain the prevailing earth or earths, as clay, sand, lime, &c. or the particular rocks from which the soil has been produced, as basalt, granite, &c. The earths that prevail supply the generic name of the soil, as the calcareous soil, clayey soil, &c., but when two prevail equally, the names of both must be conjoined, basalt and sand, clay and sand, &c. Precision in the application of the terms greatly facilitates a knowledge of the subject. No soil should be called sandy that does not contain seven-eighths of sand, and if effervesing with acids should be called calcareous sandy soil, in opposition to that which is siliceous. Clayey soil should denominate land containing not less than one-sixth of impalpable earthy matter, freely effervescing with acids. Peaty soil should contain one-half or more of vegetable matter. When the soil is composed of the decomposed matter from one particular rock, the name of that rock may be applied. On this principle fine red earth, found above decomposing basalt, may be called basaltic soil; that in which quartz, and mica are abundant, may be denominated granitic soil, &c. Alluvial soil, or those formed by the depositions of rivers, are commonly the most difficult to define, but may be for the most part designated by the terms siliceous, calcareous, argillaceous, &c., in some cases saline. The species of soil is determined by the mixture of matters rather than by the colour or texture, the latter being the characteristic distinctions of varieties. A clayey soil, with sand, is denominated a sandy, clayey species; if yellow, it might be called a yellow sandy clay, which would express the genus, species, and variety. A soil containing equal parts of clay, lime, and sand, would be called clay, lime, and sand entire; or to express at the same time its varieties, it might be called a brown, stiff, free, fine, or coarse entire clay, lime, and sand. The common genera, species, and varieties of soils, are enumerated in the following table.

Class.	Order.	Genus.	Species.	Variety.	Sub-variety.
EARTHS.	PRIMITIVE SOILS.	Earths . .	Clay . . .	Entire	Black	Wet—dry—rich—poor—sterile.
					Red and yellow . . .	Wet, dry, &c.
					Coarse and fine	Wet, dry, &c.
			Lime . .	Entire	Black, red, yellow, fine, &c.	Wet, dry, rich, &c.
			Sand . .	Entire	Black, red, yellow, fine, &c.	Wet, dry, &c.
		Earths and salts, or metals.	Clay . . .	Cupreous	Black, red, &c.	Wet, dry, &c.
				Ferruginous	Black, red, yellow, fine, &c.	Wet, dry, &c.
				Saline	Black, red, &c. . . .	Wet, dry, &c.
			Lime . .	Cupreous and ferruginous	Black, red	Wet, dry, &c.
				Saline	Black, red, yellow, fine, &c.	Wet, dry, rich, &c.
			Sand . .	Cupreous	Black	Wet.
				Ferruginous	Black, red, yellow, fine, &c.	Wet, dry, rich, &c.
				Saline	Black	Wet, dry, &c.
	SECONDARY SOILS.	Earths with organic remains.	Clay . . .	Limy	Black	Wet.
				Loamy	Black, red, yellow, &c. .	Wet.
				Mouldy	Black, red, yellow, &c. .	Wet.
				Peaty and sandy . .	Black	Wet.
			Lime . .	Clayey	Black, red, yellow, &c. .	Wet.
				Loamy and mouldy .	Black	Wet.
				Peaty and sandy . .	Black	Wet.
			Sand . .	Clayey and limy . .	Black	Wet.
				Loamy	Black	Wet.
				Mouldy and peaty . .	Black	Wet.
		Earths with organic remains, metals, salts, and rocks.	Basalt . .	Columnar	Black	Wet.
				Ferruginous	Black, red, yellow, &c. .	Wet, dry, &c.
				Whinstone	Black	Wet.
			Clay . . .	Cinerous, loamy, &c. .	Black	Wet.
				Cupreous, loamy, &c. .	Black	Wet.
				Ferruginous, limy, &c.	Black	Wet.
				Ferruginous, loamy, &c.	Black	Wet.
				Ferruginous, mouldy, &c.	Black	Wet.
				Ferruginous, peaty, &c.	Black	Wet.
				Ferruginous, sandy, &c.	Black	Wet.
				Saline, loamy, &c. . .	Black	Wet.
			Coal . . .	Pyritic, &c.	Black	Wet.
				Slaty, &c.	Black, red, yellow, &c. .	Wet, dry, rich, &c.
				Stony, woody, &c. . .	Black	Wet.
			Granite .	Ferruginous, &c. . .	Black, red, yellow, &c. .	Wet, dry, &c.
				Quartzose, &c. . . .	Black	Wet.
			Lime . .	Cinerous, limy, &c. .	Black	Wet.
				Cinerous, loamy, &c. .	Black	Wet.
				Cupreous, loamy, &c. .	Black	Wet.
				Cupreous, sandy, &c. .	Black	Wet.
				Ferruginous, loamy, &c.	Black	Wet.
				Ferruginous, sandy, &c.	Black	Wet.
				Saline, loamy, &c. . .	Black	Wet.
				Saline, sandy, &c. . .	Black	Wet.
			Limestone	Chalky, &c.	Black, red, &c.	Wet, dry, &c.
				Cupreous, &c. . . .	Black	Wet.
				Argillaceous, &c. . .	Black	Wet.
				Ferruginous, &c. . .	Black	Wet.
				Magnesian, &c. . . .	Black	Wet.
				Marble, &c.	Black	Wet.
				Shelly, &c.	Black	Wet.
				Siliceous, &c. . . .	Black	Wet.
				Sulphuric, &c. . . .	Black	Wet.
			Sand	Cinerous, limy, &c. .	Black	Wet.
				Cinerous, loamy, &c. .	Black	Wet.
				Cupreous, limy, &c. .	Black	Wet.
				Cupreous, loamy, &c. .	Black	Wet.
				Ferruginous, limy, &c. .	Black	Wet.
				Ferruginous, loamy, &c.	Black	Wet.
				Saline, limy, &c. . .	Black	Wet.
				Saline, loamy, &c. . .	Black	Wet.
			Sandstone	Argillaceous, &c. . .	Black	Wet.
				Calcareous, &c. . . .	Black	Wet.
				Cupreous, &c. . . .	Black	Wet.
				Ferruginous, &c. . .	Black, &c.	Wet, &c.
			Schist . .	Chlorite, &c.	Black	Wet.
				Ferruginous, &c. . .	Black, red, yellow, &c. .	Wet, &c.
				Micaceous, &c. . . .	Black	Wet.

73. Discovering Qualities of Soils.—The different qualities of soils and the consequent value to the cultivator, are discovered botanically by the natural plants produced upon them; chemically by analysis; and mechanically by handling them.

74. The plants that grow upon the soil decide, in the opinion of the farmer, its agricultural value with more popular certainty than even chemical analysis. The most valuable soils for the farmer distinguished by their several plants are the following: *Argillaceous*, distinguished by thalictrum flavum, carex, many species; juncus, various species; tussilago farfara, potentilla anserina, argentea, reptans, and others. The tussilago farfara is an universal symptom of an argillaceous soil. *Calcareous soil* produces gallium pusillum, veronica spicata, lithospermum officinale, purpuro-cæruleum, campanula glomerata, and hybrida, cistus helianthemum, clematis vita alba, &c. *Silicious soil* bears the veronica tiriphyllus, and verna, arenaria rubra, &c. silena anglica, and other species. *Ferruginous soil* produces the rumex acetosa, and acetosella. *Peaty soil* bears vaccinium myrtillus, uliginosum and oxycoccus: erica four species, tormentilla officinalis. *Saline soil* produces the zostera marina, pulmonaria maritima, convolvulus soldanella, arenaria maritima, &c. *Aquatic soil* bears caltha palustris, hippuris vulgaris, lythrum salicaria, samolus valerandi, &c. *Dry soils* are distinguished by the rumex acetosella, trifolium arvense, acinos vulgaris, thymus serpyllum, arenaria rubra, &c. Some of these plants afford, it is to be confessed, an evidence not always to be depended upon; but the saintfoin is an evidence of a calcareous soil; coltsfoot (*Tussilago farfara*) of blue clay; arenaria rubra of poor sand; the small wood-sorrell of the presence of iron and peat; arundo phragmites (*the common reed grass*), polygonum amphibium (*the common pond weed*), grow in good alluvial soil; whilst the equisetum arvense (*field horse tail*), indicates a cold retentive subsoil. Anagallis arvensis, sherardia arvensis, lithospemium arvense, and fedia olitoria, i. e. *field pimpernell, field madder, corn gromwell, and lambs lettuce*, grow in cultivated black loamy soil, on a dry bottom. Soil of this description, when wet, produces the stachys palustris, or (*clown's all heal*). The presence of the red dead nettle (*lamium purpureum*) evinces a light sandy soil, as also the shepherd's purse, (*thalspi bursa pastoris.*) Where the parsley piert, (*aphanes arvensis*) is found, the soil is unproductive; where the corn spurry (*spergula arvensis*) grows thick, the ground has been too much harrowed. Where the common ragwort and the cornthistle (*senecio jacobæa, and serratula arvensis*) grow freely, the soil generally is fertile consisting of light strong loams. It is, however, the whitlow grass, and the common knawell, (*draba muralis, and scleranthus annuus*) which indicate extremely poor, dry, and sandy soil. The common rest harrow, (*ononis hircina*) is often found on dry pasture, and where the soil is incumbent on rotten rock. Considerable dependence is to be placed on those plants which are common to aquatic, peaty, and saline soils, as indicating their several qualities.

75. Quality of Soil evinced by Chemical Analysis.—The discovery of the qualities of soils by chemical analysis is extremely difficult, and is seldom performed successfully by the cultivator. In selecting specimens, care should be taken to procure them from different situations. When the field is in one part calcareous, and in another silicious, the portions should be separately submitted to experiment. From two to four hundred grains is the proper quantity for a perfect analysis, which should be taken in fair weather, and when perfectly dry, preserved in phials, closed with ground glass stoppers, till the period of examination. The soil best for culture according to the analysis of Bergman, contains four parts of clay, three of sand, two of calcareous earth, and one of magnesia. Kirwan observes, that the fertility of the soil depends much upon its capacity for retaining water. The ingredients of the soil, however, do not always correspond to the nature of the climate; the quantity of rain that fertilizes a wet soil, cannot be equally suited to a dry one. Silica in the soil exists under the modification of sand, alumina under that of clay. Soils in which the sand preponderates, are called dry, retaining the least moisture: those in which clay preponderates, retaining the greatest portion, are called wet. Before either of them are capable of culture, the excess must be retrenched, or the defect supplied. Besides the above, the properties of soil may be ascertained mechanically. Its specific gravity may be ascertained by introducing into a phial known to contain a certain weight of water, equal volumes of water, and of soil; to do which, it is necessary to pour in the water first, till the vessel is half full, and then put in earth till it reaches the brim. The difference between the weight of the soil and water will be the result. Thus, if a bottle which holds 400 grains of water, gains 200 grains when half filled with water, and half with soil; the specific gravity of the soil is 2; that is, it will be twice as heavy as water. Clay in any soil may be known by its tenacity; sand by its roughness. Calcareous matter in soil is known by its effervescing freely upon meeting with an acid. The presence of organized matter in soil, may be ascertained by weighing it when it is perfectly dry; and after having subjected it to a red heat, weighing it again, which will give the proportion of organic matter. Metallic oxydes in soil may in general be known by their colour. Ferruginous soils are red and yellow; cupreous soils are interspersed with greenish streaks; salt, coals, sulphur, &c. may be known by the appearance of the water in such soils, and also by the peculiarity of vegetation.

76. Uses of Soil.—Earths are of no further service to plants than providing them with a medium by which they fix themselves to the globe; and even the portions of earth taken up into them by vegetation, are not convertible to any other substance; and are supposed to afford the plant nothing but firmness of organization, as wheat, oats, and many hollow stalked grasses, have an epidermis of earth to defend them from the attacks of insects and parasitical plants. Plants are nourished exclusively by means of water and

decomposing organic matter. Earths, nevertheless, retain the water, and supply it to the roots; they also afford the means of distributing the proper nutriment; supply, as they are wanted, those parts which are soluble, and prevent the too hasty decomposition. Notwithstanding soils are the genial aliment and support of plants, yet, from their numerous variety of roots, they require a corresponding variety of soil. Roots that are bulbous require a loose soil; such as are fibrous, one more solid, and those possessing short fibrous radicles, a soil considerably more compact and firm than those that have extensive lateral roots. Finely divided matters not only give tenacity and coherence to the soil, but greatly promote vegetation, a small quantity being sufficient to fit the soil for the production of barley or turnips. The latter have been produced upon a soil, eleven parts out of twelve of which, have been sand, and the remainder of vegetable or animal matters. Impalpable matters, however, must not be in too great a proportion. In order to promote the growth of vegetables friability and a looseness of texture are requisite in the soil; so that the water, not lying in the soil in a state of aggregation, but being suspended in it, as water in a sponge, may have free access to the fibres of the root, communicated by capillary attraction. And since alumina possesses the properties of adhesiveness, and silex those of friability, in an eminent degree, it is evident that a due mixture of both is requisite to adapt the soil to the common purposes of cultivation. The absorbent power of soil by cohesive attraction, depends in some degree upon the division of its parts, and is highly necessary to fertility, because moisture absorbed from the atmosphere, counteracts the effect of daily evaporation, and supplies the plant with moisture in the dryest seasons.—Stiff clays, which, like pipe-clays, take up the greatest quantity of water when poured upon them in a fluid form, are not the soils that in dry weather absorb the most from the atmosphere, because they cake, and present only a surface containing the absorbent power. To answer this purpose, a due mixture of sand, clay, carbonate of lime, and organized matter, are necessary to give that looseness and lightness that shall render it permeable to the atmospheric air. Regard is, however, to be had to the site and climate in which the soil is situate; the nature and contiguity of the inferior strata, declivity of position, frequency of showers, moisture of climates, &c. exerting considerable influence.

77. The division of soils into cold and hot is extremely natural: some are more heated by the sun than others; and others, though equally heated, cool in different times. Clayey soils, being clammy and moist, are heated with difficulty, and some cool chalks are difficultly heated, but retain it longer. The soils most heated by exterior causes, are perhaps black, containing much soft organized matter; coloured soils, under the same circumstances, absorb a greater degree of caloric than those of a pale complexion, especially those possessing a considerable proportion of carbonaceous or ferruginous matter. In dry soils, those that are heated with the greatest facility, cool the most rapidly; but the darkest coloured dry soil, containing a considerable mixture of decomposed matter, cools much more slowly than a clammy, pale, earthy soil. Besides the above soils are often characterized from the relative proportion of chemical agency which they contain, earths and earthy carbonates having a degree of attraction for many of the principles of vegetable and animal substances. If an aqueous solution of alumina be mixed with a solution of soap, the oily matter and alumina will unite, and forming a white powder, will sink to the bottom of the fluid. On the same principle, the extract from decomposing vegetable matter, boiled with pipe-clay or chalk, forms a combination by which vegetable matter is rendered more difficult of decomposition. Soils which contain considerable alumina and carbonate of lime, have considerable action of this kind, and from this chemical energy in the preservation of manures and other vegetable nourishment, are denominated rich soils. With siliceous sands, it is quite the reverse. The vegetable and animal matters they contain, not subject to attraction as above, are more liable to decompositive evaporation. In the case of black and brown moulds, the extract is combined with an extractive matter, which, derived from the decomposition of vegetables, is of primary importance in vegetation.

78. The quality of the subsoil is often of as much importance as that of the soil itself: it may be classed under two heads; first, where it is of the same description as the upper soil, but differing from it only in not having been loosened by ploughing, &c. and enriched by manure; secondly, where it differs in its nature from the upper soil: in this case, it is almost always of inferior quality. The much-agitated question—whether deep ploughing, or ploughing beyond the usual depth, is beneficial or not, must depend for its solution on the nature of the subsoil, and of the climate. The immediate effect of deep ploughing in all cases, must be injurious; but the injury will soon pass away where the subsoil is of the same nature as the upper soil; whereas, if the subsoil differs materially in quality from the upper soil, especially where, as is generally the case, when it does differ, it is impregnated with the oxyde of iron, there is great hazard in deep ploughing; and the mischief can be eradicated only by much labour and expence, by frequent exposure to the air, the application of lime, &c. and by draining.

79. Soils, Improvement of.—For the improvement of soils numerous methods have been devised. 1. Pulverization; this is needful in the best of soils, to facilitate the admission of air, rain, and the warmth of the atmosphere, &c. The first object of this is to give scope to the roots of vegetables, on the numerous fibres of which the prosperity of every plant in a great measure depends; and also to increase the capillary attraction of the soil by which its moisture is more uniformly applied. Water being essential to the growth of plants, not only by its immediate application as a fluid, but by that operation by which it facilitates the extraction of vegetable matters, the soil, if not naturally so, should be so constituted artificially, as to retain a requisite portion; for the want of water will impede

the germinating principle, and render even manure an ineffective auxiliary. The different species of earths being among the worst conductors of heat, it is necessary to lay the land open, and by the free ingress of the warm air, and tepid rains of spring, artificially increase its temperature. Pulverization also contributes to the increase of vegetable food, conveys water, and with it carbonic acid gas, to the roots of vegetables; accelerates the putrefaction of vegetable and animal substances by the combined action of heat, light air, and moisture; buries a portion of the atmospheric air in the soil: in short, so numerous are its advantages, that Tull and others conceived no other assistance to be necessary. No principles, however, admit of indiscriminate application; for while the pulverization of some lands contributes to their improvement, there are others that require consolidation.

80. The practice of fallowing is attended with numerous advantages to soils; the weather has free admission to their interior parts; the soil is thus heated to a degree which would be impossible, while covered with foliage: weeds are in a great measure eradicated, and the top, bottom, and middle of the soil more effectually blended. Where fallows are judiciously applied, and the land, by frequent ploughing and harrowing, left for twelve months in a state of constant tillage and movement, the profits will amply repay both the trouble and expence. Soils are to be altered by the addition of those ingredients in which they are deficient; and the subtraction of those in which they abound. Thus, a soil strongly impregnated with sulphate of iron, will be sterile; but it is to be improved by the application of quick lime: also a soil containing too great a proportion of peat, drifted sand, gravel, &c. is to be improved by taking them away, as the most simple and effectual mode.

81. The soils improved by the burning process, are those which contain too much dead vegetable fibre; and which, in consequence, lose from one third to one half their weight by torrefaction; and those which contain a super-abundance of stiff clays and marls; but poor sandy soils are injured by this process. The common advantages of incineration are, that it renders the soil not only less compact, but less tenacious, and retentive of moisture; affording considerable improvement to such as are cold and damp. It diminishes the coherence, and tenacity of clays, and destroys useless vegetable matter, converting it to manure. The water of the soil should be withdrawn when abundant, and when deficient should be supplied. Stagnant water is exceedingly pernicious to all classes of useful plants. Springs are more injurious than surface water, as being colder and generally permanent. Hence the propriety of under-draining, &c. as well as removing every obstacle that would prevent the percolation of water to the strata below.

82. The great art of irrigation is to imitate nature in all her various modes of communicating moisture; observing especially, to apply water in the morning and evening, at moderate intervals, and under a clouded sky. It may be applied by surface or subterraneous irrigation. Employed too often, it would have the same effects as attend stagnant water, land springs, or aquatic soils, and administered after hot sunshine, or after violent heats, would check evaporation, and destroy life. That water which breeds the best fish, is in general the best for watering meadows; and often the imitation of the overflowing of alluvial lands, may be in many cases successfully employed to manure and enrich the soil. Shading, sheltering, &c. whether by walls, hedges, or plantations; changing the condition of lands, with respect to solar influence, by erecting mounds, forming slopes, so that the surface may be more or less at right angles with the plane of the sun's rays, have frequently a very beneficial influence upon the quality of the soil.

83. PRINCIPLES OF ROTATION. Growing different crops in succession approves itself to the practical cultivator, however much its propriety may be questioned by the pertinacity of chemical refinement. The principles of this rotation, as laid down by the most eminent agriculturists, are: First. That every plant exhausts the soil. Second. That all plants do not exhaust the soil equally. Third. Plants of different kinds do not exhaust the soil in the same manner. Fourth. All plants do not restore to the soil the same quality or quantity of manure. From these principles the following inferences have been drawn. 1. That no soil, however well it may be prepared, can long nourish crops of the same kind in succession. 2. Every crop exhausts the soil more or less, as more or less is restored by the plant cultivated. 3. Such plants as root perpendicularly, and such as root horizontally ought to succeed each other. 4. Those plants favourable to the growth of weeds, ought not to succeed each other; nor should plants of the same kind return too speedily in rotation. 5. Plants remarkable for exhausting the soil, as the grains and oil-plants, should be sown only when the land is in a proper state. 6. In proportion as a soil exhausts itself by successive crops, it should be sown with such plants as exhaust but little. The application of these principles to practical farming will be given under the article Husbandry. A few general observations, however, on the two grand divisions of crops cultivated by the farmer may be added, as the due alternation of these, forms the most simple and fundamental principles on which every rotation ought to proceed. The crops raised by the farmer are of two kinds, culmiferous and leguminous, differing widely from each other. Wheat, rye, barley, oats, rye-grass, are of the first kind; of the other kind are, peas, beans, clover, cabbage, and many others.

84. Culmiferous plants, says Bonnet, have three sets of roots. The first issue from the seed, and push to the surface an upright stem; the second set issue from a knot in that stem; and a third from another knot, nearer the surface. Hence the advantage of laying seed so deep in the ground as to afford space for all the sets. Leguminous plants form their roots differently. Peas, beans, and cabbage, have a store of small roots, all lifting from the seed, like the outermost sets of culmiferous roots; and they have no other roots. A potatoe and a turnip

have bulbous roots. Red clover has a strong tap root. Some plants rob the soil, others are genial to it. Culmiferous plants, having small leaves and few in number, depend mostly on the soil for nourishment, and little on the air. During the ripening of the seed they draw their nourishment from the soil, as the leaves, by this time being dry and withered, must have lost their power of drawing nourishment from the air. Culmiferous plants are chiefly cultivated for their seed, and are not cut down till the seed be fully ripe. But such plants, while young, are all leaves; and in that state draw most of their nourishment from the air. And the foggage, excluding the frost by covering the ground, keeps the roots warm. A leguminous plant, by its broad leaves, draws much of its nourishment from the air. A cabbage, which has very broad leaves, and a multitude of them, owes its growth more to the air than to the soil. A cabbage cut and hung up in a damp place, preserves its verdure longer than other plants. A seed is that part of a plant which requires the most nourishment; and for that nourishment a culmiferous plant must be indebted entirely to the soil. A leguminous crop, on the contrary, when cut green for food, must be very gentle to the ground. Peas and beans are leguminous plants; but being cultivated for seed, they seem to occupy a middle station; their seed makes them more severe than other leguminous crops cut green; their leaves, which grow till reaping, make them less severe than a culmiferous plant left to ripen.

85. These plants are distinguished no less remarkably by the following circumstance: All the seeds of a culmiferous plant ripen at the same time. When they begin to form, the plant becomes stationary, the leaves wither, the roots cease to push, and the plant when cut down is blanched and sapless. The seeds of a leguminous plant are formed successively; flowers and fruit appear at the same time in different parts of the plant. This plant accordingly is continually growing, and pushing its roots. Hence the value of bean or peas straw above that of wheat or oats; the latter is withered and dry when the crop is cut; the former green and succulent. The difference therefore, with respect to the soil, between a culmiferous and leguminous crop, is great. The latter, growing till cut down, keeps the ground in constant motion, and leaves it to the plough loose and mellow. The former gives over growing long before reaping; and the ground by want of motion, turns compact and hard. Nor is this all. Dew falling on a culmiferous crop after the ground begins to harden, rests on the surface, and is sucked up by the next sun. Dew that falls on a leguminous crop, is shaded from the sun by the broad leaves, and sinks at leisure into the ground. The ground accordingly, after a culmiferous crop, is not only hard, but dry; after a leguminous crop, it is not only loose, but soft and unctuous.

86. Of all culmiferous plants, wheat is the most severe, by the long time it occupies the ground without admitting a plough. And as the grain is heavier than that of barley or oats, it probably requires more nourishment. Culmiferous crops are not robbers when cut green; the soil, [illegible] from hardening, is kept in constant motion [illegible] the pushing of the roots, and is left more [illegible] than if it had been left at rest without any [illegible] ing crop. Bulbous-rooted plants are peculiar useful in dividing and pulverizing the soil. Potatoe roots grow six, eight, or ten inches [illegible] the surface; and by the size and number, [illegible] divide and pulverize the soil better than [illegible] plough; consequently, whatever be the natural colour of the soil, it is black when a potatoe crop is taken up. The potatoe, however, with respect to its quality of dividing the soil, must yield to a carrot or parsnip; which are long roots, and pierce often to the depth of eighteen inches. The turnip, by its tap-root, divides the soil more than can be done by a fibrous-rooted plant; but as its bulbous root grows mostly above ground, it divides the soil less than the potatoe, the carrot, or the parsnip. Red clover, in this respect, may be put in the same class with turnips.

87. Whether potatoes or turnips be the most gentle crop, is a puzzling question. The former bears seeds, and probably draws more nourishment from the soil; potatoes divide the soil more than turnips, and leave it more loose and friable. It appears no less puzzling, to determine between cabbage and turnip; the former draws more of its nourishment from the air, the latter leaves the soil more free and open. The result of the whole is that culmiferous plants are robbers; some more, some less; they at the same time bind the soil; some more, some less. Leguminous plants in both respects are opposite; if any of them rob the soil, it is in a very slight degree; and all of them without exception loosen the soil. A culmiferous crop, however, is generally the more profitable; but few soils can long bear the burden of such crops, unless relieved by interjected leguminous crops. These, on the other hand, without a mixture of culmiferous crops, would soon render the soil too loose.

88. These preliminaries will carry the farmer some length in directing a proper rotation of crops. Where dung, lime, or other manure can be procured in plenty to recruit after severe cropping, no rotation is more proper or profitable in a strong soil than wheat, peas or beans, barley, oats, fallow. The whole farm may be brought under this rotation, except so far as hay is wanted. But as such command of manure is rare, it is of more importance to determine what should be the rotation when no manure can be procured but the dung collected in the farm. Considering that culmiferous crops are the more profitable in rich land, it would be proper to make them more frequent than the other kind; but as there are few soils in Scotland that will admit such frequent culmiferous crops without suffering, it may be laid down as a general rule, that alternate crops, culmiferous and leguminous, ought to form the rotation. Nor are there many soils that will stand good, even with this favourable rotation, unless relieved from time to time by pasturing a few years. If such extended rotation be artfully carried on, crops without end may be obtained in a tolerably good soil, without any manure but what is produced in the farm. Clay answers best

for wheat, moist clay for beans, loam for barley and peas, light soil for turnip, sandy soil for rye and buck-wheat; and oats thrive better in coarse soil than any other grain. Now, in directing a rotation it is not sufficient that a culmiferous crop be always succeeded by a leguminous: attention must always be given that no crop be introduced that is unfit for the soil. Wheat, being a great binder, requires, more than any other crop, a leguminous crop to follow. But every such crop is not proper; potatoes are the greatest openers of soil; but they are improper in a wheat soil, neither will turnips answer, because they require a light soil. A very loose soil, after a crop of rye, requires rye grass to bind it, or the treading of cattle in pasturing; but to bind the soil, wheat must not be ventured; for it succeeds ill in loose soil.

89. Another consideration of moment in directing the rotation, is to avoid crops that encourage weeds. Peas are the fittest of all crops for succeeding to wheat, because it renders the ground loose and mellow, and the same soil agrees with both. But peas are improper, unless the soil be left by the wheat perfectly free from weeds; because peas, if not an extraordinary crop, foster weeds. Barley may be ventured after wheat, if the farmer be unwilling to lose a crop. It is indeed a robber; better, however, any crop, than run hazard of poisoning the soil with weeds. But to prevent the necessity of barley after wheat, the land ought to be fallowed before the wheat; it cleans the ground thoroughly, and makes peas a secure crop after wheat. And after a good crop of peas, barley never fails. A horse-hoed crop of turnips is equal to fallow for rooting out weeds; but turnips do not suit land that is proper for wheat. Cabbage does well in wheat soil; and a horse-hoed crop of cabbage which eradicates weeds, is a good preparation for wheat to be succeeded by peas; and a crop of beans, diligently hand-hoed, is in that view little inferior. As red clover requires the ground to be perfectly clean, a good crop of it ensures wheat and next peas. In loam, a drilled crop of turnips or potatoes prepares the ground, equal to a fallow, for the same succession.

90. Another rule is, to avoid a frequent repetition of the same species; for to produce good crops, change of species is no less necessary than change of seed. The same species returning every second or third year, will infallibly degenerate, and be a scanty crop. This is remarkably the case with red clover. Nor will our fields bear pleasantly perpetual crops of wheat after fallow, which is the practice of some English farmers. Hitherto we have treated of rotation in the same field; which is, to avoid crowding crops one after another in point of time; but to choose such as admit intervals sufficient for leisure dressing, which gives opportunity to manage all with the same hands, and with the same cattle; e. g. beans in January or February, peas and oats in March, barley and potatoes in April, turnips in June or July, wheat and rye in October.

91. It is of capital importance to have the whole of the manure employed, so that those parts which are not fitted for one crop may remain as nourishment for another. If turnip is introduced upon a soil, this crop, recently manured, finds the soil kindly disposed towards germination. If barley, with grass seeds, be the next in succession, the land having been little exhausted by the turnips, finds sufficient nourishment for the grain, while the grasses or clover, requiring little aliment, probably derive the gypsum which would be useless to other crops. The roots and leaves of those plants ploughed in at the end of two years, afford manure for the wheat crop; and as soon as the most exhausting crop is taken, recent manure is applied. Peas and beans always seem adapted to prepare the ground for wheat; and in rich lands are sometimes raised in alternate crops for years together. On the whole, nothing can be more evident than that, though the general composition of plants is analogous, their specific difference in their products, must be derived from different materials in the soil. Hence lands in a course of years cease to give good grasses; and strawberries and potatoes, although they flourish exceedingly in virgin mould, degenerate in a few years and require fresh mould. The influence of rotation of crops in destroying insects, is too important to be passed over in silence. The myriads of these creatures that live upon the collar or crown of the cereal grasses, are chiefly tipulæ, and muscæ, which, when the soil presents the same crop for several years in succession, multiply themselves without end; but when a crop intervenes in which these insects cannot live, the whole race perish from the field.

92. Manures. Our consideration will now be directed to the subject and proper use of manure, including every species of matter capable of promoting the growth of vegetables. Since vegetables are composed of oxygen, hydrogen, nitrogen, or azote, and carbon, with a portion of saline bodies, vegetable aliment requires to be composed of the same elements. Hence decaying animal and vegetable substances form the most important class of manures; and when deposited in the soil are consumed during the process of vegetation. The great object in the application of manure is to make it afford as much soluble matter as possible to the roots of the plant, in a manner so slow and gradual that it may be entirely consumed in forming its sap and organization. Whenever manures consist principally of matter, soluble in water, as is the case with organic manures generally, their fermentation or putrefaction should be prevented as much as possible, by preserving them dry, defending them from the contact of air, and keeping them as cool as possible. The different species of manures are extremely various; containing different proportions of the requisite elements of vegetation, and requiring a different treatment in their practical application. Plants which are green and succulent contain saccharine or mucilaginous matter; and like sea-weed, when intended for manure, should be used as fresh as possible. Rape-cake, malt-dust, and linseed-cake make excellent manure when judiciously applied. Dry straw of wheat, barley,

oats, beans, peas, &c. are used with advantage, although, perhaps, too indiscriminately, they are made to ferment before they are employed. It may be doubted whether any vegetable substance except woody fibres and inert peaty matter, which is of much the same nature, requires this process. In general vegetable manures ought, as much as possible, to be applied to the nourishment of plants of their own species. Animal substances used as manure require no chemical preparation to fit them for the soil; and the only care requisite is, to blend them with earthy constituents, and prevent their too rapid decomposition. Fish make excellent and powerful manure, though it cannot be ploughed in too fresh. The effects of the refuse pilchards, thus employed in Cornwall, were perceived for several years. Oily substances, as blubber, have been applied with success. The powerful effects of bones, when properly ground, are well known; and horn, as it contains a large quantity of decomposable acrid matter, is a still more powerful manure than even bone. Hair, woollen rags, feathers, the refuse of skins, and leather chippings, putrid urine, and in short all the excrementitious animal substances, form excellent manures. Soot is also well fitted to be used in the dry state.

93. Organic manures, it is to be feared, are generally suffered to decompose too much before they are applied. An incipient fermentation is favourable; but rather than it should be carried too far, better if there were no fermentation at all. Manure to be preserved, should be kept under sheds, or at least be defended from the sun. This, though it would be an additional care and little more expence, would increase the harvest and enrich the farm. Animal substances decompose rapidly by being buried in the soil, and care should be taken in their proper application to the field. Organized forms are in the earth resolved into their chemical constituents; and after having lived their day fall into dust, and become the food of others. From their fermentation and putrefaction forms of beauty and usefulness emerge; the fœtid gas constitutes the aroma of the flower; and what might be poison, distilled over again, is formed into nourishment.

94. Mineral Manures.—Mineral manures are of more recent invention and uncertain application than those of which we have already treated; yet the propriety of their use depends not only upon laws of chemistry, but just inductions from facts. It seems a fair conclusion, that the different earths and saline substances found in the organs of plants, are supplied by soils in which they grow. Thus compound forms are produced by the combination and chemistry of simple air; and the elements of the soil, the atmosphere and the earth absorbed, and made to form themselves in different proportions, into the most diversified and beautiful structures. Alkaline earths unmixed with the remains of any matter of organized beings, are the only substances which can, with propriety, be called mineral manures; and of those, though potassa and soda, the two fixed alkalies, are used occasionally in some of their chemical compounds; lime and magnesia are the only ones that have been employed in their proper state. The most common form in which lime is found on the territorial surface, is in a state of combination with fixed air or carbonic acid; and if thrown into a fluid acid, will cause an effervescence by the emission of its carbonic acid gas. Quick lime, when first made, is caustic and burning to the tongue, is soluble in water, and renders vegetable blues green; but when combined with carbonic acid gas, it loses these properties, regains its powers of effervescing, and becomes chemically the same as chalk and lime-stone. Few limestones or chalks consist entirely of lime and carbonic acid; but are mingled with alumine, or aluminous earth, oxide of iron, magnesia, &c. But all its different ingredients variously modify their properties, when limestone is used as manure. Quick-lime is injurious to plants, when administered in its pure state; but in its state of combination with carbonic acid, becomes a useful ingredient in the soil; and falling in contact with fibrous vegetable matter, forms a compost of which a part is soluble in water; thus rendering that matter nutritive which was before inert. Mild limes, marls, chalks, or powdered limestone, have no action of this kind. They have no tendency to form soluble matters; but prevent the too rapid decomposition of substances already dissolved. Hence the operation of these differs from that of quick-lime, being useful only to improve the texture of soils in its power of absorption; whereas the former converts hard vegetable matter into proper nutriment, by bringing it into a state of more rapid decomposition and solution. From these general principles, it follows that the propriety or impropriety of applying quick-lime to a soil, depends upon the quantity of inert vegetable matter that it contains. The propriety of employing marl, mild lime, or powdered limestone, depends upon the quantity of calcareous matter already in the soil. One capital rule to be observed is, that all soils which do not effervesce with acids, and sands more than clays, are improved by the application of lime, and ultimately by quick-lime. Lime should never be applied with animal manures, except they are too rich; or for the purpose of preventing noxious effluvia. It possesses, however, two great advantages for vegetable nutrition. It forms certain insoluble bodies to soluble compounds, and also prolongs the nutritive action of substances beyond the term which they would retain them, independent of such combination. Magnesian limestone is used with good effect in application to peats. The Lizard, one of the most fertile parts of Cornwall, has mild magnesian earth mingled with the soil. Calcareous matter is also applied for agricultural purposes in other combinations, one of which is, gypsum or sulphate of lime. Plaster of Paris is of this nature. Gypsum was introduced into America with great success by Dr. Franklin, on his return from Paris. The ashes of sainfoin, clover, and rye-grass afford considerable quantities of gypsum, which in all probability, forms a necessary part of their woody fibre. Gypsum is contained in stable dung, and the dung of all cattle fed on grass. Hence, it is probable that gypsum might be suc

cessfully employed in the cultivation of these substances, and form an efficacious species of manure. Sulphate of iron or green vitriol, are efficacious in calcareous soils; otherwise all vitriolic impregnations are injurious. Phosphate of lime, a combination of lime and phosphoric acid, is thought necessary to the cultivation of corn, and white crops in general. The saline compounds of magnesia and wood-ashes, are employed in some cases by eminent agriculturists. Soda, or mineral alkali, is found in the ashes of seaweed, and may be obtained from common salt; even salt itself being offensive to insects, and assisting the decomposition of animal or vegetable matter, may be applied in small quantities in the form of manure. In Cornwall, a refuse salt, mingled with some of the oil and exuviæ of fish, makes excellent manure. Sulphate of potassa, nitre, muriate, and carbonate of ammonia, are strongly recommended as manure. Soot owes a great measure of its efficacy to the ammoniacal salt it contains.

95. Aerology.—The other agents in vegetation are heat, light, electricity, water, &c.; to which we may add the atmosphere, with its elements and changes.

96. The heat radiated by the sun to the earth, would, if suffered to accumulate, speedily destroy its constitution; but its deleterious effects are prevented by the nocturnal radiation of heat to the heavens; when the surface of the terraqueous globe, having become colder than the contiguous fluid, condenses the watery vapour in the form of dews, falling where it is most wanted, on herbage and low plants. Dense clouds, near the earth's surface, reflect back again the heat they receive from it by radiation; but if they lie at considerable elevation from the atmosphere, by radiating to it less heat than they receive from it, they admit of bodies on its surface becoming considerably colder than the contiguous air. Islands and continental regions, bordering immediately upon the ocean, subject as they are to a cloudy sky, will, from the reasons assigned, be less cold in winter than regions that are more remote. Fogs proceed upon the same principle as clouds, and serve to corroborate the general rule, that, whatever impedes the passage of radiant heat, will tend to prevent bodies on the surface of the earth becoming colder than the contiguous atmosphere, the water deposited upon the earth during fogs at night, serving to bathe the vegetables, especially those that have the greatest attraction; for humidity arises from two sources, viz. a precipitation of moisture from the atmosphere by means of its cold, and a real formation of dew arising from the ordinary principle of condensation. Heat and cold, then, by reason of their mechanical effects produced upon the atmosphere, exert a necessary and powerful influence upon the principles and process of vegetation.

97. The hurtful effects of cold occur chiefly in hollows; and, in clear still nights, frosts are less severe upon the hills than in the plains. The tops of trees also are sometimes found dry when the grass upon the earth's surface is covered with dew, all which phenomena may be satisfactorily resolved into the philosophy of the before mentioned principles. Much cold is to be prevented by a slight covering, which Dr. Wells recommends to be placed at a little distance above tender plants and fruits which it is intended to shelter. He observed from experiments, that grass, slightly sheltered, was one night 8°, and another night 11°, warmer than grass fully exposed to the atmosphere, notwithstanding some disadvantages in the medium of experiment; and that grass, sheltered by a cambric handkerchief, raised a few inches in the air, was 3°, and on one occasion 4°, warmer than grass covered with a similar handkerchief, but actually in contact. Walls, in addition to other purposes which they subserve mechanically, have the advantage that they prevent the loss of heat which the contiguous plants, were they perfectly exposed, would sustain by radiation. From the same principle arises the utility of snow as a covering for vegetables in the winter. The influence of the different solar rays on vegetation, though not made perhaps so much as it ought to be the subject of study, is no doubt considerable. Plants kept in darkness, however supplied with air, heat, moisture, and every requisite species of aliment, never obtain their natural colours; nor acquire any other juices than such as are watery and saccharine.

98. Electricity has been thought to have a much greater influence on the germination of seeds than we are commonly aware; although, in the opinion of Dr. Darwin, no profitable application of it to this purpose has ever yet been discovered. Compound bodies are capable of being decomposed by it, and corn has been found to sprout much more rapidly in water negatively electrified, than when positively so. Experiments have already evinced that the clouds are usually negative, the probable conclusion is that the earth is positive. This circumstance, with the electrical changes constantly taking place in the atmosphere, and upon the terraqueous surface, demands a greater degree of attention than it has at present received.

99. The influence of the atmosphere is too well known to require any elaborate discussion. Composed of water, carbonic acid gas, azote, and oxygen, it forms a chemical compound which envelopes the earth, varies the weather, and is essential to the support and continuance of life. Its action on plants differs at different periods of their growth and development. In the exhausted receiver seeds moisten and swell, but shew no further signs of vegetation; and, if kept there, lose their living powers, and undergo putrefaction. The process is the same in pure azote, or carbonic acid. But if a healthy seed be moistened, and exposed to air of 45° temperature, germination commences, the radicle descends, and a plume is shot upward in the atmosphere. A seed examined before germination will be found to be more or less insipid; but after germination it is sweet, its coagulated mucilage being converted into sugar. It is this, which rendered soluble, and carried through the cells or vessels of the cotyledons, forms the nourishment of the infant plant. The process is evidently effected by the direct action of the atmosphere, and hence semination, unless so conducted as to leave the

deposit exposed to the influence of the air, can never produce a vigorous and healthy plant.

100. Besides the above immediate action upon vegetables, the atmosphere is subject to numerous changes, all of which exert a nearer or more remote influence upon the general business of agriculture. The first of these variations is that of temperature, considered exclusive of the different seasons and climates. The rays of the sun concentrated, have no kind of effect on air; but communicating the heat to the surface of our globe, the warmth is communicated to the atmosphere. Hence the temperature decreases in proportion to the height of the air from the earth's surface, varies according to the season, and becomes highest where the place is so situated as to receive the rays of the sun with most effect. The air and the earth, which are most heated at the equator, where the rays fall perpendicularly, gradually diminish in temperature as they approach the poles, allowing for differences of geographical position, qualities of surface, &c.; continents being colder than islands.

101. The ascent and descent of water, may be considered under the form of vapour or water, evaporated by means of rarefaction from the surface of the earth, and afterwards formed into clouds. When water is made to boil, evaporation flies off in the form of visible steam. The same process is observed, only on a much lower scale, in the daily evaporations that ascend the atmosphere. In the maritime countries this is more considerable than in those which are inland; and is greater in the warmth of summer than in the cold of winter. Dew is moisture deposited by the atmosphere on the earth, and is precipitated in proportion to the humidity contained in the atmosphere, by means of the cold of the body on which it is seen. Dr. Wells lays down the principle, on the authority of numerous facts, reasonings, and experiments, that bodies must of necessity become colder than the neighbouring air before they are bedewed. Rain is consequent upon evaporation, by which the clouds are charged with vapour. Dalton accounts for its phenomena in the following manner: 'If two masses of air, of unequal temperatures, by the ordinary currents of the winds, are intermixed when saturated with vapour, a precipitation ensues.' In proportion as the masses are under saturation, is the extent and density of the shower; and in warm air a greater quantity of vapour is precipitated under the same degree of saturation. Hail is considered as frozen rain, differing however in this respect, that hail stones are not formed of single pieces of ice, but of many little spherules, of different degrees of consistence, agglutinated together. Frost proceeding from the atmosphere commences upon the surface; and extends its influence downwards, into earths, waters, &c. Snow consists of the frozen vapours of the atmosphere, the particles of which proceeding down to the earth, are joined by numerous others of their own species, which form constant additions to their bulk. Its whiteness is the consequence of its division into an exceeding variety of little particles, as will appear from the fact, that ice when finely powdered will exhibit the same appearance. Ice is water in a state of congelation, increased one eighth part of its bulk by the process of transmutation. It remains at the temperament of thirty-two degrees of Fahrenheit, and acquires its increased dimensions with a force which would burst the strongest vessels, and even pieces of artillery. It freezes more rapidly than it thaws.

102. Wind is air in motion. It is necessary to carry off putrid exhalations, to purify the air and preserve it fit for respiration. The prevailing winds in our own country, as stated by the Royal Society of London, are

At London.		At Glasgow.	
North	16 days.	North West	40 days
South	18	South East	47
East	26	North East	104
South East	32	South West	174
West	53		
North West	50		
North East	58		
South West	112		

103. As the winds carry the clouds along with them, much depends on them with regard to the local and more general diffusion of rains. For proper acquaintance with their prevailing directions, for the phenomena of thunder, as also for curious and interesting information relative to the prognosticating of weather, &c. See METEOROLOGY AEROMANCY, &c.

104. We must now be allowed to offer, as supplementary to the general information contained in this section, a slight sketch of those general views and principles of the animal system, with which the scientific farmer should certainly be acquainted. This system has much less engaged the attention of naturalists than botany. In describing animals they have followed the same rules as those commonly observed in the naming of plants; but the classification of them is by no means established on so firm and philosophical a basis. The system of Linnæus is founded on a particular system of organs. Another system has been founded on the joint consideration of all the systems of organs external and internal. On the basis of this has been established several natural methods, particularly that of Cuvier. But several naturalists have adopted a mixed method, as being, in their opinion, the most convenient. The male is understood in all cases to be the representative of the species; and the female, although greatly differing in appearance from the male, presents, with the exception of the re-productive organs, a perfect agreement in structure. So long as the internal structure was entirely or partially overlooked, the classification of female individuals was a work of great difficulty; but by attending to the internal peculiarities, the arrangement is comparatively easy.

105. ANATOMY.—From these considerations the anatomy of animals becomes a primary object of consideration, and may be regarded as external and internal.

106. EXTERNAL ANATOMY.—That which is exterior, relates to the covering or skin of animals, which includes the cuticle, the corpus mucosum, the corium, the panniculus, and the cellular web. The cuticle is destitute of nerves, fibres,

and blood vessels, and consists of a thin transparent membrane, in many cases so soft and delicate, that it appears like mucus. The corpus mucosum lies beneath the cuticle, and the true skin below. The corium, or true skin, is entirely destitute of colour, and in some animals consists of solid fibres, which cross one another in every possible direction, forming an extensible elastic substance, penetrated by a delicate net-work of blood-vessels and nerves. The muscular web consists of a layer of muscles, the extremities of whose fibres are externally inserted in the corium. The use of this layer of the integument is to corrugate the skin; and may be observed in the human species in the upper parts, moving the skin of the face, cheeks, and head. The cellular web forms the innermost layer of the common integuments, and rests immediately on the flesh of the body. The appendices of the skin are hairs, feathers, horns, scales, shells, and crusts. Hair is the most permanent of all the substances consisting of animal matter, and resists putrefaction the longest. It grows by a root in the form of a bulb, taking its rise in the cellular web, from which it passes through the corium, mucus web, and cuticle. In some species the hair falls off, and is reproduced annually. Hairs are generally round, but sometimes flat, two-edged, and thickest in the middle. Sometimes they are long and straight, at others curled and crooked. When crisped they are called wool; when stiff, they are called bristles; and when inflexible, they are called spines. Feathers are of different colours, depending in some birds upon seasons, food, &c. They are readily reproduced, and renewed periodically. The parts of the feathers are, the quill, which takes its rise in the cellular membrane; the central portion, a shaft of a texture resembling cork, and the web which clothes the sides, composed of barbes, each of which is again clothed with barbules. Horns are considered as hairs so agglutinated as to form a hollow cone; and at the base where it unites with the skin, its fibrous texture may in many animals be seen. The apex of the cone is in this part pushed out in proportion to the increase originating at the root. There is, however, this difference between horn and hair, that the former has its central cavity filled by a bony or other solid projection from the body; whereas the central part of the latter is composed of medulla or pith. The different markings of horns, particularly the transverse ridges, indicate the different layers of growth, and correspond in some cases with the years which the animal has lived. They do not experience those periodical renovations which are common to hairs and feathers; and the case of the stag forms no real exception, inasmuch as the deciduous parts are not true horns. Various appendices of the skin are included under this general denomination; as beaks, which cover the maxillary bones of birds; hoofs, which are peculiar to certain herbivorous quadrupeds; claws, having a bony centre and covering the extremities of the feet in animals; nails, covering the fingers and toes of the human species, and differing from horns in the circumstance of their not being tubular, but consisting of a plate, convex on the exterior; and spurs occurring upon the legs of gallinaceous birds. The use of horns in every modification of them is to prevent the parts that are particularly tender from being injured by coming into immediate contact with hard bodies. From the skin arise three different kinds of secretions; one lubricates the skin itself, another regulates the temperature of the body, and a third carries off superfluous carbon. Unctuous secretions are peculiar to warm-blooded animals, whose cellular web is filled with fat. Viscous secretions are peculiar to animals of cold blood, but answer the same purpose of defending the skin from the action of the surrounding element.

107. Internal Anatomy.—The internal anatomy of animals, includes the entire structure, osseous, muscular, and nervous. The structure of the bones is the first consideration with respect to the strength and locomotion of animals. Bones are composed of the periosteum; the texture of which is obviously fibrous, serving the same purpose to the bone as the skin with respect to the body; the cartilaginous basis consisting of gelatine, and coagulated albumen; earthy matter, which is chiefly phosphate of lime, and fat, resembling fixed oils. Bones increase in size by the expansion of the cartilaginous basis; which, when saturated with earthy matter, is capable of further extension. Bones are readily reproduced, especially in youth, as in case of fracture. In animals of the deer kind, the horns which are the true bones, are shed annually, and reproduced. The articulation of bones exhibit numerous varieties in respect to surface, connection, and motion. The only two which we shall introduce into the present article, are motionless junctions, and joints. In the former, the connecting surfaces of bones come into immediate contact, as in the serrated edges of the bones of the human skull; or when a pit in one bone receives the extremity of another, like a wedge, as in the case of the human teeth. Sometimes one bone has a cavity with a protuberance at its centre, which receives another bone, as in the claws of cats, seals, &c. In the osseous structure of the human species, the ribs are united with the breast-bone by means of cartilage, as are the two sides of the lower jaw, with each other in vertebral animals. In joints, the articular surfaces are enveloped with cartilage, intimately united to the bone which they protect. Muscles are the organs by which motion is executed. They appear in the form of large bundles, consisting of cords, which again are divided into smaller threads, capable of a still further subdivision with their primary filaments. The muscles with their component cords and filaments, are individually enveloped by a covering of cellular membrane, supplied by nerves and blood-vessels; whilst at the extremities of the muscular fibres lie the sinews, of a silvery colour, possessing great tenacity, and exhibiting a firm, though fibrous texture, which forms a passive link from the muscle to the bone. The muscles possess the power of irritability, execute all the motions of the body, and are the most active members of the frame. Standing, walking, leaping, flying, in short, every species of action being attributed to their instrumentality. The nervous system is that which contains the organs of sen-

sation or volition. It includes the brain, spinal marrow, and the nerves. The brain exhibits a slightly viscous mass. The spinal marrow originates in the brain, and consists of four cords, united in one body. The nerves also originate in the brain, or spinal marrow, from different parts of which arise several filaments; uniting, they form the trunk of a nerve, which subdivides in various ways, spreading its ramifications over the whole system, under the form of plexus or net-work; between the different parts of which, a perfect connection is maintained.

108. Digestive Organs.—Of the digestive system of animals, it will be necessary to take some notice. Animal appetite originates from the activity of the organs of the stomach, and is prompted by cold air applied to the skin; by exercise; or by cold, acid, or astringent fluids introduced into the system. Thirst is occasioned by the excessive expenditure of the fluids, and originates in a variety of causes. Of hunger and thirst, there are many remarkable varieties. Sometimes they are directed after the objects of the animal kingdom, when the subject of the sensation is said to be carnivorous; piscivorous, when directed towards fishes; insectivorous, when directed towards insects; if directed towards seeds, granivorous; if towards grasses, graminivorous, &c. For the process of digestion and circulation, see Anatomy.

109. Reproductive System.—In the reproductive system of animals, it is the business of the female to prepare the germ, or ovum, and bring it to maturity; whilst the office of the male is to impregnate the germ, by means of the spermatic fluid secreted in the testicles, and transmitted by its appropriate organs. The germ thus impregnated, is farther improved in the uterus, and eventually brought forth in the ordinary way of nature. In viviparous animals the reproductive organs are in general similar; but with the sexual organs of the oviparous tribes it is otherwise; and the manner in which the eggs of birds are impregnated by the male has never been properly determined.

110. Pathology.—Animal life is exposed to numerous accidents, diseases, and casualties. Health is precarious; which circumstance renders animal pathology an important subject to understand. The health and longevity of animals depend, in a great measure, upon the organs of respiration and digestion, and the manner in which they perform their various functions. In cases where the air of the atmosphere, or water contains noxious particles, it brings on epidemical and endemical diseases, as the epizooty, or the murrain, which attacks horses, sheep, and cows, called by some farmers, the distemper. Scarcity is exceedingly detrimental to animals. It engenders diseases; and for the diseases of cattle, we have few effectual antidotes. There is also a war maintained all over the animal kingdom; tribe is divided against tribe; so that few animals, comparatively, live to the period of natural death.

111. The most important uses of animals to the agriculturist are labour, clothing, and food. With these views they are reared, domesticated, and form important and useful additions to the farm. The chief employed, or retained on British farms, are the horse, ox, sheep, swine, fowls, &c.

112. Breeding.—In the breeding of animals, an object of primary importance is the selection of the parents. Two theories have, however, obtained with respect to this subject, viz. breeding from individuals of the same parentage, called the in-and-in system; and breeding from individuals of two different offspring, called cross-breeding. It is a common mistake, that the breed of animals is improved by the largest males; and cross-breeding has only succeeded, to any extent, in those instances where the females were larger than the usual proportion. The external form is to be studied only as an indication of internal structure. The lungs are of the first importance; since on their size and soundness depend, in a great measure, the health and strength of the animal. The chest, which indicates the size of the lungs, should approximate to the figure of a cone, having its apex situated between the shoulders, and its base towards the loins. The head should be small. This not only indicates a good breed, but facilitates the birth. The length of the neck should be proportioned to the height of the animal. The muscles should be large. Large bones generally indicate imperfection in the organs of nutrition. Of the external appearances, by which varieties of the same species are distinguished, those of the male parent most frequently predominate in the offspring: thus, if a hornless ram be put to horned ewes, almost all the lambs will be hornless. In Norfolk, crossing with the Ryeland rams would effectually remove the horns, enlarge the chest, and improve the quality of the wool. The same may be said of Devonshire cattle, with respect to Galloway bulls. The good effects of cross-breeding are evident in the improved state of English horses; by crossing with diminutive stallions, Barbs, and Arabians. But when it became fashionable in London to drive large bay horses, the farmers in Yorkshire, by putting their mares to very large horses, produced a race of small-chested, large-boned, long-legged, worthless animals, and thus exhibited the bad effects of cross-breeding, where injudiciously applied.

113. Rearing.—Immediately after the birth of every animal, its immediate nourishment is supplied by the mother, for which reason, the latter, during her gestation and afterwards, should be carefully attended to and well supplied. As the animal increases in size and strength, it should have abundance of food, air, and exercise, to lay the foundation of a firm and vigorous constitution. Food, however, though supplied in abundance, ought not to be given to satiety: even animals feeding on a rich pasture have been found to improve by being taken from it once a day, and put into a fold on inferior pasture. If rich food is supplied to young growing animals, and exercise withheld, diseases are generated, and growth is impeded. Good air and water are necessary to feeding all species of animals with success. Tranquillity, comfort, and cleanliness should be attended to; and where, in addition to these, animals are sheltered in sheds and houses, so

as to moderate the different extremes of weather, a good state of health will be the natural consequence. The feeding of animals for extraordinary labour or for long journeys, should be effected by dry rich food; rubbing, cleaning, and warmth in the intervals between labour and rest, will be found very powerful auxiliaries.

114. Sect. III.—History of Agriculture, with a sketch of its present state. We shall now conclude our observations with a brief abstract of the history of agriculture from the earliest periods, and a rapid sketch of its present state. Chronologically, the science of agriculture may be traced to the period immediately succeeding the deluge, when it formed the principal occupation of Noah and his descendants. The plains of Shinar, no doubt, witnessed the earliest improvements; Egypt, Greece, and Carthage, successively, the dawn, day-break, sunrise, and ascensional development of this interesting pursuit, whether viewed abstractedly as a theory of scientific principles, or in its application as a useful art. Through the above route agriculture has been conveyed to our part of the world, on the changing and crooked high-road of political revolution and emergency. In China and the eastern countries, whose antiquity is celebrated as so justly sublime, it was, perhaps, coeval with their early plantation and government, and has been retained through all the periods of time; has stood like the colossus of Rhodes, and lustred the hemisphere; while the rapid and more aggrandized improvements of military republics, shaken by the earthquakes to which warlike nations are liable, have fallen to ruin and decay. Of the agriculture of the ancients little is known. That which is distant is always partially obscured, and presents little else than a covering of clouds; and although books, like glasses, bring distant objects near, we have few glasses of sufficient focus to reach the stretch of time, not to say that through a glass vision is dark, and detail is not to be expected. The geographical situation of Egypt presented many advantages for cultivation. During the famines of Palestine there was corn in Egypt, to which Abraham and his descendants had frequent recourse. 'The plain of Jordan was every where as the garden of the Lord.' The aboriginal Greeks or Pelasgi, are supposed to have been taught the art in Egypt. Of the agriculture of the Phœnicians and Jews, little is known, except that it appears to have originated in the same source with that of other nations, viz. the family of Noah. Different nations have had their different productions and modes of culture: their traditions ascribe the invention to different personages, as Osiris, Ceres, Triptolemus, Janus, Chin-hong, &c. but this was the common origination;—this was the parent stream which came flowing out of even antediluvian antiquity; and which, dividing like the rivers of Paradise, began to advance over the earth, and beautify the face of nature; supplying innumerable myriads of creatures with the instruments and aliment of life; opening by mysterious development sources of the most rational enjoyment; and fulfilling, in an inferior sense, the sublime language of prophecy: 'I will make the wilderness like Eden, and the desert as the garden of the Lord.'

115. Agriculture amongst the Romans, in its different modes and stages, is capable of being ascertained with a much greater degree of certainty. Roman authors on this subject are numerous; amongst whom may be enumerated the names of Cato, Varro, Virgil, Pliny, Palladius, and Columella. The peculiar manner in which agriculture was carried on at Rome, was the primary cause of that notable success which attended it. Romulus having conquered a small part of Italy, divided the land among his followers, allowing, by an agrarian law, two jugera, or $1\frac{1}{8}$ acre, to every citizen. Six centuries before the Christian æra, at the expulsion of the kings, seven yoke, or $3\frac{3}{8}$ acres, were allotted. The same custom, with respect to the distribution of conquered lands, continued to be observed; and after every division, the remainder being sold in lots, any citizen might acquire as much land as he could purchase, till a new law passed by Stolo, the second plebeian consul, B. C. 377, enacted that no person should possess more than 500 jugera. In the first ages of the commonwealth, and for four or five centuries afterwards, the lands were cultivated by the proprietors themselves, whence corn became very abundant. But when Rome acquired an immense stretch of territory, and spread her conquests far and near, rich individuals were allowed to purchase large estates, and to cultivate them by means of bailiffs and farmers. In the time of Columella, land was cultivated by farmers and servants, the latter including free servants and slaves. It was cultivated by slaves in the time of Pliny the elder. This change in the managers of the soil, produced a corresponding effect upon agriculture. Varro complains, that in his days the degree of attention bestowed upon this useful art had very much declined; and Columella tells us, that in his time it was almost entirely neglected.

116. The surface of Italy is irregular, broken by prominent hills, which pass through its whole length, forming numerous interior valleys of different dimensions, watered by lakes and rivers. The climate is dry, clear, regular, and of warm temperament. The soil is various; as yellow marley clay, blue clay, containing sulphur and alum, volcanic earth, rich black loam, deep, soft, moist earth, &c. The artificial appearance of Italy greatly resembles what it was in the time of the Romans. The cultivated lands and open enclosures, are to be seen only near the villas; and the landscape, (as Daniel Malthus observes,) which Pliny mentions, as seen from his villas two thousand years ago, does not appear to have been different from what it is at present. The Romans selected those spots for their farms which were remarkable for their geographical advantages; and employed themselves in the cultivation of them from their youth. They built the villa in proportion to the size of the farm. The villa was divided into three parts. 1. The *urbana*, consisting of the apartments of the landlord. 2. The *rustica*, containing the kitchen, servants' houses, stables, piggeries, &c. adjoining to which was commonly the aviary or apiary, a place for dormice, a warren for hares and rabbits, a place

for snails, and a large park for live deer, and beasts taken in the chase. 3. The *fructuaria*, containing oil and wine cellars; places for the oil and wine presses, barns, store-houses, repositories for fruit, corn-yards, granaries, &c. Particular directions have been given as to the relative situation and construction of these buildings, but nothing as to the materials of which they were composed. Pliny proportions the whole expence to the profits arising from the farm; so that if it were destroyed, one, or at most two years' rent, might be sufficient to rebuild it.

117. With respect to domestic management, a farmer fed and clothed his own servants; and bailiffs were appointed, whose office it was to see that they were fed on wholesome provisions, and made comfortable. The beasts employed were chiefly the ox, the ass, and mule; the horse but seldom. Oxen were most commonly employed in the field, and were worked in pairs, whether in the cart or plough. Asses were chiefly used for the burden, the mill, or for ploughing, where the land was light. Of mules, they had two descriptions; mules properly so called, and hinni, the first being the offspring of a mare and an ass, and the second of a horse and an ass. Both were commonly used for the road and the plough.

118. The implements used in Roman agriculture are very little known. Cato mentions two kinds of ploughs, one for strong, the other for light soils. Varro mentions one with two mould boards, for the purpose, he observes, of ridging when they plough after sowing the seed. 'They had ploughs,' says the Rev. A. Dickson, 'with mould boards, and without mould boards, with and without coulters, with and without wheels, with broad and narrow pointed shares, and with shares, not only with sharp sides and points, but with high raised cutting tops.'—*Husb. of An.* Professor Martyn has given the figure of a modern Italian plough to illustrate Virgil's description. Rosier gives a figure of a Roman plough, which corresponds with those still used in the south of France. That used from time immemorial in Valencia, is supposed to come nearest to the common implement of the Romans, and consists of the following parts: 1. the buris, or head; 2. the temo, or beam; 3. the stiva, or handle; 4. the dentales, or share head; 5. the vomer, or share. The aura or mould board, and the culler or coulter, formed no part of the simple Roman plough. The plough staff, or paddle, was also a detatched part. The manicula, which the ploughman took hold of, was a short bar fixed across; and to the draught pole the oxen were attached. The plough described by Virgil had a mould board, and was used for covering seed and ridging; but the common plough described above, instead of the mould board, required either a stick inserted in the share-head, or to be held obliquely. Circumvolving furrows, as employed by us, were not practised among the Romans; but the cattle returned in the same furrow.

119. In the Greek monuments of antiquity are four or five examples of wheel ploughs. Lasteyrie has given figures of these implements from Caylus's *Collection of Antiquities*, and from a Sicilian medal. He indeed imagines them to have been invented about the time of Pliny, and attributes the invention to the Cisalpine G— but Virgil evidently refers to such ploughs in his Georgics. The ligo appears to have been a spade, and the pala a shovel; they were both made of oak, shod with iron, or a blade entirely of iron. The urpex or ripex, was a plank with several teeth, used as our brake or cultivator, to break rough ground, tear up roots, &c. The crates was a kind of harrow, the rastrum a rake, the sarculum a hand-hoe, the marra an inferior hoe, the bidens a two-pronged hoe, used in vineyards, with a hammer at the other end to break the clods. The securis was an axe, although the same term was applied to the crescent-like blade of the pruning knife. Besides reaping hooks which resembled modern ones, they had invented a reaping machine, which appears to have resembled that used in Suffolk, for cropping the heads of clover left for seeds. Their threshing implements, and some for striking off the ears of corn, are imperfectly known.

120. The Romans did not bind their corn into sheaves, as was customary amongst the Jews, Egyptians, and Greeks. Threshing, for the most part, was performed in the open air, in a circular threshing-floor of forty or sixty feet diameter; where the corn being spread to the depth of one or two feet, was either trod out by the hoofs of cattle, or by means of a dragging machine. That used in the Carthaginian territory, consisted of rollers, studded with iron knobs, and furnished with a seat for the driver. Rods or flails were also occasionally employed. Corn was winnowed by throwing it from one side of the floor to the other, in the wind, by means of a shovel called ventilarium; but when the wind was inconsiderable, the fan was employed, (probably a kind of sieve.) After the corn was deposited, the straw, when not laid aside for litter, was sprinkled with brine, then dried, and rolled up in bundles, as provision for the oxen. Pasturing and harrowing corn were practised, when too luxuriant, as soon as the blades equalled the furrow. Fencing was carried only to a limited extent, and their other agricultural operations differ little from those of the ancients on the one hand, and the moderns on the other.

121. A great part of the Roman harvest appeared to depend upon fruits; figs, pears, &c. were grown in gardens and orchards, and the vine was supported by a row of elms or poplars, &c.

122. Of animals reared by the Romans, the most common sort were the quadrupeds now in use; besides these, they reared snails, dormice, bees, and fish. To the farmer's or bailiff's wife was committed the care of the poultry; which, besides those common amongst the moderns, included thrushes, larks, turtle doves, and peacocks; but it was chiefly Rome and Naples that were remarkable for rearing extensively the more delicate birds. In the *time of the* Cæsars, when Rome was in the zenith of her splendour, fat birds, as thrushes, and blackbirds, sold at two shillings each, although 5000 of them were frequently sold in a year from one farm. Pea fowls were sold at £1. 13s. 4d.; an ox was sold at 3s. 4d. Var. lib. iii. c. 2. A pair

of fine doves were commonly of the same price as a peacock; but, if very handsome, often sold as high as £8. 6s. 8d. L. Anius, a Roman knight, refused to sell a pair under £13. 6s. 8d. *Var.* lib. iii. c. 7. Fishes of certain species in the time of Varro, were so valued by the Romans that his friend Hortensius would rather have parted with a pair of his best coach mules than with a bearded mullet, *Var.* lib. iii. c. 17, and according to Pliny, *Nat. Hist.* lib. ix. c. 55. Herrius's fish-ponds, from the quantity they contained, were sold for £33,333. 6s. 8d. and those of Lucullus at the same price, *Idem.* lib. ix. c. 54. One capital principle in all Roman agriculture was, 'to sow less and plough better,' since there is more gained by cultivating a small spot well, than a larger one indifferently. This they illustrated by many short sayings and stories. Pliny mentions a freed-man who made his vineyard produce crops so much larger than those of his neighbours, that they accused him of witchcraft, and accordingly brought him to trial. When he appeared in the forum, he produced a stout daughter, and some excellent implements, as iron spades, shears, &c. and presenting these, together with his oxen to the Senate, said, 'these, Romans, are my charms.' He was acquitted with honour. *Nat. Hist.* lib. xviii. c. 6. The following fact was also frequently advanced in favour of the above maxim. 'A vine dresser had two daughters, and a vineyard. When his eldest daughter was married, he gave her one third of his vineyard for a portion; notwithstanding which, he had the same quantity of fruit as formerly. When his younger daughter was married, he gave her the half of what remained, and still the produce of his vineyard was not diminished.' *Col.* lib. iv. c. 3.

123. The profits of Roman agriculture are difficult to be ascertained. The returns of seed mentioned by the ancients, are remarkable. St. Mark the evangelist speaks of seed sown on good ground, bringing forth, some thirty, some sixty, and others an hundred fold. Varro informs us that an hundred fold was reaped about Grenada, in Syria; and Byzacium, in Africa. From the latter place, Pliny informs us, Augustus received from his factor nearly 400 stalks, all of which originated in one single grain; and to Nero were sent 340 stalks produced in the same manner. In Italy itself the returns were not so great; good land in the time of Varro not producing more than ten, and in some places fifteen, for one; or about twenty-one and thirty-two bushels to an English acre; which, considering the popular ignorance as to chemistry, physiology, and other branches of natural philosophy, will not be thought inconsiderable.

124. Agriculture, it has been thought, derived little improvement from the Romans, and it does not satisfactorily appear that they advanced in this science beyond the Egyptians, Jews, Babylonians, and Greeks. Even what they knew, appears to have declined from the time of Varro to Pliny. The corruption and luxury of the period immediately succeeding the Christian æra, the civil wars at the end of the second century, the tyranny of the emperors in the third, and the removal of the seat of empire to Constantinople in the middle of the fourth, prepared the way for the invasion of the Goths in the beginning of the fifth, when agriculture received a civil blight; swarms of intruders gathering upon the leaves and foldings of every useful science, withered the intellectual face of the empire; and all the arts, useful and ornamental, sunk to decay. The Romans had carried agriculture to considerable perfection in the several provinces of the empire. In Carthaginia, part of Spain, the south-east part of France, it had advanced nearly as far as Italy; because the Greeks, who flourished before the Romans, had planted colonies in Carthage and Marseilles. In Helvetia, Britain, and Germany, its advance was not so considerable; but at the fall of the Roman empire it began to decline generally in Spain and Africa, by the invasion of the Moors; in France, from the incursions of the Germans; in Britain, from the Saxons, Picts, and Scots; and in Germany, and Helvetia, from the predatory excursions in pursuit of which the inhabitants left their lands to the wild hand of nature.

125. Agriculture, however, did not perish, but amid the darkness of the middle ages, began gradually to emerge, and was seen through the dense atmosphere, like the morning star, glimmering upon the world, the peaceful harbinger of wealth and comfort.

126. In our own country the natives depended chiefly for their support upon flocks and herds, which the Saxons seized and pastured for their own use. Where cultivation was followed, especially in Wales, the people were not suffered to plough with horses, mares, or cows, but only with oxen, *Leges Walliceæ*, p. 228. No man might guide a plough who could not make one; and the ropes with which it was drawn were to be made of twisted willows: it was usual for six or eight persons to form themselves into a society, for fitting out one of these ploughs. The Anglo-Saxons, esteeming agriculture too ignoble for a warlike people, committed the cultivation of the earth to their women and slaves. The division of landed property into inlands and outlands, originated with the Saxon princes, who, after the distribution of conquered lands, denominated those parts contiguous to their respective residences, inlands, and let the outlands, or those which were more remote, to ceorls, or farmers. The rents were established by law. According to the laws of Ina, king of the West Saxons, at the beginning of the eighth century, the rent of a farm, consisting of ten hides, or plough-lands, was, 'ten casks of honey, three hundred loaves of bread, twelve casks of strong ale, thirty casks of small ale, two oxen, ten wethers, ten geese, twenty hens, ten cheeses, one cask of butter, five salmon, twenty pounds of forage, and one hundred eels.' *Wilkins, Leges Saxon*, p. 25.

127, A curious picture of a ploughman is found in Strutt's work, entitled *Saxon Rarities of the Eighth Century*, which shews the rude and imperfect state of agriculture during that period. The invasion of Britain by the Normans tended greatly to the improvement of agriculture, by bringing over many thousands of cultivators

from the fertile plains of France and Normandy, who introduced their own methods. Richard de Rolos, lord of Brunne and Deeping, and chamberlain to William the Conqueror, was in this a very effective instrument. The Norman clergy also practised agriculture; and Thomas à Becket, archbishop of Canterbury, used to go out with the monks frequently, and assist them in hay-making, reaping, &c.

128. Implements.—The implements in use at that period were nearly the same as those employed at present. Of the two species of ploughs then in common use, one appears from ancient pictures, which yet remain, to have been used for strong lands, and attended by an instrument in the right hand of the ploughman, for breaking the clods, &c. The other, without wheels, was used in light soils. The husbandry operations of this period are not very distinctly known. In the thirteenth and fourteenth centuries, the Legum Angliæ of Judge Fortescue shews, that agriculture was carried on with vigour. In the fifteenth century, England was engaged in civil wars, and agriculture declined. The prelates, barons, and other great proprietors, nevertheless, kept extensive tracts of land round their castles, called demesne lands, which they cultivated by means of their villains and hired servants. The dearths of Henry VII. still further evince the low state of agriculture; for, in 1437—1438, wheat rose from 4s. or 4s. 6d. per quarter, to £1 6s. 8d. equivalent to £13 6s. 8d. of our money. In Scotland, cultivation was at a low ebb. In 1424 a law was passed, enacting, that every labourer of a simple estate should dig every day a piece of ground equal to seven square feet; and in 1457, it was enacted, that every farmer who had eight oxen should sow as follows—one firlot, *or bushel* of wheat, half a firlot of peas, and forty of beans; and in default should pay ten shillings to the baron, who, should he be deficient in the same with respect to his own lands, should pay the same sum to the king.

129. From the period of the accession of Henry VII. in 1485, to nearly the middle of the eighth century, cultivation began to pour upon the kingdom all its numerous advantages. The culture of hops was introduced, and the breeding of horses was much encouraged. After the beginning of the sixteenth century, agriculture partook of the general improvement that followed upon the invention of printing.—The first book upon this subject in England, was The Book of Husbandry, published in 1534, by Sir A. Fitzherbert, judge of the Common Pleas. After some excellent observations, the propriety of which posterity have seen, he describes the advantage of 'quycksettynge, dychynge, and hedgyng,' and lays down a line of conduct 'for a yonge gentylman that intendeth to thryve,' he afterwards points out the duty of a farmer's wife, distasteful, certainly, to the wives of modern farmers, but applicable no doubt to the times in which he lived. He observes, 'she is to make clothes for her husband and herself; and she may have the lockes of the shepe either to make blankettes, or coverlettes, or both.' 'It is a wife's occupation,' still further 'to wynowe all manner of cornes, to make malte, to washe and wrynge, to make heye, shere corn, and in time of nede, to help her husbande to fyll the muckewayne or dounge carte, drive the ploughe, to load heye, corne, and suche other; and to go or ride to the market to sell butter, chese, mylke, egges, chekyngs, capons, hennes, pygges, gese, and all manner of cornes.' Many parts of this book have not been improved upon.

130. The state of agriculture, at this period, also receives additional illustration from the Book of Surveying, by the same author, published in 1539. 'Four manner of commens' are described; several sorts of mills, for corn and other purposes; and also 'quernes that goo with hand;' tenants of different orders, down to the 'boundmen,' who, he tells us, in some places 'continue as yet,'—'and many tymes by colose thereof there be many freemen taken as bondmen, and their lands and goods is taken from them.' In the conclusion of his work he gives directions 'how to make a township that is worth xx marke a yere worth xx li a yere,' viz. by enclosing, and having the closes or fields alternately cropped with corn and 'let lye' for some time. In the reign of Elizabeth agriculture greatly advanced, but was, according to Tusser, best understood in Essex and Suffolk. Harrison observed, *Description of England*, p. 188, a farmer 'will thinke his gaines very small towardes the end of his terme if he have not six or seven years rent lieing by him, therewith to purchase a new lease; besides a fine garnish of pewter on his cupboard, with as much more in odd vessels going about the house; three or four feather beds; so many coverlets and carpets of tapestrie; a silver salt; a bowle for wine, if not a whole neast; and a dozen of spoones to furnish oute the suite.' The condition of a yeoman, at that period, is also exemplified in the following case of bishop Latimer's father. 'My father,' says Hugh Latimer, 'was a yeoman, and had no land of his own, only he had a farm of three or four pounds by the year at the utmost, and hereupon he tilled so much as kept half-a-dozen men. He had a walk for a hundred sheep, and my mother milked thirty kine, &c. He kept his son at school till he went to the university, and maintained him there: he married his daughters with five pounds or twenty nobles a piece: he kept hospitality with his neighbours; and some alms he gave to the poor; and all this he did out of the said farm.'—*Gilpin's Latimer.* Cattle were not plentiful, as appears from the exordium of an act passed in 1563, enacting that no person should eat flesh on the Wednesday and Friday in every week, under pain of forfeiting three pounds, cases of sickness and special licence excepted, neither of which even then extended to beef or veal. Harrison complains of the number of parks kept in the kingdom, of which he says, 'there are not less than one hundred in Essex alone, where almost nothing is kept but a sorte of wilde and savage beasts, cherished for pleasure and delight,' and 'that if the world last a while after this rate, wheat and rie will be no graine for poore men to feed on.'—*Description of Britain*, p. 168.

131. Great attention was still devoted to the breed of horses. Henry VIII. from his predilec-

tion for splendid tournaments, at this time the passion of the age, had greatly encouraged the promotion of a particular species, of great strength and stature; which were indeed required to bear the weight of the complicated panoply, with which the knight and his courser were invested. Statutes were enacted for allotting to all parks a certain proportion of breeding mares, and enjoining not only nobles and prelates, but all persons whose wives wore velvet bonnets, to have stallions of a certain size for their saddle. The legal standard was fifteen hands in horses, and thirteen for mares; but it now became necessary to lower this standard in the counties of Huntingdon, Northampton, Cambridge, Lincoln, Suffolk, and Norfolk, to thirteen hands for stallions, and no stallion of less stature might be turned out on commons and forests, for fear of diminishing the breed. The English draught horses were also very powerful and of great size; five or six of them according to Harrison, being capable of drawing three thousand weight of the greatest tale for a long journey. Horses at that time, were so numerous in the kingdom, that Elizabeth, when she removed her residence, demanded a quota of 24,000 from the country, in the neighbourhood of her palace. *Descrip. Brit.* p. 220.

132. In the mean time the civil dissensions of Scotland, which continued nearly the whole of the sixteenth century, had almost crushed agricultural improvement in the bud; when the ecclesiastical land-holders were totally expelled, the calamities of the farmers increased, and the nature of their misfortunes may be guessed at, from the statutes enacted in their favour. *Stat.* 110, *Parl.* 7, *Jac.* VI. The first of these was to the purport, that all 'slayers and houchers (houghers) of horses and uther cattel,' with their employers and maintainers, had 'incurred the paine of death, and confiscation of all their gudes movvabil.' A second act denounced the same penalty on all who maimed horses, oxen, or other cattle; also on those who cut or destroyed ploughs, or plough-geers, (in time of tilling) injured trees, corn, &c. *Stat.* 83, *Parl.* 7, *Jac.* VI. Other acts were framed for the protection of the farmer against petulant and obnoxious tithe gatherers, &c. The Scots, like the English, used every effort to improve their breed of horses; but so great was the jealousy of the two kingdoms, that it was made felony to export horses thither from England, lest they should improve their breed by our stallions. The Scottish government, about this period, condescended to consider the proper period for horses to be turned out to grass, so as most effectually to prevent the waste of corn; and, were pleased to enact, that all horses should be put to grass from May 15th, till October 15th, on pain to the owner of forfeiting each horse, or its value, to the king; gentlemen of 1000 marks yearly rent excepted. *Stat.* 122, *Parl.* 7, *Jac.* VI.

133. In England, the vine which had been formerly cultivated for wine, declined with the suppression of the monasteries; and was superseded by the more general cultivation of barley. Potatoes were introduced in this reign from Santa Fé, by captain Hawkins, about the year 1565; although they did not come into general use for nearly two centuries afterwards. Several agricultural authors also flourished in this reign, particularly Thomas Tusser, born at Rivenhall, in Essex, in 1527, whose 'Five Hundred Points of Husbandry,' published in 1562, were recommended by lord Molesworth to be taught in schools. Barnaby Googe, a Lincolnshire gentleman, and Sir Hugh Platt; the Rev. W. Harrison, cotemporary of Platt, and chaplain to Baron Cobham. This latter gentleman translated 'Bœthius's History of Scotland,' and wrote 'A Description of England,' in which he asserts, that the Spanish and Merino sheep were derived originally from this country.

134. In the seventeenth century many important improvements were introduced, particularly the cultivation of clover and turnips; for the adoption of which we are indebted to Sir Richard Weston, although the latter is commonly attributed to lord Viscount Townsend. The potatoe, Houghton describes 'as a bacciferous herb, with esculent roots, bearing winged leaves and a bell flower.' He observes, it was brought from Virginia, by sir Walter Raleigh, who planted some first in Ireland; afterwards, they were introduced into Lancashire, whence they began to spread all over the kingdom. When boiled or roasted, and eaten with butter and sugar, they form, says this author, a pleasant food. A sort brought from Spain of a larger form, (convolvulus batatas,) more luscious than ours, he adds, are much set by, and sold for sixpence or eight-pence the pound. The chief writers of the seventeenth century were Weston, Hartlib, Blythe, Evelyne, Norden, Gabriel Plattes, &c. The embankments, drainage of morasses, &c. the enclosures of land by act of parliament, and otherwise, together with the establishment of tolls in 1663, are to the honour of the period; and have tended, greatly, to advance the agricultural interests of this kingdom.

135. The agriculture of Scotland, during the fifteenth and sixteenth centuries considerably languished; the reformation of religion having taken the husbandry out of the hands of the monks, by whom alone it was practised upon correct principles, and placed it in the hands of men unskilled in the art of cultivation. In the seventeenth century the grounds in the south eastern countries were improved; but even then appeared in a wretched condition. Ray, who made a tour along the eastern coast in 1660, observed that fallow grounds were few; that the men were lazy, and frequently ploughed in their cloaks. The accession of James V. to the crown of England, was unfavourable to the agriculture of Scotland. The soldiers of Cromwell, who lay in Scotland for many years, and being mostly English yeoman, raised the low country districts into a higher state of improvement than had been known at any former period. The large fines exacted during the reign of Charles II. and his brother James, tended greatly to impoverish the proprietors and cultivators. Still, however, the laws passed in the seventeenth century paved the way for the present improved system. A Persian wheel, made by Worlidge, author of *Systema Agricultura*, capable of con-

veying water more than twenty feet high, for the watering of meadows, throws a light upon the advancement of irrigation. On the whole, from the imperfect glimerings of the science, in this dark but interesting period, we may mark the dawn of those vast improvements which have since been effected upon our island.

136. The general progress of agriculture, from the revolution to the middle of the eighteenth century, was not so considerable as might have been expected from the exportation of corn; but the increase of population, and the wealth derived from manufactures, has at length augmented capital, and called forth a race of ingenious and enterprising cultivators. The inventions that have been introduced for increasing produce, and economizing labour, the garden-like appearance of the country, together with the passing of more than three thousand bills of enclosure, during the late reign, more effectually illustrate the state of British agriculture, than any thing verbal that could be advanced on the subject.

137. The shock sustained by the agriculturists since the peace of 1815, by the fall of prices, originating in the diminished circulation of money, was so severe, that many farmers lost all their capital, whilst others retained just enough to enable them to emigrate to other countries. The replies sent to the circular of the 'Board of Agriculture,' exhibit a melancholy picture of the distress of cultivators generally. Rents are now, however, greatly lowered; and things begin to assume a more promising appearance. The rapid improvement of agriculture is shown by nothing more clearly than the organization of agricultural societies, in nearly all the counties of the kingdom; among which the Bath and West of England Society, in 1777; and the Highland Society of Scotland, in 1784, are the most important. The benefits of these institutions have never been appreciated, whether we look to those which are nearer or more remote. In their own immediate firmaments, they are the most distinguished orbs—shining upon surrounding institutions, and pouring light, warmth, and fertility upon our native island. The Agricultural Board ceased in 1819, being thought no longer necessary; but the effects produced by these institutions yet remain, and shall remain, when the original founders of them are forgotten, to ameliorate the state of man—to fulfil the great command—to imitate the Father of Lights—to pour their broad blessings on the earth; and when the clouds which overcast the southern hemisphere shall have cleared away, their instructions, like the rays of the sun, shall travel over the blue ocean wave, and dawn upon the unenlightened Indian, and semi-civilized Hindostanee. Professorships of this science have been established in Edinburgh, and several continental universities; and are in contemplation for those of Oxford and Cambridge.

138. We cannot close the present article without a few observations on the general state and distresses of Ireland with regard to agriculture. The primary cause of suffering amongst the Irish is ascribed by Young, and other writers, to the redundancy of population, which in 1791 amounted to 4,200,000, and has been ever since increasing at the rate of one forty-sixth part per annum. The state of the people generally, is certainly that of extreme indigence, as must be the case in every country where the increase of its inhabitants exceeds the progress of its wealth and industry. Their houses, furniture, clothing, provisions, in short, every thing relating to domestic economy, fully elucidate the above observation. The lower classes have no conception of the comforts of life, which even if they knew how to appreciate, they have not the means of obtaining. The absolute necessaries of life are, however, supplied by the superabundant cultivation of potatoes, which except in years of extraordinary calamity, have rarely been known to fail. To this is, in a great measure, attributed that deep-rooted indolence, which forms the prominent characteristic of the people. Their wants limited to the mere sustenance of animal life without its comforts, destroy the sources of artificial desire; and the usual mode in which the labourers are paid, viz. by giving them a piece of potatoe land by the year, whilst it supplies the cravings of animal necessity, neutralizes every collateral principle which would propel them to exertion. After the plantation of the esculent vegetable above-mentioned, the Irish peasant has little to do till the digging season approach; and during the apyrexia intervening between these troublesome seasons, acquires those idle habits which the subsequent transfer to a more regular employment is unable to eradicate. It is indeed remarkable, that Ireland, circumflowed by the same ocean whose warm vapours prove so refreshful to England—under the same genial diversity of climate—in the same average latitude—possessing a soil so singularly prolific, as to be able with little labour and manure to yield an alternate crop of wheat and potatoes for ever, combined with the natural advantages of mineralogy, and facilities for manufacture and commerce, should remain for so many centuries in a state of almost absolute barbarism, while the contiguous parent isle is increasing in wealth, advancing in magnificence, and flourishing in all the useful arts that civilize and polish human life.

139. We would, in conclusion, entreat our readers of other pursuits and professions, not to look with jealousy on the space now devoted, or which we shall continue to devote to the important topics of this paper. 'Though mines of gold and silver, (says Dr. Johnson in one of his minor pieces) should be exhausted, and the species made of them lost; though diamonds and pearls should remain concealed in the bowels of the earth, and the womb of the sea; though commerce with strangers be prohibited; though all arts, which have no other object than splendour and embellishment, should be abolished; yet the fertility of the earth alone would afford an abundant supply for the occasions of an industrious people, by furnishing subsistence for them, and such armies as should be mustered in their defence. We, therefore, ought not to be surprised that agriculture was in so much honour among the ancients; for it ought rather to seem wonderful that it should ever cease to be so, and that the most necessary and most indispensable of all professions should have

:n into any contempt.' (*Works*, v. ii. p. , 5.) The same excellent writer has noticed extraordinary demand for books on agri- ure under the peaceful sway of James I. leserves to be remarked,' he observes, 'be- se it is not generally known, that the trea- s of husbandry and agriculture which were lished about that time are so numerous, it can scarcely be imagined by whom they e written, or to whom they were sold.' igin and Importance of Fugitive Pieces, *John- s Works*, v. xi. p. 191.) On which an able temporary thus comments—'Nothing can strate more strongly the effects of a pacific em of policy, in encouraging a general e for reading, as well as an active spirit improvement. At all times, and in every country, the extensive sale of books on agriculture, may be regarded as one of the most pleasing symptoms of mental cultivation in the body of the people.'

140. These (1826) are times of peace: statesmen are more willing to learn how to govern mankind in times of peace than formerly, and seem sincerely directing their attention to every commercial topic. Let *them* not neglect agriculture; let the laws connected with it engage that share of parliamentary and general consideration which their importance demands; let commercial men sympathize with the peculiar burdens of agriculturalists; and let the agriculturalist consider his own true interests best pursued in conjunction with those of the entire country.

INDEX.

RICULTURE, definition of, 1. Two great branches f, *ib.* Universal interest of, *ib.* Its early introuction, *ib.* Practised by the Chaldeans, *ib.* The hinese, *ib.* The Egyptians, *ib.* Arrangement of his treatise, 3. Respective systems of, 4. Reerences for information concerning, 5. Requisites o the practice of, 6. Sciences connected with, 7. rinciples and objects of, 67. History of, 114. n Egypt, *ib.* Its antiquity, *ib.* Among the Roans, 115. Roman authors on, *ib.* Laws of omulus respecting it, *ib.* In the middle ages, 25. Saxon, 126. Norman, 128. Of England, n Henry VII's. reign, 129. First author on the ubject, *ib.* In Elizabeth's reign, 130. Writers n it in the seventeenth century, 134. Progress f it in the eighteenth, 136. Shock it sustained in 1815, 137. Present favourable prospects of, *ib.* Its paramount importance, 139. Sale of books on his subject in James I. reign, *ib.*

R, no plant healthy unless duly supplied with it, 99.

BURNUM, causes of conversion of, 41.

MONIA, as manure, 94.

PUTATION of parts of plants, 67.

ATOMY of animals, 105. External, 106. Internal, 107.

IMAL system, a sketch of, 104. Digestive organs of the, 108. Reproductive organs, 109.

IMALS, their pathology, 110. Their uses in agriculture, 111. Breeding them, 112. Rearing them, 113. Bones of, 106.

UATIC soils, 74.

GILLACEOUS soils, 74.

CENT and descent of vapours, 101.

MOSPHERE, its connection with vegetation, 99. Its changes important, 100.

GS, prevention of, 51.

KEWELL's manuring by water, 22.

NKS, Sir J., discoveries respecting blight, 51.

RLEY, 88. May succeed wheat, 89.

EANS, 84. 88.

EETLES in 1574, 59.

RDS, &c. at Rome, enormous price of, 122.

LIGHT, cause of, 51. Species of, *ib.* Effects, *ib.* arising from fungi, *ib.* Evidences of, *ib.* Sir J. Banks's discoveries respecting it, *ib.*

ONES, as manure, 92. Of animals, how composed 106.

OOK of survey in 1539, 130.

ORING, object of, 50.

OTANY, systematic, 7. Classification of, 8. Anatomy of, 9.

BRAIN of animals, how composed and connected, 107.

BRANCHES, organization of, 44. Parts of, *ib.* Direction of, *ib.*

BREEDING of animals, 112.

BRITAIN, ancient, as an agricultural country, 124.

BUD, constitution of, 15. Organs of, *ib.* Frequent deficiency of, 45. Origin of, *ib.* Development of, *ib.*

BULBS, classification of, 15. Constitution of, *ib.*

BULBOUS roots divide the soil, 86.

BURNING of soils, 81.

CABBAGE and turnips compared, 87. Flourishes in a wheat soil, 89.

CALCAREOUS earths, 74, 75. Matter as manure, 94.

CARTHAGINIAN threshing, 120.

CAUDEX of plants imperfect, 15. Modes of, *ib.*

CHALDEANS, agriculture of, 1.

CHALK, as manure, 94.

CHEMICAL analysis of soils, 75. Its difficulty, mode of conducting it, &c. *ib.*

CHINESE, agriculture of, 1.

CLAY in soils, 75. Answers for wheat, 88. Moist answers for beans, *ib.*

CLIMATE to be consulted, shelter, and shade, 67.

CLOVER, red, ensures wheat, 89.

CLOUDS, their agency in vegetation, 96.

COLD and hot soils, 77. Cold, its general causes, 96. Effects on vegetation, *ib.*

COMPOSITE ORGANS of imperfect plants, 16. Unfolding of, 41.

CORIUM, or true skin of animals, 106. Colourless and penetrated with blood-vessels and nerves, *ib.*

CORN, mode of destroying grubs in it, 59. Corn-butterfly, ravages of in France, 63. Cure of, *ib.*

CORPUS MUCOSUM of animals, 106.

CORTICAL Layers, description of the, 16. Constitution of, *ib.* Use in grafting, *ib.*

CROPS that encourage weeds to be avoided, 90. Repetition of, to be avoided, 92.

CRUSTS, appendages of the skin, 106.

CULMIFEROUS Plants, 84. Depend largely on the soil for nourishment, *ib.* All their seeds ripe together. 85. Affected by the dews, *ib.*

CULTIVATION of soils, 71.

CURLED disease in potatoes, remarks on the, 64. (I.) Causes of, *ib.* (III. and XVI.) Reversion of, *ib.* (IV. and XVII.) Experiments on, *ib.* (V. VI. and XVII.) Conclusions respecting the disease, 65. New mode of avoiding it, 66.

CUTICLE of animals, 106.

DECAY of vegetables, certainty of, 11. Annual decay, *ib.* Miscellaneous remarks on, 52, 53. Classification of, 53. From abundant juice, 54.
DEEP ploughing considered, 78.
DEVELOPMENT, order of, 42.
DEWS to be regarded, 67. Their effects on culmiferous crops, 85. On a leguminous crop, *ib.* General effects, 101.
DIGESTIVE organs of animals, 108.
DISEASES, miscellaneous, of vegetables, 51. General causes of, 58.
DISTRESS of Ireland, cause of, 138.
DIVISION of soils, 71.
DROPSY, causes of, 51. Its progress and separation, *ib.*
DRY soils, 74, 75.
EARTH, vegetable, characters of, 28. Means of ascertaining, 29. Saturation of, with putrid effluvia, 30. Effluvia attracted by, 31.
EARTHS, experiments on, 26. Principle of nourishment, *ib.*
EGYPTIANS, agriculture of, 1.
ELECTRICITY, its agency in vegetation, 95. 98.
EMBRYO, vegetable parts of, 40. Vegetable anatomy of, *ib.*
EPIDERMIS, description of, 16.
FALLOWING, 80.
FARMER, Roman, described, 116.
FEATHERS of birds, an appendage of the skin, 106.
FERRUGINOUS soils, 74.
FIBRE, ancient uses of, 16. Texture of, *ib.*
FECUNDATION, opinions upon, 48.
FISH, as manure, 92. Should be ploughed in fresh, *ib.* Bred by the Romans, 122.
FISH-PONDS, Roman, their value, 122.
FITZHERBERT, Sir A. (1534) first writer on agriculture in England, 129.
FLOWER, early completion of, 47. Anomalies of, *ib.*
FLOWER-STALK of plants imperfect, 15. Description of, *ib.* Anatomy of, *ib.* Constitution of, *ib.*
FRACTURE, causes of, 50. Cure of, *ib.*
FLIES in turnips, 60. Preventive of, 60—62.
FLUX of juices in plants, 51.
FROST, its causes, 101.
FRUIT, mode of preserving, 68.
FUNGI, definition of, 13.
GENERA of soils, how determined, 71.
GEOLOGICAL structure of the earth, 70.
GERM of imperfect plants, 15.
GERMANY, ancient, as an agricultural country, 124.
GERMINATION, commencement of, 18. Conditions of, *ib.* Influence of warmth upon, *ib.* Necessity of moisture to, *ib.* Influence of air upon, *ib.* Experiments on, in gases, *ib.* Accelerated by acid, *ib.* Period of, in plants, 19. First symptom of, 20. First symptom of, accounted for, *ib.* Progressive steps of, *ib.* Philosophy of, *ib.*
GIRDLING, mode of, 50.
GLASGOW, prevailing winds at, 102.
GOOGE, B. an early writer on agriculture, 133.
GRASS, sheltering it, the effects of, 97.
GREEKS, agriculture of, 1.
GROUND improved by immersion, 22.
GRUBS in corn, 59. Their ravages in Norfolk, *ib.*
GYPSUM, as manure, 94.
HAIL, its causes, 101.
HAIR, as manure, 92. Of animals an appendage of the skin, 106.
HAMEL, Du. on disease of saffron, 57.
HARRISON, Rev. Mr. an early writer on agriculture, 133.
HEAT, its agency in vegetation, 95, 96. And cold, their general causes, 96.
HELVETIA, as an agricultural country, 124.
HENRY VII. Agriculture in his reign, 129.
HEPATICÆ, description of, 13.
HISTORY of agriculture, 1f4. In Egypt, *ib.* Its antiquity, *ib.* Among the Romans, *ib.*
HOME, Dr. his opinion of smut, 55. Modes of preventing it, *ib.*
HONEY-DEW, nature of, 51. Its origin, *ib.*
HORN, as a manure, 92. Horns of animals, an appendage of the skin, 106,
HORSES much attended to in Henry VIII.'s reign, 131.
HOT and cold soils, 77.
IMPLEMENTS, Roman, 118. Greek, 119. Ancient, 128.
IMPREGNATION, means of, 48. By insects, *ib.* signs of, *ib.*
INJURIES, causes of, 50. Cure of, *ib.* Necessity of, *ib.*
INSECTS destroyed by heat, 63.
INTRO-SUSCEPTION, means of, 36.
IRELAND, agricultural state of, 138.
JOHNSON, Dr. on agriculture, 138.
IRON, sulphate of, as manure, 94.
IRRIGATION of soils, 82.
ITALY, blight of, 51. As an agricultural country, 116
JUICE, descent of, 39. Colour and use of, *ib.* Dr. Darwin's experiment on, *ib.* Supposed cause of descent of, *ib.* Of plants, flux of, 51.
LANDS exhausted in a few years, 91.
LATIMER, Bp. His father's farm described, 130.
LAYERS, successive formation of, 43.
LEAF-STALK of plants, imperfect, 15. Uses of, *ib.* Anatomy of, *ib.* Knight's discoveries in, 41.
LEAVES, air inhaled by, 36. Principle of, doubtful, 46.
LEATHER CHIPPINGS as a manure, 92.
LEGUMINOUS plants nourished by the air, 84. How affected by dew, 85.
LIGHT, its agency in vegetation, 95, 96.
LIME as manure, 94. Sulphate of as ditto, *ib.*
LIMESTONE, 94. Ditto powdered, *ib.*
LINSEED-CAKE, a good manure, 92.
LONDON, prevailing winds at, 102.
MAGNESIA as manure, 94.
MALT-DUST, a good manure, 92. Marl, 94.
MANURE, best, 67. The whole to be employed, 91. Animal, 92. Vegetable, *ib.* Other species of, *ib.* Some to be used fresh, *ib.* Rape-cake, malt-dust, linseed-cake, and sea-weed, good manures, *ib.* Fish, *ib.* Organic, 93. Mineral, 94. Alkaline earth as, *ib.* Lime, *ib.* Magnesia, *ib.* Marl, *ib.* Chalks, *ib.* Limestone powdered, quick-lime, &c. *ib.* Vegetable, should be applied to its own species, 92.
MANURING by water, principle of, 22.
METALLIC oxides in soils, 75.
MILDEW, nature of, 51. On wheat, shape of, *ib.* Prevention of, *ib.*
MINERALOGY connected with agriculture, 70. General principles of that science, *ib.*
MOSS tribe, description of, 13.
MUSCULAR structure of animals, 107.
NERVES of animals, 107.
NERVOUS system, 107.
NITRE, as manure, 94.
NORMAN agriculture, 127.
NOURISHMENT of plants by water, 22. Want of nourishment, its evidences, 57.
OIL as a manure, 92.
ORGANIZED matter in soils, 75.
ORGANS, decomposite, development of, 42.
OSSEOUS structure of animals, 107.
PATHOLOGY, definition of, 50. Of animals, 110.
PEAS, 88. And beans, 84. The best crop to succeed wheat in many cases, 89.
PEATY soils, 74.
PERICARP, its various contexture, 15. Organs of, *ib.*
PITH, definition of the, 16.

PLANTS, twofold structure of, 9. Perfect, external structure of, *ib.* Conservative organs of, 10. Conservative appendages, 11. Reproductive organs, 12. Imperfect, external structure of, 13. Imperfect, definition of, *ib.* Imperfect, distribution of, *ib.* Imperfect, internal structure of, 14. Imperfect, internal organs of, *ib.* Imperfect, decomposite organs of, 15. Imperfect, pericarp of, *ib.* Nourishment of, 21. Nourishment of by air, 23. Experiments on in gases, *ib.* Nourished by vegetable extract, 24. Nourished by salts, 25. Salts in composition of, *ib.* Nourished by earths, 26. Diseases of, 51. Culmiferous, 84. Leguminous, depend much on the air, *ib.* Sheltered by snow, 97.
PLATT, Sir H., an early writer on agriculture, 133.
POTASSA, sulphate of, as manure, 94.
POTATOES, curled disease of, 64. Improvements in setting, 64, (XV.) How best preserved, 68. Their quality of dividing the soil, &c., 86. And turnips compared, 87. First introduced into England, 133.
PRESERVING fruit, 68.
PRICE of birds, &c. at Rome, 122.
PRIMITIVE soils, 71.
PRUNING, &c. 50. 67.
PROPAGATION, means of, 49.
PULP, description of the, 16.
PULVERIZING of soils, 79. Its advantages and disadvantages, *ib.*
QUICK LIME as manure, 94.
RAIN, its causes, 101.
RAPE-CAKE, a good manure, 92.
RAY'S account of agriculture in Scotland, 1660,—135.
REARING of animals, 113.
RED-RUST, nature of, 51.
RED-GUM, 51.
REPETITION of the same crop to be avoided, 90.
REPRODUCTION of animals, 109.
ROBERTSON'S mode of curing mildew, 51.
ROMAN agriculture, 1. Roman villa described, 116. Implements, 118. Threshing, 120. Animals, birds, &c. reared, 122. Maxim of agriculture, *ib.* Roman, profits of, uncertain, 123.
ROOT, annual augment of, 42. Perpendicular descent of, *ib.* Influence of oxygen upon, *ib.* Strength of, *ib.*
ROOTS and leaves good manure for wheat, 91.
ROTATION of crops, 83. Principles of it, *ib.* It destroys insects, 91.
SAFFRON, disease of, 57.
SAP, diffusion of, 37. Constant motion of, *ib.* Constant motion of proved, *ib.* Opinions of the ascent of, *ib.* Ascent, means of discovered, *ib.* Ascent of in leaves, *ib.* Ascent of in fruit-stalk, *ib.* Entire course, mystery of, *ib.* Elaboration of, 38. Incipient elaboration of, unknown, *ib.* Elaboration of in leaves, *ib.*
SALINE soils, 74.
SALT as manure, 94
SAND in soils, 75.
SEA-WEED a good manure, 92.
SAXON agriculture, 126. Laws of respecting agriculture, *ib.*
SCALES of animals, an appendage of the skin, 106.
SCOTLAND as an agricultural country, 128. Laws in it respecting agriculture, 132.
SEED, divisions of, 15. Anatomy of, *ib.*
SERIES of earths, primitive, second, third, &c. 71.
SNOW, its use as a shelter of plants, 97.
SHELLS of fish, &c. an appendage of the skin, 106.
SHELTERING of grass, its effects, 97.
SHOOT, annual formation of, 41.
SHOWERS, to be consulted and imitated, 67.
SILICA, its modifications, 75.
SILICEOUS soils, 74.
SKIN of animals includes several coats, 106. Its appendices, *ib.* Secretions, *ib.*
SMUT, nature of, 51. Prevention of, *ib.* Dr. Home's opinion of, 55.
SNOW, its causes, 101.
SOIL, cause of difference in, 27.
SOILS, table of, 71. Qualities of, 73. Decided by what plants grow in them, 74. Argillaceous, calcareous, silicious, &c. described, *ib.* Quality of, evinced by chemical analysis, 75. Specific gravity of, *ib.* Their uses, 76. A variety required, *ib.* For bulbous roots, *ib.* For barley and turnips, *ib.* Mixture of alumina and silica required, *ib.* Clayey requires mixture with sand, &c. *ib.* Cold and hot, 77. Black and pale, *ib.* Those which cool quickly, *ib.* Rich, *ib.* Pulverization of, 79. To be improved according to their predominant quality, 80. Burning of, 81.
SOOT as manure, 92. 94.
SPECIES of soil, how determined, 71.
SPECIFIC gravity of soils, 75.
SPINAL marrow of animals, 106.
STEM, progression of, 43.
STRUCTURE of the earth, 70.
STIFF clays, 76.
SUB-SOIL, its quality very important, 78. Should regulate ploughing, &c. *ib.* Often impregnated with oxide of iron, *ib.*
SULPHATE of lime as manure, 94. Of iron, *ib.* Of potassa, *ib.*
TABLE of soils, 71.
THRESHING, Roman, 120. Carthaginian, *ib.*
TORREFACTION of soils, 81.
TURNIPS, how best preserved, 68. And potatoes compared, 87. And cabbage, *ib.*
TUSSER'S, account of agriculture in 2nd. Elizabeth's reign, 130. His Five Hundred Points of Husbandry published, 133.
VEGETABLES, fragrancy of, 32. Bath of recommended, 33. Transmutation of putrid matters by, 34. Transmutation, necessity of, 35.
VEGETABLE sexuality, and impregnation of the seed, 48. Known to the Greeks, *ib.* Several organs of, *ib.*
VEGETABLE chemistry, nature of, 17.
VEGETABLE nutrition, process of, 36.
VEGETATION, lord Kames's experiments on, 27. Earth best suited for, 28.
VERMIN, modes of destroying, 58.
VILLAS, Roman, described, 116.
VINE the, cultivated in England, 133.
VISCOUS secretions of the skin, 106.
UNCTUOUS secretions of the skin, 106.
USES of animals in agriculture, 111.
WATER used as manure by Mr. Bakewell, 22. Dr. Anderson's essays on, *ib.* Its abundance to be rectified, 81. Must be supplied when deficient, *ib.* Its agency in vegetation, 95.
WEEDS, crops that encourage them to be avoided, 89.
WESTON, Sir R. improves the culture of clover and turnips, 134.
WHEAT requires more nourishment than other grain, 86. Requires a leguminous crop to follow, 88.
WIFE'S occupation in ancient times, curious account of, 129.
WILD GRAIN, cause of, 64, (IX.)
WIND, as connected with agriculture, 102. Prevailing winds at London and Glasgow, *ib.*
WOOD, constitution of, 16.
WOOLLEN RAGS, as a manure, 92.

AGRICULTURE, Boards and Societies, for the Encouragement of. The first society for the promotion of agriculture in the British isles, of whose history we have any account, was *The Society of Improvers in the Knowledge of Agriculture in Scotland*, instituted in 1723. This association exerted itself with considerable success, in introducing cultivated herbage and turnips, and improving on former modes of culture. The earl of Stair, one of its active early members, is said to have been the first who cultivated turnips in that country. But the example appeared to have little effect upon the practice of the common tenantry. Maxwell, who for one or two sessions, delivered lectures on agriculture, at Edinburgh, gives the first notice of a threshing machine, in his *Transactions of the Society of Improvers*. It appears to have been invented by Michael Menzies, advocate, who obtained a patent for it; and, according to the report of the above society, one man by the assistance of this machine, might do the work of six. One of the machines was 'moved by a great water-wheel and treddles;' and another, 'by a wheel of three feet diameter, moved by a small quantity of water.' See *Encyc. Brit. and Ed. Encyc. Art. Agr.* and Brown's *Rural Affairs*. Draining, inclosing, summer-fallowing, sowing flax, hemp, grass seeds, turnip and rape, planting cabbages after, and potatoes with, the plough, in large fields, were now introduced; and more corn was grown, where it was never known to grow before, by one sixth of the former produce of the kingdom. Hope, of Rankeillor, a member of this society, among other patriotic exertions, drained the morass, near Edinburgh, formerly known as Straiton's Loch; and projected the walks over the grounds now known as *the meadow walks*, for some time a fashionable place of resort. Cockburn, of Ormiston, was a principal member and founder of this institution; and, the dukes of Hamilton, and Athol, Hopeton, and Islay, exerted themselves to facilitate the objects of this society. At length, this excellent institution, at one time consisting of more than 300 members, became neglected, and was dissolved, after about twenty years of valuable services to Scotland.

The establishment of the Dublin Agricultural Society, in 1749, gave a stimulus to agriculture in Ireland. Its origin may be traced as early as 1731; when Prior, of Rathdowney, Queen's County, and a number of other gentlemen, associated themselves for the improvement of agriculture and husbandry. In 1749, Prior, by means of the lord lieutenant, procured a grant of £10,000 per annum, from the Irish government, in aid of so desirable an object. Miss Plumtree considers this the first association of the kind, formed within the British dominions; but, we have seen that the Agricultural Society of Edinburgh was organized in 1723.

County Societies, for the promotion of agriculture, which multiplied in every direction during the eighteenth century, evince the interest attached to that pursuit in England. Among them, the highest rank may certainly be claimed for the *Bath and West of England*, established in 1777, and the *Highland Society of Scotland*, founded in 1793. The *Agricultural Reports* of the different counties, many of them surveyed a second time, exhibit great ability, and have been followed by a *General Report of the Agricultural State and Political circumstances of Scotland*, of considerable value. Many of these county societies were in operation prior to the existence of the *Board of Agriculture*, and contributed to prepare the public mind for that national institution.

The London Board of Agriculture, was established by act of Parliament, 17th May, 1793, and constituted by royal charter, 22d of August following, for the encouragement of Agriculture and Internal Improvement. 'The circumstances,' says Sir J. Sinclair, the president and founder of this excellent institution, 'which led to the establishment of a board, so likely to be of material service both to this country and to society at large, cannot fail to be interesting to the public.' 'In 1786,' this gentleman informs us, 'he undertook an extensive journey through the most interesting parts of Europe, to obtain political information, to ascertain the state of other countries, and to discover every means which had been sanctioned by the experience of other nations, that could be successfully introduced for the improvement of Great Britain:' that, 'in the course of that tour,' in which he travelled 7500 miles in seven months and a half, 'he became acquainted with the most distinguished authors, the ablest statesmen, and the most zealous patriots, that Europe could then boast:' and 'returned full of ardour, to establish, in his own country, the beneficial institutions, which were scattered over others; and to make this island the centre of the various improvements of which political society was capable, more especially those of an agricultural nature.' Circumstances, however, having occasioned a coldness with the minister, he found that any attempt, to carrry such measures into effect, was not likely to be successful in parliament, and thence he was under the necessity of waiting for a more favourable opportunity.' Sir John Sinclair adds, that having published his History of the Revenue, which he had intended to have concluded with a chapter on the political circumstances of the country; he then saw the necessity of forming some institution for the express purpose of collecting statistical information, the public having felt the most serious inconveniences and losses, from information of that nature not being any where to be obtained. This suggested the idea of beginning that useful and extensive work, the Statistical account of Scotland, concluded in 21 vols. 8vo. and to the completion of which 900 individuals of intelligence and ability contributed their assistance. About the same time, Sir John, having received information respecting the celebrated wool of the Shetland isles, and of the dangers to which their flocks were exposed, was led to lay a statement of these facts before the Highland Society, who gave every assistance in their power, and to suggest the erection of a new Society, entitled the British Wool Society, for the special purpose of improving British wool. The business of that Society was carried on with such

energy and success, that in the summer of 1792, 'the greater part of this island had been surveyed, by persons skilled in the management of sheep, whose observations were circulated over the kingdom.' It was in the preface to an account published by that Society of one of these tours, that Sir John first hinted at the establishment of a Board of Agriculture. After stating that 'they had established many important facts; that they had proved that the finest breeds of Spain or of England will thrive on the wildest of the Cheviot hills, and that very fine woollen breeds may be propagated in the most mountainous districts of Scotland,' he adds, 'but unless a Board of Agriculture be constituted, for the purpose of superintending the improvements of the sheep and wool of the country, and other objects connected, either with the cultivation or pasturage of the soil, he should despair of any considerable success in those pursuits.' Impressed with these ideas, Sir John Sinclair went to London in December 1792, resolving to attempt the establishment of such a Board.

On the 15th of May, 1793, this gentleman made his motion in parliament for this purpose, 'It is supposed,' said he, 'that there are sixty-seven millions of acres in Britain, of which seven millions are occupied with houses, roads, rivers, lakes, &c. There remained sixty millions, of which five millions only were employed in raising grain; twenty-five millions were appropriated to pasturage, and there remained thirty millions either completely waste, or under a very defective system of husbandry. That was an object of astonishing importance. Disgraceful, indeed it was, that nearly one half of the kingdom, which might furnish subsistence to above ten millions of people, should remain in such a state.' By the efforts of the proposed institution, he considered the stock of the farmer might be rendered infinitely more valuable, without requiring a greater quantity of food, or any additional care or expense.' The additional value of black cattle, of which it is supposed there are five millions in the island, he estimated, at 20s. a head, would add five millions per annum to the national wealth. There are at least twenty millions of sheep in Britain. By improving the fleece, 1s. per sheep might be added to the value of the wool, which would produce one million: the manufacturer of the wool can treble the value; hence an addition of other five millions per annum; and the profits arising from improving the carcase would be still more considerable. Great improvements might also be made in other kinds of stock. Great savings would arise by the use of improved instruments of husbandry, while by following judicious systems adapted to the different soils, ground would be cultivated at much less expence and with greater advantage. These improvements would furnish the means of healthful occupations to many thousands, almost millions of people, who, from the integrity of their private conduct, and the vigour of their constitutions, should as much as possible be multiplied.' To secure these advantages a Board of Agriculture was absolutely necessary, 1. As a general magazine for agricultural knowledge. 2. As the best means of collecting and circulating that knowledge, and exciting a spirit of experiment. 3. As the most certain method of establishing an extensive foreign correspondence, to procure the most speedy information of agricultural improvements and discoveries, in all quarters of the globe. 4. As a public body, capable of being entrusted with the privilege of franking, to render its correspondence less expensive. 5. As the only medium, through which any general improvement of stock could be expected, the authority and influence of a public board far surpassing the exertions of private societies, however active, in removing deep-rooted prejudices, and concentrating the knowledge of many individuals of different professions. And, 6. As the best means of obtaining a statistical account of England, and giving a view of the real state of that country; such as had already been nearly completed in Scotland, and which might soon be universally followed in other countries: 'And thus the principles of political society, and the sources of national improvement, would be more completely ascertained, than in any former period of history.' For when persons talked with raptures of the great wealth brought into this country by commerce, they did not consider that the nation in many cases lost as much by neglecting agriculture, as they gained by commerce. The Board was finally appointed to consist of a president, treasurer, secretary, under-secretary, two or more surveyors, one or more clerks, with such other officers as may be necessary, and thirty ordinary members: besides the archbishops of Canterbury and York, the lord chancellor, or lord keeper of the great seal, lord president, lord privy seal, lord treasurer, or first commissioner of the Treasury, lord high admiral, or first lord commissioner of the admiralty, the bishops of London and Durham, the two secretaries of state, the master of ordnance, the speaker of the house of commons, the president of the Royal Society, the surveyor general of woods and forests, and the surveyor of the crown lands, for the time being; who are all members *ex officiis*. The annual election of officers and members was appointed for the 25th of March, when five of the ordinary members were to go out, and five others to be chosen. At all meetings of the Board, seven should be a quorum for doing business, the president or the deputy being always one: and the number of honorary members to be unlimited.

At first Sir J. Sinclair's friends had little hopes of his success, and when he informed Mr A. Young, that he had an appointment with Mr Pitt to explain the advantages of the measure, Mr. Young wrote, 'When you come from Mr. Pitt, I shall have won the wager, (that he would not succeed.) Pray don't give ministers more credit than they deserve. In manufactures and commerce, you may bet securely, but they never did, and never will do any thing for the plough. Your board will be a Board in the Moon.' Sir John, however, took every prudent measure to insure success. M. Dundas early promised his assistance, notwithstanding their political differences; and Mr. Pitt assured him, 'that he would not oppose the measure, but that his support would depend on what he judged was the

sense of the house.' To satisfy the house of the beneficial tendency of such a measure, Sir John, previous to his motion in parliament, circulated a printed paper among the members, containing a plan of the board, its objects, advantages, and probable expenses. Still, however, a few members, suspecting some scheme of corruption or ministerial influence to be at the bottom, opposed it vehemently; but it was carried by a majority of seventy-five; 101 voting for it and twenty-six against it. Mr. Sheridan and others, who then opposed it, have since very handsomely expressed their conviction of the utility of the measure, and their wishes for its success. The board was established by Act of Parliament, on the 17th May 1793, £3000 per annum voted for its support, and the charter drawn up and ultimately sanctioned by the Great Seal, on the 23rd of August, although the high fees paid for it, which amounted to no less than £1189. 12*s*. 2*d*. might, one would think, have expedited the business more quickly. The board could not be assembled till the 4th of September, and the regular meetings did not commence till January 23rd, 1794. One of the first objects of their attention was to collect materials for a statistical account of England. Accordingly specimens of parochial reports were printed, with a view of rousing the clergy of the church of England to exertions similar to those of their brethren in Scotland. But it was afterwards thought proper on various accounts, to prefer general to particular enquiries, and to procure county instead of parochial reports. Accordingly surveys were made and reports printed of the state of agriculture, in all the counties of the United Kingdoms: and many gentlemen employed, executing their tasks gratis. The charge of collecting this mass of information, and surveying the whole island, did not exceed the sum of £2170. The expense of printing the reports, however, was great. As a specimen of the expedition with which the business of the board was carried on, it is worth mentioning, that no fewer than seventy-four of these reports were given in, and either printed or in the press, within little more than six months after its second meeting; that during the first session above 80,000 papers were printed and circulated, of which above 100 were returned with valuable hints and observations written in the margins, before the 29th of July, 1794; and that by the end of the second session, the survey of the whole kingdom had been nearly completed, and the reprinting of some of the reports had actually commenced. Such a quantity of important business, begun and executed within so short a period, we are persuaded is not to be found paralleled in the annals of any public society. Nor were these the only exertions made by the board within that period. Through their recommendation and influence extraordinary merit was rewarded, £1000 being granted by parliament, to Mr. Joseph Elkington, who had carried the art of draining land to a degree of perfection hitherto unknown; and the interests of a most useful class of the community, viz. the common labourers, had been attended to, by introducing and passing the 'act for the more effectual prevention of the use of defective weights, and false and unequal balances.' And there is every reason to believe, that in consequence of the recommendations of the board, in January, 1795, 50,000 additional acres were planted with potatoes, and a famine, consequently, prevented by thus providing six months provisions for about a million of people. The crop of wheat in 1795, however, proving defective, the president recommended to the board, an extra cultivation of that necessary grain, in a letter which was sent to all the members, and to the quarter sessions of the counties, as well as inserted in fifty different newspapers, in consequence whereof a great quantity of wheat was sown, and, with the advantage of a favourable season, a more productive and plentiful crop was reaped in autumn 1796, than perhaps at any former period in the annals of British agriculture.

We should protract this article beyond all bounds, were we to enumerate all the objects of this truly patriotic institution. We shall, therefore, after giving the great outlines of investigation, as stated by Sir J. Sinclair to the board, in his 'General View of the Inquiries essential for the internal improvement of the kingdom,' only mention one or two important objects of their attention. The former are thus ranked by the president. 1. The riches to be obtained from the surface of the national territory. 2. The mineral or subterraneous treasures of which the country is possessed. 3. The wealth to be derived from its streams, rivers, canals, inland navigations, coasts and fisheries; and 4. The means of promoting the improvement of the people in regard to their health, industry, and morals, founded on a statistical survey of every parochial district in the kingdom, and the circumstances of its inhabitants. Under one or other of these heads, every point of real importance, that can tend to promote the general happiness of a great nation, seems to be included. Three objects of attention were pointed out—1. To ameliorate the condition of the lower orders of the people, by promoting improvements in the construction of cottages, and ascertaining the means of lessening the consumption of fuel. 2. To recommend the annexing of a large garden to each cottage; and, 3. To encourage the extension of friendly societies. Another important object of the board was, to procure an act for the enclosure and cultivation of the waste lands in Great Britain: and thus to

> ——— Cut off those legal bars
> Which crush the culture of our fruitful isle.

In a word, the great objects of the board were to collect and condense every particle of information, that could be interesting either to individuals or society.

In his address to the board, 24th of May, 1796, Sir John Sinclair justly observes, 'that a single additional acre, cultivated at home, is more truly valuable than the most extensive possessions acquired abroad, at an enormous expense of treasure and of blood, and retained with difficulty and danger.' And in a former address, on the 29th July, 1794, after stating that the probable addition to the national capital by the improvement of 22,351,000 acres of waste lands

would amount at thirty years purchase to £905,215,500; besides £30,193,850 of additional national income. He allows an objection may be urged, that the improvement of these 22,351,000 acres at £4 per acre would occasion an expense of £89,404,000. To this, after replying, that 'in a national account this expense is no object;—that the public, instead of losing, gains by the expenditure; and that the money thus laid out might have lain dormant; might have been wasted, or destined for the cultivation of distant territories, with all the risk of being taken by an enemy, &c.;' he adds—'That here it is impossible not to advert to the astonishing difference between spending eighty-nine millions in improvements at home, or in foreign conquest. After the expenditure of that sum in war, it would be accounted a most fortunate means of reimbursement, if we could secure any territory, by a commercial intercourse with which, five millions per annum could be gained; whilst, at the same time, it would be necessary to pay at least five millions of additional taxes. But if that money were laid out at home, or rather, if individuals were encouraged to expend a part of their wealth, in the internal improvement of the country, instead of new taxes being necessary, the old ones would become lighter and more easily paid; and instead of dragging £5,000,000 per ann. from an enormous distance, with much risk and expense, thirty millions would be produced within our own domain, and always at our command.' Sir John Sinclair closes his account of the board, with this philanthropic proposal, that a 'Plan of an agreement be entered into among the powers of Europe and the United States of America, for rewarding discoveries of general benefit to society.' The general outlines are, 'that each power should agree to pay a sum according to its revenue, for rewarding those who make any useful discovery in rural œconomy, medicine, or the arts; and that such discoveries should be rapidly extended to the different countries; and brought to their ultimate state of perfection. The attention of mankind being thus directed to such objects, it is impossible to say, to what perfection the arts necessary for their comfort and sustenance might be carried. The desire for fame and emolument, and the emulation of many nations rivalling each other in such arts, would produce discoveries, the importance of which can hardly be estimated. And such an undertaking might have the effect of rendering wars less frequent and ferocious.' He concludes, 'If the measures above hinted at were adopted, a new scene in politics might be the happy consequence, and rulers of nations might in future boast,—not of their numerous fleets,—not of their gallant armies,—not of extended commerce,—of splendid or luxurious arts, or acquisitions by intrigue or conquest,—but of this,—that within their respective dominions, a greater number of human beings enjoyed all the blessings of political society, in greater perfection, than hitherto they had ever been enabled to attain in any former period of history.'

We have dwelt thus long on the formation and history of a society, now in fact, extinct, (for in 1819, the usual parliamentary vote for its support, was withdrawn,) because, with some little prolixity, important agricultural details are included in it: and as a tribute of respect to the unwearied and public-spirited exertions of more than one excellent individual.

AGRIELÆA, in botany, the wild olive.

AGRIFOLIUM, or AQUIFOLIUM, in botany. See ILEX and HOLLY.

AGRIGAN. See AGRIGNAN.

AGRIGENTUM, AGRAGAS, or ACRAGAS, in ancient geography, a celebrated city on the southern shore of Sicily, the site of which is now partially occupied by the town of Girgenti. The ancient name (Acragas) was also that of a neighbouring stream; and both, according to Polybius, were so called (ακραγη) from the fertility of the surrounding country. The situation of this city was peculiarly strong and imposing, chiefly standing on a bare and precipitous rock, elevated 1100 feet above the level of the sea. Mr. Swinburne and M. Houelle contend that a considerable part of the ruins reach into the vale. It was protected on the southern side by the river Acragas, and on the western, by the Hypsas. A strong wall was erected along the margin of the rock, and in the eastern part of the town, on the site now occupied by Girgenti, was placed the citadel of Cocalus, so environed by a deep gulph, as to be approachable only by a single narrow path.

Dedalus, the most famous mechanic of fabulous antiquity, fled to this spot for protection against Minos, and built many splendid edifices for Cocalus, king of the island. Long after his flight, A. A. C. 600, the people of Gela sent a colony hither. These Greeks converted the ancient abode of the Siculi into a citadel, to guard the magnificent city, which they erected on the hillocks below. An advantageous situation, a free government, with all its happy effects, exalted their commonwealth to a degree of riches and power, unknown to the Greek settlements, Syracuse alone excepted.

To its advantages as a place of great strength, the city added others of a commercial nature being within two miles and a half of the sea, by which an easy intercourse was afforded with the ports of Africa, and the south of Europe. The soil about Agrigentum being very fertile, was laid out chiefly in olive yards, the products of which were carried to Carthage, and brought immense wealth to the cultivators. This enabled them so splendidly to adorn the city with temples and other public works, that Polybius, l. ix. says, it surpassed in grandeur of appearance most of its contemporaries. Among the more important of its buildings, were the temples of Minerva, and of Jupiter Atabyris, (who was worshipped under this appellation in the island of Rhodes,) built on the highest ground in the city; and the temples of Jupiter Olympius, and of Hercules.

The temple of Jupiter Olympius, which vied, in size and grandeur of design, with the finest edifices of Greece, is said by Diodorus Sic. l. xiii. to have been 340 feet long, sixty broad, and 120 high, the foundation not being included, which was itself remarkable for the immense arches

upon which it stood; the walls of the building had half-columns let into them, measuring twenty feet round on the outside, and flutings of depth sufficient to allow a man to stand in them. The porticoes were very grand; the eastern representing, in admirable sculpture, the battles of the giants; and the western the siege of Troy. A war prevented the completion of this temple, when the roof only remained unfinished. There was also an artificial lake, cut out of the solid rock, near the city, of about a mile in circuit, and thirty feet deep, from which fish were obtained in abundance for the public feasts, and which was rendered an object of pleasure to the citizens, by the number of swans and other waterfowl which frequented it. But the mud being suffered to accumulate in this basin, it was at length filled up, and vines being planted, it became a remarkably fruitful spot. This lake, and the temple just described, were the work of a number of Carthaginian captives, by whose labour were also built the public sewers, which were objects of admiration for their strength and size.

The inhabitants of Agrigentum were enfeebled by luxury and pleasure. Empedocles, as Diogenes Laertius informs us, l. 8. seg. 63. tome i. p. 532. ed. *Meibom*, reproached them 'with devoting themselves every day to pleasure as if they were to die on the morrow, and yet building houses as if they were to live for ever.' They are, however, commended for their hospitality. Gellias, a rich citizen, is particularized by historians for his practice of setting porters at his gate for the purpose of inviting strangers to refresh themselves in his house. On one occasion, when 500 horsemen applied to him for a lodging, they were all liberally entertained, and furnished during their stay with garments from his wardrobe. The Agrigentines were famous for their attention to the breeding of horses, *Virgil*, *Æn.* l. iii. v. 705; and as an instance of their possessions in this way, Diodorus relates, that when a native had been crowned victor at the Olympic games, he was brought into the city with great pomp, attended by 300 chariots, each drawn by a pair of white horses, the property of the citizens.

With respect to the early history of this ancient city, and even its founders, much obscurity prevails. Strabo calls it an Ionian colony. Polybius says its first inhabitants were Rhodians. Thucydides, in his sixth book, relates that the Geloi, who were of Rhodian origin, built this city after having been about 100 years in Sicily. Some fabulous accounts even assign its erection to Dædalus, whose flight to this place we have already noticed.

In the early period of their history the Agrigentines were formidable for their military enterprizes. In the fifty-second Olympiad, B. C. 571, the cruel Phalaris, whose name and brazen bull are familiar to most of our readers, usurped the sovereignty; but after a reign of sixteen years shared the common fate of tyrants, and is supposed to have been put to death in his own bull. After his death, the people are said to have enjoyed their liberty about fifty years; when Thero, a second usurper, ascended the throne; who, by his justice, moderation, and valour, reconciled the people to the obscurity of his origin. He joined his son-in-law Gelo, king of Syracuse, in a war against the Carthaginians; in the course of which, victory attended all his steps, and Sicily saw herself for a time delivered from her African oppressors. Soon after his decease, his son Thrasydeus was deposed, and the old democratical government restored. Ducetius next disturbed the general tranquillity. He was a chief of the mountaineers, descendants of the Siculi; and was an overmatch for the Agrigentines, while they were unsupported by alliances, but sank under the weight of their union with the Syracusans. Some trifling differences dissolved this union, and produced a war, in which the Agrigentines were worsted, and compelled to submit to humiliating terms of peace. Resentment led them to embrace with joy the proposals of the Athenians, then meditating an attack upon Syracuse. Their new friends, however, soon made them feel, that the sacrifice of liberty and fortune would be the price of their protection; and this consideration brought them speedily back to their old connections. But this reconciliation and its effects drew upon them the anger of the Carthaginians, by whom their armies were routed, their city taken, their race almost extirpated, and scarce a vestige of magnificence was left. Hannibal opened his campaign with the siege of this city, which lasted eight months. Many of the inhabitants removed during its continuance, and went to Gela; those who remained were, by the orders of Himilcon, committed to the sword, and the riches of a city, containing 200,000 inhabitants, plundered by the conquerors.

Agrigentum lay fifty years buried under its own ruins; when Timoleon, after triumphing over the Carthaginians, and restoring liberty to Sicily, collected the descendants of the Agrigentines, and sent them to re-establish the dwellings of their forefathers. Their exertions were rewarded with astonishing success; for Agrigentum rose from its ashes with such a renewal of vigour, that in a very short time we find it seizing a happy moment, when Agathocles and Carthage had reduced Syracuse to the lowest ebb, and arrogating to itself supremacy over all the Sicilian republics. Xenodicus was appointed the leader of this arduous enterprize; and had his latter operations been as fortunate as his first campaign, Agrigentum would have acquired such a preponderance of reputation and power, that the rival states would not even have dared to attack it. But a few brilliant exploits were succeeded by a severe overthrow, and the Agrigentines were obliged to sue for peace to Agathocles. This commonwealth afterwards took part with Pyrrhus, king of Epirus, in his attempt upon Italy; and when he left Sicily to the mercy of her enemies, threw itself into the arms of Carthage. During the first Punic war, Agrigentum was the head-quarters of the Carthaginians, and was besieged by the Roman consuls, who after eight months' blockade, took it by storm, about the year B. C. 198. The chiefs of the Agrigentines were, by order of the consul Lævinus, first scourged with rods, and then beheaded. The common people were made slaves, and sold to

the best bidder. The spoils of the city were put up to sale, and the money returned to the public treasury. *Livy*, lib. xxvi. c. 40. tom. iii. p. 1138. ed *Drakenb.* *Polybius*, lib. i. p. 15—19. After this period, Agrigentum is seldom mentioned in history; nor is it easy to ascertain the precise time of the destruction of the old city, and the building of the new one.

The further history of this famous place, may be reduced within a very short compass. From the best information, it appears that the inhabitants, or at least all that escaped the Roman severity, still adhered to their noble walls. The citadel still remained upon the mountain of Cocalus; every requisite for defence, pleasure, and comfort of life still surrounded them; a natural wall, formed by abrupt rocks, presented a strong barrier against assailants; pleasant hills sheltered them on three sides without impeding the circulation of air; before them a broad plain, watered by the Acrages, gave admittance to the sea-breeze, and to a fine prospect of that element; the port, Emporium Agrigentinorum, lay in view at the mouth of the river, and probably the road across the flat was lined with populous suburbs. Often, by means of its commerce, the commonwealth was long able to resist the shocks of adversity, and to rise again with fresh splendour. It was, however, crushed in the general fall of Grecian liberty; and the feeble remnants of its population were at length driven out of its walls by the Saracens.

The present town of Girgenti occupies the mountain on which the ancient citadel stood. At the north-east angle of the old limits, upon some foundations of large regular stones, a church has been erected; a road appears hewn in the solid rock for the convenience of the votaries that visited this temple in ancient days. It was then dedicated to Ceres and her daughter Proserpine, the peculiar patronesses of Sicily. Bishop Blaise has succeeded to their honours.—At the south-east corner, where the ground, rising gradually, ends in a bold eminence, which is crowned with majestic columns, are the ruins of a temple said to have been consecrated to Juno. To the west of this, stands the building commonly called the Temple of Concord; the stone of which, and the other buildings, is the same as that of the neighbouring mountains and cliffs, a conglutination of sea-sand and shells, full of perforations, of a hard and durable texture, and a deep reddish brown colour. The Doric temple has many of its columns, entablature, pediments, and walls, entire; only part of the roof is wanting. It owes its preservation to the piety of some Christians, who have covered half the nave, and converted it into a church, consecrated under the invocation of St. Gregory, bishop of Girgenti. In the same direction are rows of sepulchres cut in the rock. Some masses of it are hewn into the shape of coffins; others drilled full of small square holes employed in a different mode of interment, and serving as receptacles of urns. One ponderous piece of it lies in an extraordinary position; by the failure of its foundation, or the shock of an earthquake it has been loosened from the general quarry, and rolled down the declivity, where it remains supine, with the cavities turned upwards. Only a single column marks the confused heap of moss-grown ruins belonging to the temple of Hercules. It stood on a projecting rock above a chasm in the ridge, which was cut through for a passage to the port. In the same tract over some hills, is situated the Tomb of Thero. It is surrounded by aged olive-trees, which cast a wild irregular shade over the ruin. The edifice inclines to the pyramidal shape, and consists at present of a triple plinth, and a base supporting a square pedestal: upon this plain solid foundation is raised a second order, having a window in each front, and at each angle two Ionic pilasters crowned with an entablature of the Doric order. Its inside is divided into a vault, a ground room, and one in the Ionic story, communicating with each other by means of a small internal staircase. In the plain are seen the fragments of the temple of Æsculapius; part of two columns, and two pilasters, with an intermediate wall, support the end of a farm house, and were probably the front of the cells. Towards the west, are the gigantic remains of the temple of Jupiter Olympus, minutely described by Diodorus Siculus. It may literally be said that it has not one stone left upon another; and it is barely possible, with the help of much conjecture, to discover the traces of its plan and dimensions. Diodorus calls it the largest temple in the whole island: but adds, that the calamities of war caused the work to be abandoned before the roof could be put on; and, that the Agrigentines were ever after reduced to such a state of poverty and dependence, that they never had it in their power to finish this superb monument of the taste and opulence of their ancestors. The length of this temple was 370 Greek feet; its breadth, sixty; and its height 120, exclusive of the foundations: the extent and solidity of its vaults and underworks, its spacious porticoes, and exquisite sculpture, were suited to the grandeur of the whole.—The next ruin belongs to the temple of Castor and Pollux; vegetation has covered the lower parts of the building, and only a few fragments of columns appear between the vines. This was the point of the hill where the wall stopt on the brink of a large fish pond, spoken of by Diodorus: it was cut in the solid rock thirty feet deep, and water was conveyed to it from the hills. In it were bred a great quantity of fish, for the use of public entertainments; swans, and various other kinds of wild fowl, swam along its surface, for the amusement of the citizens; and the great depth of water prevented an enemy from surprising the town on that side. It is now dry, and used as a garden. On the opposite bank are two tapering columns, without their capitals, placed in a tuft of carob trees. Monte Toro, where Hanno encamped with the Carthaginian army, before the Roman consuls drew him into an engagement that ruined his defensive plan, is a noble back ground to this picturesque group of objects.—The whole space, comprehended within the walls of this ancient city, abounds with traces of antiquity; foundations, brick arches, and little channels for the conveyance of water; but in no part are any

ruins that can be presumed to have belonged to places of public entertainment. This is the more extraordinary, as the Agrigentines were fond of shows and dramatic performances; and the Romans never dwelt in any place long without introducing their savage games. See GIRGENTI.

AGRIGINTINE SALT, in natural history, a kind of salt famous among the ancients for its not crackling in the fire as the common salt does.

AGRIGNAN, one of the Ladrone islands. It is mountainous, has a volcano, and is 50 miles in circumference. N. lat. 19° 4′, E. long. 146°.

AGRII, in ancient geography, a people of Ethiopia, called by the Greeks Cynamolgi.

AGRILIUM, in ancient geography, a town of Asia Minor, in Bithynia, to the south-east of Nicæa.

AGRIMONIA, AGRIMONY, in botany, a genus of the dodecandria digynia class and order, of the natural order of senticosæ, and of the rosaceæ of Jussieu. CAL. one-leafed, five cleft, acute, small, superior: PERIANTH. permanent, fenced with an outer calyx: COR. five, flat, emarginate petals, with the claws narrow, inserted into the calyx; STAM. capillary filaments, shorter than the corolla, inserted into the calyx; ANTH. small, twin, and compressed; PIST. germ. inferior; STYLES, simple, of the length of the stamina; STIGMAS, obtuse, no pericarpium; CAL. contracted at the neck, and hardened; the seeds are two and roundish. The number of stamina is very uncertain, twelve, ten, seven. The agrimonia of Tournefort has the outer calyx growing to the inner; two seeds; stamina twelve to twenty; fruit fenced with bristles. The agrimonoides T. has the outer calyx detached; one seed; stamina about seven. Of this genus there are five species.

AGRIMONOIDES, in botany, a species of agrimony. This plant flowers in April, and comes to perfection in May. It grows in some mountainous parts of Italy; and is sometimes called pimpinella solio agrimoniæ.

AGRIMONY, HEMP. See EUPATORIUM.

AGRIMONY, WATER HEMP. See BIDENS.

AGRIOCARDAMUM, in botany, CARDAMINE, which see.

AGRIOCASTANUM, earth nut, pig nut.

AGRIOCINARA, a species of wild artichoke.

AGRIOCOCCIMELA, the prunus sylvestris, or plum tree.

AGRIOMELLA, the crab apple.

AGRIOMELANZANION, in the botanical writings of the ancients, a word that has perplexed many later botanists. The Arabian writers, Avicenna and Serapion, used the word bedengian, for the fruit of the pomum amoris, a kind of esculent nightshade, or solanum, called by the old Greek writers, as Theophrastus, &c. strychnus, and only distinguished from the other strychni, or nightshades, by its being described as wholesome, not poisonous. From this Arabic word bedengian, the Italians formed their word melanzana, and the late Greek writers their melanzanion, which they used as the name of the same fruit. This, when the plant was cultivated in gardens, was probably larger and fairer than when it grew wild; but, in this latter state, was not less used, and was distinguished by the term agriomelanzanion.

AGRION. See PEUCEDANUM.

AGRIONARDUM, valerian.

AGRIONIA, in Grecian antiquity, festivals annually celebrated by the Bœotians in honour of Bacchus. At these festivals the women pretended to search after Bacchus as a fugitive; and after some time, gave over their enquiry, saying, that he was fled to the Muses, and was concealed among them.

AGRIOPHAGI, from *αγριος*, wild, and *φαγω*, I eat; in antiquity, a name given to those who were supposed to feed on wild beasts, such as lions, panthers, &c. Pliny and Solinus speak of Agriophagi in Ethiopia; and Ptolemy of others in India on this side the Ganges.

AGRIOPHYLLON. See PEUCEDANUM.

AGRIORIGANUM, in botany, wild marjoram.

AGRIOSELINUM, wild parsley.

AGRIPALMA, mother wort.

AGRIPPA, an ancient city of Apulia.

AGRIPPA, in midwifery, a name anciently applied to children, born in an unusual or irregular manner; particularly such as presented the feet instead of the head. This was, according to Pliny, because they were (ægre parti) born with *difficulty*. Salmasius derives it from the Greek *αγρειν*, venari, and *ἱππος*, equus, q. d. a hunter of horses, and Daventer has a particular chapter of agrippas, or infants coming with their feet foremost, which, according to him, is one of the most convenient and safe ways for a mature birth.

AGRIPPA, (Cornelius,) born at Cologne in 1486, a man of considerable learning, and by common report a great magician; for the monks at that time suspected every thing to be heresy or sorcery which they did not understand. He composed a Treatise on the Excellence of Women, to insinuate himself into the favour of Margaret of Austria, governess of the Low Countries: and accepted of the charge of historiographer to the emperor, which that princess gave him. The treatise on the Vanity of the Sciences, which he published in 1550, enraged his enemies extremely; as did that of Occult Philosophy, which he printed soon after at Antwerp. He was imprisoned in France, for a satire he had written against the mother of Francis I. but was liberated, and went to Grenoble, where he died in 1534.

AGRIPPA, (Herod I.) the son of Aristobulus and Mariamne, and grandson to Herod the Great, was born A. M. 3997, three years before the birth of our Saviour, and seven years before the vulgar æra. After the death of Aristobulus his father, his grandfather took care of his education, and sent him to Rome to make his court to Tiberius. The emperor conceived a great affection for him, and placed him near his son Drusus. Agrippa very soon won the graces of Drusus, and of the empress Antonia; but Drusus dying suddenly, all those who had been much about him, were commanded by Tiberius to withdraw from Rome, lest the sight and presence of them should renew his affliction. Agrippa, who had been extravagant, being thus obliged to leave Rome, overwhelmed with debt, retired to Massada, where he lived rather like a private person than a prince

Herod, the Tetrarch, his uncle, who had married Herodias his sister-in-law, assisted him for some time, made him principal magistrate of Tiberius, and presented him with a large sum of money: but all this was not sufficient to answer the excessive expenses and profusion of Agrippa; so that Herod growing weary of assisting him, and reproaching him with his bad œconomy, Agrippa returned to Rome. Upon his arrival, he was received into the good graces of Tiberius, and commanded to attend Tiberius Nero, the son of Drusus. Agrippa, however, chose rather to attach himself to Cäius Caligula, the son of Germanicus, as if he had some prophetic views of the future elevation of Caligula, who at that time was universally beloved. The great assiduity and agreeable behaviour of Agrippa, so far engaged this prince, that he kept him constantly about him. But Agrippa being overheard one day by Eutyches, a slave whom he had made free, to express his wishes for Tiberius's death and the advancement of Caligula, the slave betrayed him to the emperor; whereupon he was loaded with fetters, and committed to the custody of an officer. Tiberius soon after dying, and Caligula succeeding, he heaped many favours upon Agrippa; changed his iron fetters into a chain of gold; set a royal diadem on his head; and gave him the tetrarchy which Philip, the son of Herod the Great, had been possessed of, viz. Batanæa and Trachonitis. To this he added that of Lysanias; and Philip returned into Judea to take possession of his new kingdom.—Caligula being soon after killed, Agrippa, who was then at Rome, contributed much by his advise to maintain Claudius in possession of the imperial dignity, to which he had been advanced by the army. But in this affair Agrippa exhibited more cunning than honesty; for while he made a show of being in the interest of the senate, he secretly advised Claudius to be resolute, and not to abandon his good fortune. The emperor, as an acknowledgment for his kind offices, gave him Judea and the kingdom of Chalcis, which had been possessed by Herod his brother. Thus Agrippa became suddenly one of the greatest princes of the East; and was possessed of as much, if not more territory than his grandfather. He returned to Judea, and governed it to the great satisfaction of the Jews. But the desire of pleasing them, and a mistaken zeal for their religion, induced him to commit an unjust action, which is recorded Acts xii. 1, 2, &c. for about the feast of the passover, A. D. 44. St. James the son of Zebedee, and brother to St. John the Evangelist, was seized by his order and put to death. He also imprisoned St. Peter, till the festival was over, that he might then have him executed. But Peter being miraculously delivered the designs of Agrippa were frustrated. After the passover he went from Jerusalem to Cæsarea, where he had games performed in honour of Claudius. Here the inhabitants of Tyre and Sidon waited on him to sue for peace. Agrippa being come early in the morning to the theatre, to give them audience, seated himself upon his throne, dressed in a robe of silver tissue, worked in the most admirable manner. The rising sun darting full upon it, gave it an uncommon lustre, and therefore, when the king spoke to the Tyrians and Sidonians, the parasites around him began to say that it was the voice of a god, and not of a man. Instead of rejecting these impious flatteries, Agrippa received them with an air of complacency; but the gratification of his vanity was disturbed by observing an owl above him. He had seen the same bird before, when he was in bonds by order of Tiberius; and it was then told him that he should soon be set at liberty: but that whenever he saw the same bird a second time, he should not live above five days afterwards. He was therefore extremely terrified; and died at the end of five days, racked with tormenting pains in his bowels, and devoured with worms. Such was the death of Herod Agrippa, after a reign of seven years, in the year of Christ 44.

Agrippa, Herod, II. son of the preceding Herod Agrippa, was made king of Chalcis, but three or four years after, was deprived of his dignity by Claudius, who gave him other provinces instead of it. In the war Vespasian carried on against the Jews, Herod sent him a succour of 2000 men; by which it appears, that though a Jew by religion, he was yet entirely devoted to the Romans, whose assistance indeed he wanted, to secure the peace of his own kingdom. He lived to the third year of Trajan, and died at Rome, A. C. 100. He was the seventh and last king of the family of Herod the Great. It was before him and Berenice his sister and wife, that St. Paul pleaded his cause at Cæsarea.

Agrippa, (Marcus Vipsanius,) although of plebeian birth, was son-in-law to Augustus, and one of the most considerable generals among the Romans. Augustus's victory over Pompey and Marc Antony was owing to his counsel. He adorned the city with the pantheon, baths, aqueducts, &c.

AGRIPPINA Colonia Ubiorum, in ancient geography, now Cologne; so called from Agrippina, who had a colony sent thither by the emperor Claudius, to honour the place of her birth. See Cologne.

Agrippina, the daughter of Germanicus, sister of Caligula, and mother of Nero; a woman of wit, and of some learning, but excessively licentious. She was thrice married, the last time to Claudius, her uncle, whom she poisoned to make way for Nero her son. Nero afterwards caused her to be murdered in her chamber, when she bid the executioner stab her first in the womb, that had brought forth such a monster.

AGRIPPINIANS, in church history, the followers of Agrippinus, bishop of Carthage, in the third century, who first introduced and defended the practice of rebaptization.

AGRIPPINUS. See last article.

AGRISE', *v.* or Agrisan, Sax. to crush; by an easy transition, to affright; to astonish; to make frightful; to dread.

Aggrise'.

And powring forth their bloud in brutish wize,
That any iron eyes, to see, it would *agrize*.

Spencer's Faerie Queene, v. x. 26.

Yet not the colour of the troubled deep,
Those spots supposed, nor the fogs that rise
From the dull earth, me any whit *agrise*.
Drayton's Man in the Moon.

AGRIUM, in the materia medica of the ancients, a name given to an impure sort of natrum. The pure sort of this salt they called halmyrhaga, and the coarse kind agrium. The former they had from Media, the latter from Thrace.

AGROM, in medicine, a disease frequent in Bengal, and other parts of the Indies, wherein the tongue chaps and cleaves in several places, is extremely rough, and sometimes covered with white spots. The Indians are much afraid of this disease, which they attribute to extreme heat of the stomach. Their remedy is, to drink some chalybeate liquor, or the juice of mint.

AGROP'E *v.* See GROPE.

For who so will it wel *agrope*,
To hem belongeth all Europe,
Whiche is the third parte euen
Of all the worlde vnder the heuen.
Gower. Con. A. b. v.

AGROSTEMA, WILD LYCHNIS, or CAMPION, a genus of the pentagynia order, belonging to the decandria class of plants; and in the natural method ranking under the twenty-second order, caryophyllei. The characters are: CALYX. a single leaved perianthium, leathery, tubular, quinquedentated, and persistent: COR. five ungulated petals: STAM. ten subulated filaments; the antheræ simple: PIST. has an egg-shaped germen; the styli are five, filiform, erect, and the length of the stamina; the stigmata are simple: the pericarpium is an oblong covered capsule, having two cells and five valves: the seeds are numerous and kidney-shaped; the receptacula are as many as the seeds, the interior ones gradually longer. The most remarkable species are: 1. The *Agrostema coronaria*, or single-rose campion. 2. The agrostema githago, hairy wild lychnis, or common campion, which grows naturally in corn-fields in most parts of Britain. And 3. The agrostema jovis, or umbelliferous mountain campion, which grows naturally upon the Helvetian mountains.

AGROSTIS, BENT-GRASS, in botany, a genus of the triandria order, belonging to the digynia class of plants; and in the natural method, ranking under the fourth order, gramina. The characters are: CAL. a one-flowered, two-valved, pointed gluma, rather less than the corolla: COR. two-valved, and pointed. STAM. three capillary filaments, which are larger than the corolla. The antheræ are forked. PIST. a roundish germen; the styli are two, reflected and villous; the stigmata hisped longitudinally. The pericarpium is the corolla growing to the seed, not gaping. The seed is one, globular, and pointed at both ends. There are fifteen species; eight of them natives of Britain.

AGROSTOGRAPHIA, from αγρωστις, grass, and γραφη, description, the history or description of grasses. John Sche chzer composed a learned and laborious work under this title, containing an exact description of about 400 different species of grass, and yet the subject is still unexhausted. See GRASS.

AGROT'ED. Cloyed, surfeited, saturated. *Skinner and Tyrwhitt.*

This honorable quene Philis doth him chere
Her liketh wel his sport and his manere,
But I am *agroted* here beforne,
To write of hem that in loue been forsworne.
Chaucer. The Legend of Good Women.

AGROTIRI, in ancient geography, the most southern promontory of the island of Cyprus, east of Limassol. It is connected with the continent by a very narrow tongue of land, now called cape De Gatti, on account of the great number of cats kept by the monks, who in the fourth century obtained permission to establish themselves there, as well as on mount Olympus, on condition of keeping a great number of these animals for hunting snakes, which had multiplied to an alarming degree; and which, it is said, have no greater enemies than cats. See *Sonnini's Travels in Greece and Turkey.*

AGROUND' *a.* On ground.

And headlong downe the master falles, and thrise the keele *aground*,
The water whirld, and at the last the wilde sea swallow'd round.
Virgil's Æneidos, b. 1. *By Thos. Phaer.*

With our great ships, we durst not approach the coast; we having been all of us *aground*.
Sir W. Raleigh's Essays.

Say what you seek, and whither were you bound,
Were you by stress of weather cast *aground?*
Dryden's Æneid.

The bear, presuming in his skill,
Is here and there officious still,
Till, striking on the dangerous sands;
Aground, the shattered vessel stands.
Gay. Fable 5.

A-GROUND, in maritime affairs, the situation of a ship whose bottom, or any part of it, rests upon the ground.

AGRYLA, in ancient geography, a city of Sardinia, founded, according to Stephen Byz. by a colony from Athens.

AGRYPNIA, αγρυπνια, Gr. among physicians, a privation of sleep; a troublesome symptom of nervous and febrile diseases. It is otherwise called, vigilæ, pervigilium, &c. In the Greek church, it is used for the vigil of any of the greater feast days, observed by the monks and clergy.

AGUACAGUA, a town of Guiana, of South America, situated on the Caroni, which enters the Orinoco. Long. 62°. 42′. W. lat. 8°. 22′. N.

AGUACATAL, a town of South America, in the province of Antiocuia, on the river Cauca.

AGUACATENANGO, a town of South America, in the kingdom of Guatimala. Long. 91°. 57′. W. Lat. 16°. 18′. N.

AGUADA, a town of Porto-Rico, situated in a bay and on a river of its name. Long. 67°. 6′. W. Lat. 18°. 25′. N.

AGUADA, a river of Brazil, in the province of Rio Grande, which enters the sea close to Cape San Roque.

AGUADA, a point of the province of Carthagena, which forms the mouth of the gulf of Darien, South America.

AGUADA, CAPE, a cape on the western coast of East Florida, in the gulf of Mexico. Long. 82°. 15′. W. Lat. 26°. 22′. N

AGUADILLA, a river of South America, in e province of Terra Firma, which enters hagre near its estuary.

AGUAGUIN, in botany, the name of a shrub nong the Africans, who regard it as a balsamic id anti-vulnerary. The leaves of this shrub re-mble those of our common lilac; they grow ternately, and stand upon foot-stalks of half an ch long; and when held up to the light, shew a ie texture of the smaller veins. *Philosophical ransac.* N°. 232.

AGUAPECACA, in ornithology, the name of Brazilian bird of the moor-hen species. It is the size of a pigeon, very long-legged, and has beak like that of the gallinaceous kind. Its ack and the upper part of its wings are brown, id in each wing is a sharp horn, or prickle, erving for defence.

AGUARA-PONDA, in botany, a plant other-ise called viola spicata Brasiliana. It grows o the height of a foot and a half, or more, with smooth, round, green, and jointed stalk: the op of the stalk bearing an ear a foot long, mooth, and covered with flowers of a fine violet zure, or the colour of our viola martia, consist-ng of five roundish leaves. At each joint come orth four, five, or more, narrow, serrated, ointed, green, and unequal leaves. The whole lower is not unlike the viola martia, and has omewhat of its smell. The root is straight, of moderate thickness, and shoots out into abun-lance of lesser ones, and these again into fila-ments. There is another kind, distinguished by the wideness of its ear of flowers, which repre-sents a helmet of a green colour. It is marked with cubic pits, from whence proceed azure flowers.

AGUARA-QUIVA, in botany, a Brazilian plant, thought, by Ray, to be the solanum vul-gare, or common night-shade.

AGUARICO, a river in the province of Mai-nas, South America, which descends from the grand Cordillera of the Andes, near the town of San Miguel de Ibarra, washes the territory of the Sucumbios Indians, and enters the Napo, in lat. 1°. 23'. S. Its sands contain much gold.

AGUAS BELLAS, a town of Portugal, in Estremadura, with a district of two parishes. It is in the circle of Thomar. Also, a river of South America, which enters the Parana from the W.

AGUAS CALIENTES, a city of New Spain, South America, in the kingdom of New Gallicia. It contains three convents, and about 500 Spanish families, besides mulattoes, and those of a mixed breed. The natural curiosities belonging to this place are two warm springs, about ten yards apart, each affording an abundant supply of water, which is impregnated with copper, and is more than thirty-three degrees above blood heat. It is 140 leagues N. N. W. of Mexico, and thirty-five of Guadalaxara. Long. 101°. 51'. 30". W.; lat. 22°. 2'. N. Also a settlement on the coast of Venezuela.

A'GUE, *v.* & *n.* A'GUED, A'GUISH. Gothic, *agis*, terror; an intermitting fever, in which cold fits are succeeded by hot; the cold fit is the *ague*, the hot the fever.

For I will bring vpon you fearfulnesse, swellyng of body, and the burnynge *agew*, to consume youre eyes and gendre sorrow of hert.
Bible, 1539, *Leuit.* xxvi.

This Alastor hath left nothing unsearched or unassailed by his impudent and licentious lying in his *aguish* writings, for he was in his cold quaking fit all the while. *Ben Jonson's Discoveries.*

All hurt behind, backs red, and faces pale,
With flight and *agued* fear!
Shakspeare's Coriolanus.

Our castle's strength
Will laugh a siege to scorn. Here let them lie,
Till famine and the *ague* eat them up..
Shakspeare.

Though
He feels the heats of youth, and colds of age,
Yet neither tempers nor corrects the other;
As if there were an *ague* in his nature,
That still inclines to one extreme. *Den. Sophy.*

AGUE, in medicine, a disorder belonging strictly to the class of fevers, and consisting of paroxysms recurring at stated periods, with longer or shorter intervals of apyrexia. It is included in the febres intermittentes of nosological writers. But with personal recollections of its cold embrace, we shall subjoin a popular description of it; and a few of the best remedies.—

An ague paroxysm is divided into the cold, the hot, and the sweating stages. The cold stage is marked by yawning, lassitude, coldness of the surface of the body, shaking or trembling of the limbs, paleness of the countenance, and constriction of the skin; more or less nausea, and sometimes vomiting, a weak and small pulse, and not unfrequently a considerable degree of stupor; together with an irresistible shaking of the teeth and jaws. We have sat shivering with this disorder before a large fire, in the height of summer. To this succeeds the hot stage, in which there is a preternatural degree of warmth over the whole body, accompanied by a redness and turgescence, together with a strong and full pulse, great irritation, and often some degree of delirium. These symptoms are followed by the sweating-stage, in which there is a profuse exhalation from the pores of the skin, with a flow of urine, depositing a copious sediment, of a lateritious or brick-dust appearance. By these evacuations of sweat and urine, the febrile symptoms are carried off, and the patient generally falls into a refreshing sleep, from which he awakes without any remains of indisposition, except a slight degree of languor and debility. He then continues capable of sitting up and going about, with tolerable appetite and spirits, until the next return of the paroxysm. According to the length of the apyrexia, or intermission between one febrile paroxysm and another, agues are denominated quotidians, tertians, or quartans; which see under their respective titles. Sydenham distinguished them, from the season of the year in which they appeared, into vernal and autumnal agues; the former of which are always more easily cured than the latter. By others they have been distinguished into simple and complicated, regular and irregular, mild and malignant, &c. Of all agues or intermittents, the quartans are the most obstinate, being generally accompanied with more or less of visceral

obstruction. Hence they are apt to terminate in dropsy, and thus sometimes prove fatal. In general, however, it may be said of agues, that they are rather obstinate than dangerous disorders.

They occur chiefly in low situations, where there are shallow stagnant waters. Hence their frequency in Holland and Flanders, and in the flat marshy parts of some counties in England, such as Lincolnshire, Cambridgeshire, Kent, &c. For the same reason they are very common in America, the East and West Indies, &c. Within our personal knowledge, the drainage and improvement of a district of this description, has almost banished the complaint. The exhalations which arise from stagnant muddy waters (marsh miasmata, as they are termed) in these situations, are considered as the exciting cause of agues. Hence the prophylactic measures are obvious; viz. to avoid or remove from such situations. Where this cannot be done, the body should be protected from damp by proper woollen clothing; fatigue, and sudden alternations of heat and cold should be avoided, and the whole system be fortified by proper exercise and a somewhat generous diet.

Agues are cured by medicines which, at the same time that they exert a tonic action, produce and keep up an impression upon the system, greater than that communicated by the causes which occasioned the disease. Such medicines are the Peruvian bark, various bitter and astringent drugs (given alone or in combination with opiates and aromatics,) certain metallic salts, such as vitriolated iron, vitriolated copper, vitriolated zinc, &c. See Lind on Diseases of Hot Climates, Appendix, p. 308, et seq. But as these medicines are only employed during the intermissions, it will be proper first to mention what should be done during the fits.

It will be sufficient in the cold stage, to cover the patient with bed-clothes, and to give some warm tea with a tea-spoonful of hartshorn drops; or some weak warm wine and water, with the same quantity of hartshorn. In the hot stage, an antimonial, joined with saline medicines and opiates, will be proper, in order to bring on a perspiration, whereby the fit is carried off. The opiate, in conformity with Dr. Lind's directions, should be given in a full dose; viz. fifteen or twenty drops of laudanum in some lightly aromatic draught, or in case of costiveness, in an ounce or two of aloetic wine. The sweating stage will thus be accelerated; and as soon as it is over, the Peruvian bark should be freely administered, in doses of one or two drachms, every two hours. In some instances, however, it may be previously necessary to cleanse the stomach by an emetic, and the bowels by a gentle cathartic. The bark is then to be continued throughout the whole intervals of apyrexia, until the next accession of the paroxysm. This method is to be persisted in until the disorder is removed; and even for some time after, in order to prevent a relapse. The bark may be given in various vehicles, in combination with aromatics and other additions, according to circumstances. For examples of which see Thesaur. Med. or New Collection of Medical Prescriptions, last edition, under the class of tonics.

If the Peruvian bark disagree with, or is refused by the patient, combinations of other tonics, and bitters may be given; such as powders composed of dried chamomile flowers and myrrh, each a scruple; prepared kali ten grains, or boluses composed of alum fifteen grains; nutmeg and extract of gentian, each ten grains. These may be administered every five or six hours during the intermissions. Some agues have been cured by giving a quarter of a grain of the cuprum vitriolatum every three or four hours during the apyrexia; this, however, is a very rough medicine, and commonly produces too much sickness to be persisted in. Vitriolated zinc has been employed with better success, in doses of three grains every fourth hour. Some practitioners recommend certain preparations of arsenic; but while so many other powerful and safer remedies present themselves, arsenic (in our opinion) should rarely be resorted to. The best authors who, in this country, have written upon agues, are Sydenham, Morton, Cleghorn, Lind, Fordyce; also Wilson on Febrile Diseases. Among foreigners, Torti, Werlhof, Quaria, &c.

AGUE-CAKE, a name sometimes given to a hard tumor on the left side of the belly, lower than the false ribs, said to be the effect of intermitting fever.

AGUE-DROPS. See ARSENIC.

AGUE-TREE, sometimes written corruptly, AGUE-PER, is a name given by some to sassafras, on account of its febrifuge virtue.

AGUEPERSE. See AIGUEPERSE.

AGU'ERRY, *v.* Fr. *aguerrir*, to accustom to the hardships of war; to discipline troops.

> An army the best *aguerried* of any troops in Europe that have never seen an enemy. *Lyttleton.*

AGUESSEAU, (Henry Francis D'), chancellor of France, was born at Limoges in 1668, of an ancient family of Saintonge. Voltaire speaks of him as the most learned magistrate his country ever produced. He received the first rudiments of his education from his father, and his taste for poetry from the society of Boileau, Racine, and other eminent writers, with whom he associated at an early period of life. Having held the office of advocate-general of Paris for ten years, he was appointed procureur-general in 1700; and in this situation distinguished himself by introducing several excellent jurisprudential regulations. He also directed a particular attention to the hospitals, and to the hardships occasioned by the scarcity in 1709; and was the strenuous defender of the liberties of the Gallican church, in opposition both to Louis XIV. and the chancellor Voisin, who solicited his concurrence in favour of the bull Unigenitus. After the death of Voisin, and in the regency of the duke of Orleans, he was made chancellor; and performed the duties of his office with eminent wisdom and success. In his resistance of the financial project of law, he prevailed for some time; but when the regent determined to adopt

it, he was constrained to retire to his country seat at Fresnes; but was recalled in 1720. He was again deprived of his office in 1722, recalled by cardinal Fleury in 1727, and re-invested with the seals in 1737, which he held till his death. From the year 1729 to 1749 he was sedulously employed in reforming the laws, and remedying the notorious abuses that disgraced and obstructed their administration. But in this extensive and laborious employment his progress was slow, and his conflicts with opposing interests so great as to produce great apparent indecision in his judgment. His apology will remind our readers of what, it is possible, might be the language of a living and most upright English judge: 'When I recollect,' said he, 'that the decree of a chancellor is a law, I think myself permitted to take a long time for consideration.' His life, though assiduously occupied, was prolonged by his temperance and equanimity; but in the year 1750 his increasing infirmities admonished him of the necessity of withdrawing from public employments; and in 1751, he closed his life at the advanced age of eighty-three years.

Besides the languages of antiquity, Aguesseau was acquainted with all the principal modern ones; and to his knowledge of the history of all ages and nations, he added that of jurisprudence in its most extensive sense. He never sought office; but always manifested a disposition superior to the honours which his talents and merit claimed, and a desire to be useful rather than to aspire after power. Of his frugality, and of the various emoluments annexed to the dignities he possessed, the only fruit that remained was his library, in the improvement of which he limited himself to a certain annual expence. In the period of his retirement, which he called 'the fairest days of his life,' he devoted himself to the maturing of his plan of legislation, to the education of his children, and to a variety of literary pursuits, among which were mathematics and the belles lettres; and these, together with agriculture, he deemed his recreations in the intervals of his severer occupations. When the public however demanded his services, he surrendered the satisfactions of retirement and the pleasures of domestic life. Having in 1694 married Anne le Febure d'Ormesson, it was said on this occasion, that virtue and the graces were now first seen in alliance; but he had the misfortune to lose her in 1735. His grief corresponded to the affection that subsisted between them; but he hastened to devote himself to the functions of his office; alleging, 'that his services were due to the public, and it is not just,' said he, 'that it should suffer by my domestic affliction.' It is said that he never passed a day, from his childhood, without reading some parts of the scriptures; and was heard to say, that this was the balm of his life. Of his works nine volumes 4to. have been published. In these, he is said to have thought like a philosopher, and spoken as an orator. His style is chaste and harmonious, but deficient in warmth. When he once consulted his father on a discourse which he had taken pains to compose, and which he wished farther to improve, his father gave his opinion: 'the fault of your discourse is its being too elegant; it will certainly be less so if you touch it again.' *Nouv. Dict. Hist. Biog. Dict.*

AGUGLIA, in ichthyology, the name given by the Italians to the acus of Oppian, called in English the gar-fish.

AGUJA Point, part of the land of Terra Firma, which projects farther into the sea, between Santa Marta and Cape Chichibacoa. Also of a low point on the coast of the South Sea, in the province of Piura, Peru.

AGUIGNAN, or island of Holy Angels, an island in the South Pacific Ocean, three miles in circuit, and a mile distant from the south-western point of Tinian. It was visited by Servitores, a Spanish priest, in the year 1669. Lat. 14°. 48'. N.

AGUILA, a town and river in the province of Habat, in the kingdom of Fez, subject to the emperor of Morocco.

Aguila Cape, a point or cape of one of the Falkland Isles, so named from having been discovered by the French frigate the Aguila.

Aguila, Villa Guttierez de la, a town of Mexico, in the intendancy of Guadalaxara, formerly very considerable, but now much decayed. It is nine leagues E. of Xeres

AGUILAR, a town of Spain, in the kingdom of Navarre, 24 miles W. of Estella.

Aguilar-del-campo, a town of Spain, in Old Castile, on the Alhama.

AGUILER, from *aguille*, a needle, French, a needle-case.

AGUILLANEUF, or Augillaneuf, a form of rejoicing used among the ancient Franks on the first day of the year. The word is compounded of the French *a*, to, *gui*, misleto, and *l' an neuf*, the new year. Its origin is traced from a ceremony of the druids, who used to go early in December, which with them was reputed a sacred month, to gather misleto of the oak in great solemnity. The prophets marched in the front, singing in honour of their deities; after them came a herald with a caduceus in his hand; these were followed by three druids abreast, bearing the things necessary for sacrifice; last of all came the chief or arch druid, accompanied with the train of people. The chief druid climbing the oak, cut off the misleto with a golden sickle, and the other druids received it with a white cloth; on the first day of the year it was distributed among the people, after having blessed and consecrated it, by crying, a gui l' an neuf, to proclaim the new year. This cry was continued in Picardy, with the addition of plantez, plantez, to wish a plentiful year. The name aguillaneuf was also given to a sort of begging for church tapers, practised in some dioceses, on new year's day, by troops of young people of both sexes, having chiefs, &c. It was attended with various ridiculous ceremonies, as dancing in the church, &c. which occasioned the synods to suppress it.

AGUILLES, or Auguilles, cotton cloth, manufactured at Aleppo.

AGUILLON, or Aguillonius, Francis, a Jesuit, born at Brussels, at the close of the sixteenth century, was rector of the Jesuits college at Antwerp, and eminent for his skill in mathe-

matics. He was the first who introduced that science among the Jesuits in the low countries: His book on optics, entitled, 'Opticorum, lib. vi. Philosophicis juxta ac Mathematicis utiles,' was printed at Antwerp in 1613, fol. and he was employed in finishing a treatise on 'Catoptrics and Dioptrics,' at the time of his death, which happened at Antwerp in 1617, in the 50th year of his age. Aguillon is also said to have written a treatise on 'Projections of the Sphere.' He understood several languages, and his judgment was as accurate as his learning was extensive. Under severe paroxysms of the asthma, to which he was subject, he is reported to have often said: 'Let God's will be done—I submit to it—I am willing to form myself absolutely upon the divine pleasure—I have now the torments which I often wished for, and desired of God.'

AGUIR, a small town of Portugal, in the Provedoria of Beja, in Alentejo, containing about 450 inhabitants.

AGUIRRA, (Joseph Sænz de,) a Benedictine, and one of the most learned men of the seventeenth century, was born in 1630. He was censor and secretary of the supreme counsel of the Inquisition in Spain, and interpreter of the scriptures in the university of Salamanca. He printed three volumes in folio upon philosophy, a commentary on Aristotle's ten books of Ethics, and other pieces. He died at Rome in 1699.

AGUIRRA, a river of Guiana, South America, which rises about fifty miles north of the great river Orinoco, in the territory of the missions of the Capuchins, and descending by the mountains of Itamaca, falls into the Orinoco, on the south side, just at its mouth. Its navigation is greatly impeded by the tall trees which line its banks; so that though formerly accessible to schooners and brigs, it can now hardly be navigated, except by small shallops.

AGUIRRE, a river of South America, in Venezuela, which, rising near the city of Niura, runs south, and enters the Sarara.

AGUISE', *v.* See GUISE.

As her fantastic wit did most delight,
Sometimes her head she fondly would *aguise*
With gaudy garlands, or fresh flowers dight
About her neck, or rings of rushes plight.
Faerie Queene.

Then gan this crafty couple to devise,
How for the court they might themselves *aguise*,
Spenser's Mother Hubbard's Tale.

AGUL, in botany, a synonime of the hedysarum. See HEDYSARUM.

AGUR, the son of Jakeh, the author of the thirtieth chapter of the Proverbs, a person of whom neither sacred nor profane history records any thing, more than is contained in the first verse of that chapter. On this account he has become the subject of much fruitless conjecture and idle controversy, among commentators; some of whom confound him with Solomon, while others make him altogether an ideal being, by telling us, that the word agur signifies a congregation. The emphatic and sublime queries in the fourth verse, and the much admired prayer for a moderate competency, equally removed from the extremes of poverty and riches, in the eighth and ninth, sufficiently prove the title of his writings to be ranked along with those of Solomon and Lemuel.

AGURAH, אגורה, Heb. in Jewish antiquity the thirtieth part of a silver shekel. The agurah is the same with gerah, and keshitah. The septuagint renders it *οβολος*.

AGURIUM, or AGYRIUM, in ancient geography, a town of Sicily, in the Val di Demona, near the river Semetus. It was the birth-place of Diodorus Siculus, as he himself testifies; but he calls it Argyrium. It is now called S. Philippo d' Arginone.

AGUSADURA, in ancient customs, a fee due from vassals to their lord, for sharpening their plowing tackle. Anciently, the tenants in some manors were not allowed to have their rural implements sharpened by any but whom the lord appointed; for which an acknowledgment was to be paid, called agusadura, which some take to be the same with what was otherwise called reillage; from the ancient French reille, a ploughshare.

AGUSAGE. See last article.

AGUSTINI, in mineralogy, a term by which professor Tromsdorff has designated a supposed new earth, discovered by him in 1800. It bears a great resemblance to alumina. *Annales de Chemie.* xxxiv. p. 133.

AGUTI, in zoology, an American animal, much resembling the Guinea pig, having the characters of the rat kind, with the voice and hair of the hog. The hairs are very hard, thick, and glossy, and are of a mixed colour, of a reddish and brown, with more or less black; those on the belly, however, are yellowish; its head and whiskers are like those of the rabbit kind, but that of the nose is sharper, and the upper chap longer than the under one, as in the hog; the upper lip is split as in the hare, and the legs are naked, or have at the utmost only a few hairs on them; the fore feet have four toes, and the hinder ones six, and these are much longer than the fore legs; its tail is very short, its eyes prominent, and its voice altogether resembles the grunting of a hog. It is a very voracious animal, devouring its food with extreme eagerness, and using its fore feet for hands, in the manner of the squirrel. It runs very swiftly, and is very expert at digging, so that it soon buries itself in the earth. When provoked, it raises all the hair of its back upright, and strikes the earth with its hinder feet.

AGUTIGUEPA obi Brasiliensibus, in medicine, the arrow-root, or sagittaria alexipharmaca of the West Indies.

AGUTI TREVA, insulæ marignanæ, in botany, a plant mentioned by De Laet. It has the leaves of the orange-tree, only thinner, a dewy flower, a large fruit, with a greenish rind, which contains kernels like those of the pomegranate, thin, sweet, and not ill-tasted.

AGYEI, in antiquity, a kind of obelisks consecretated to Apollo, or Bacchus, or both, and placed in the vestibulus of houses, for their security. They were generally huge stones, and sometimes timber, having either a circular or square basis, and terminating in a point at the top.

AGYLLA, Cervateri, in ancient geography,

a town of Etruria, near the sea, so called by the Pelasgi, who came hither from Thessaly. Strabo says, it was afterwards called Cære, from the Lydians hearing the inhabitants frequently repeating to them the Greek expression χαιρε, i. e. rejoice. Others, thinking this etymology more fanciful than just, deduce Agylla from gillah, water, as they had fountains in the neighbourhood; and Cære, might be formed from cari, or cariah, a town, in the language of the Lydians. Tarquin's family was banished to this town; and hither the vestals retired, when, in the year 363, the Gauls laid siege to Rome. The laws and police of this city are much commended. It was one of the first cities which became municipal. It was known only by its baths in Strabo's time.

AGYLLÆI, in ancient history, a denomination given to the Pelasgi, in Etruria. Here they preserved, with little alteration, the manners and religion of the ancient inhabitants of Greece; and furnished considerable fleets. They amassed a treasure at Delphi, by transmitting thither a tenth of their maritime profits; and by their commerce, acquired a degree of power, which rendered them important allies, or formidable enemies to their neighbours. Herodotus says, that their power was considerable in his time; and that, in consequence of an oracle, they had instituted funeral sacrifices and annual games, which they then celebrated. These people, who were sometimes called Tyrrhenians, sent succour to the Athenians in the Sicilian war, not long before the ruin of the Veii by the Romans. They formed an alliance with the Romans, which gave them all the advantages belonging to Roman citizens, without the charges attending them; and they became, under the name of Cærites, the third order of the republic. The Cærites bore arms in the Roman army, and were almost always united to the Romans, as Livy, lib. vii. c. xx. informs us; being considered not merely as allies, but as a part of the nation. At length, deserted by the Roman marine, which found more spacious and convenient ports; and losing its commerce, Cære declined, and the inhabitants, who were Romans, were indiscriminately blended with the other citizens.

AGYNEIA, formed of α, priv. and γυνη, a wife, in botany, a genus of the monoecia monadelphia class and order, according to Martyn; but in Gmelin's Linnæus, of the triandria monogynia, of the natural order of tricoccæ, and the euphorbiæ of Jussieu. Its generic characters are, that the male flowers are below the female; CAL. six-leaved: the leaflets oblong, obtuse, equal, and permanent; no corolla; in the male, instead of filaments, a column shorter than the calyx; three or four antheræ, oblong, growing to the column below the top; in the female flowers, the germ of the size of the calyx, sub-ovate, obtuse, perforated at top with a six notched hole; neither style nor stigma; the pericarpium supposed to be a tricoccous capsule. There are two species, viz. 1. A. impubes, with leaves smooth on both sides. 2. A. pubera, with leaves downy underneath; both are natives of China.

AGYNIANI, AGYNII, or AGYNNENSES, from α, negative, and γυνη, a woman, in church history, a sect who condemned the use of flesh, and marriage, as not instituted by God, but introduced at the instigation of the devil. They are said to have appeared about the year 694.

AGYRINENSES, or AGYRINI, the inhabitants of Agurium.

AGYRIUM. See AGURIUM.

AGYRTÆ, αγυρται, Gr. in antiquity, a kind of strolling impostors who, like our gypsies, wandered about the country, telling fortunes at rich men's doors, pretending to cure diseases by charms, sacrifices, and other religious mysteries; and to expiate the crimes of their deceased ancestors by the virtue of certain odours and fumigations; to torment their enemies by the use of magical verses, &c. See ÆRUSCATORES.

AH, *interj.* This may be denominated a word in the vocabulary of nature, common at least to several languages, and expressing sometimes dislike and censure, contempt and exultation, compassion and complaint.

Ah! sinful nation, a people laden with iniquity, a seed of evil doers, children that are corrupters, they have forsaken the Lord. *Isaiah*, i. 4.

Let them not say in their hearts, *Ah!* so we would have it: let them not say, we have swallowed him up. *Psalm* xxxv. 25.

Ah me! the blooming pride of May,
And that of beauty, are but one:
At morn both flourish bright and gay,
Both fade at evening, pale and gone. *Prior.*
In youth alone, unhappy mortals live,
But *ah!* the mighty bliss is fugitive:
Discolour'd sickness, anxious labour come,
And age and death's inexorable doom.
Dryden. Virg. Geor.

In goodness, as in greatness, they excel,
Ah! that we lov'd ourselves but half so well.
Dryden. Juv.

Nymph of the grot, these sacred springs I keep,
And to the murmurs of these waters sleep;
Whoe'er thou art, *ah!* gently tread the cave,
Ah! bathe in silence, or in silence lave.
Pope's Translation of a Latin Inscription on an ancient Statue placed near a stream of water.

AHA, or AHU, in zoology, a name given by the Persians to the cervus pygargus of the Linnæan system, or the tail-less roe of Pennant. It inhabits the lofty mountains of Hyrcania, Russia, and Siberia, beyond the Volga; and at the approach of winter descends into the plains and becomes hoary: it is called by the Russians dikeja roza, and by the Tartars saiga. It resembles the roe, but is much larger, being of the same deep red colour, with a large bed of white on the rump and buttocks, extending up the back: the fur is thick, in spring rough and erect, on the limbs and belly yellowish; the sides of the under lip and the space about the nose are black; but the point of the lip is white; the hairs of the eye-lids and round the orbits are long and black; the horns are very rugged at the bases, and full of knobs: the ears are covered on the inside with a very thick white fur.

AHAB, אחאב, Heb. i. e. the brother's father, the son of Omri, king of Israel, succeeded his father, A. M. 3086. Of this monarch, it is difficult to determine, whether his wickedness and impiety, in establishing idolatry, and persecuting

the true prophets of the Almighty, notwithstanding repeated warnings and extraordinary visitations both of judgment and mercy from heaven, or his weakness and folly, in being thus led to his destruction by the advices of a beautiful but abandoned woman, were greatest. His marriage with Jezebel, his multiplied idolatries; the repeated warnings of Elijah and other prophets; the extraordinary famine of three years' continuance; the still more extraordinary circumstances attending the restoration of fertility and plenty; his discontent at Naboth's refusing to sell his patrimonial vineyard; his wicked queen's iniquitous murder of that honest Israelite, under colour and form of law; his seizure of the forfeited vineyard, with the dreadful judgments denounced against the whole royal family in consequence; and the complete execution of the threatened vengeance by the extirpation of the whole race, are recorded in the I and II books of Kings, and II Chronicles, and are well known to every reader of the scriptures.—Ahab was slain at Ramoth Gilead, A. M. 3117, in the thirty-first year of his reign, and A. A. C. 887.

AHAB, the son of Kolaiah, a false prophet, who, along with another, named Zedekiah, seduced the Jewish captives at Babylon, with deceitful hopes of a speedy deliverance, and thus excited their enmity against Jeremiah. But their pretences to inspiration were severely punished, for Nebuchadnezzar gave them the death he intended for Shadrach, Meshach, and Abednego, or rather a more cruel one, for it is said, Jer. xxix. 22. that he roasted them in the fire.

AHÆTULA, the trivial name of a species of the coluber. See COLUBER.

AHALOTH, in the materia medica, a Hebrew name used by some writers for the lignum aloes, or aloes wood.

AHANIGER, in ichthyology, a name given by Albertus, and others, to the fish acus vulgaris, or gar fish. The shape of this fish, which is very long and slender, has caused it to be confounded with the syngnathus, or tobacco-pipe fish, called also acus; but they differ extremely when examined; that being a true species of the syngnathus, and this of the esox or pipe.

AHANTA, a kingdom on the Gold Coast of Africa, extending from the Ancobra to the Chamah; bounded on the west by Appollonia, and on the east by the Fantee territories. It is the richest, and in every respect the most improved district upon this coast. The sugar cane in particular grows to a great size. It produces also many kinds of excellent timber, one of which is little inferior to mahogany. The country contains mines of gold, but these are placed under Fetiche, from the idea that the working of them would corrupt their industrious habits. It is procured, however, of fine quality, from the inland countries of Warsaw and Dinkara. The coast contains many convenient creeks and harbours. The people are on the whole well disposed, and treat Europeans with respect, when their behaviour merits it. The government is a monarchy, but under very strict limitations. The principal towns are Axim, Dixcove, and Succondee.

AHASUERUS, in scripture history, [illegible] Persia, the husband of queen Esther, to [illegible] the Jews were indebted for a singular [illegible] ance from extirpation, which they comm[illegible] to this day, by an annual feast, i. e. the PURIM, preceded by what is called the fa[illegible] Esther. Scaliger supposes Xerxes to be [illegible] Persian monarch intended by the sacred [illegible] rian, who had a queen named Harrestris, d[illegible] he regards Esther as a corruption. We [illegible] know that the fact which Herodotus sup[illegible] Xerxes having a son by Harrestris in the [illegible] year of his reign, is, in itself, any proof [illegible] contrary. According to Prideaux, Con[illegible] p. 361, &c. the Ahasuerus of Scripture w[illegible] taxerxes Longimanus; the LXX. consi[illegible] using the word Artaxerxes, as he alleges, for [illegible] monarch's name, as do the apocryphal ad[illegible] to the book of Esther. And Josephus asser[illegible] Artaxerxes Longimanus was the protector [illegible] nation on this occasion. But archbishop U[illegible] and F. Calmet contend, principally from [illegible] chronology of the period, that this Ahas[illegible] was Darius Hystaspes: and we incline to [illegible] opinion, as on the whole the most pro[illegible] Only when these learned writers suppose A[illegible] Atossa was the Vashti of scripture, they seem [illegible] forget, that the princess of the former was [illegible] said to have retained her influence over h[illegible] until his death, to have outlived him, [illegible] have obtained the succession to the crown, fo[illegible] son Xerxes; whereas Vashti was finally remo[illegible] from the king's presence according to Est[illegible] i. 19. and resigned her station to Esther. It [illegible] been well remarked, that the successive mis[illegible] of Ezra and Nehemiah into Judea to relieve [illegible] countrymen and restore their ancient prosperi[illegible] is strong presumptive proof that they poss[illegible] a friend at the Persian court, and that kind [illegible] influence ascribed to Esther. See archbp. Usher's Annot. Vet. Test. Ann. Jul. per. 4. Josephus, Art. lib. xi. chap. 6, &c.

AHASUERUS, is also a scripture name for Cambyses, the son of Cyrus, Ezra, iv. 6.; and for Astyages, king of the Medes, Dan. ix. 1.

AHAVAH, a river in Assyria, on the bank of which Ezra, with his countrymen, observed a solemn fast, for direction in their return to Jerusalem. Ezra viii. 15—21.

AHAZ, אחז, Heb. i. e. possessing, the son of Jotham, king of Judah, succeeded his fath[illegible] A. M. 3265, and during his short reign of sixte[illegible] years, proved to be one of the worst princes th[illegible] had reigned in that state, from the first conversion of the commonwealth into a monarchy. T[illegible] various judgments that followed his establishing idolatry, and abolishing the true religion, the repeated invasions of his kingdom by Pek[illegible] king of Israel, and Rezin, king of Syria; th[illegible] dreadful slaughter of 120,000 of his men in one day, the capture of 200,000 men, women and children, by these tyrants; with their restoration at the request of the prophet Oded; the ravages committed by the Edomites and Philistines; his bribing Tiglath-pileser with the gold of the temple to assist him against them, the consequent death of Rezin, and the destruction of his kingdom, with the other particulars of his unfortunate and infatuated reign, and his death, A. M.

and A. A. C. 726, are recorded in 2 Kings
l xvi. 2 Chron. xxvii. and Isaiah vii.

AZIAH, אחזיה, Heb. i. e. the vision of the
king of Israel, the son of Ahab and Jeze-
foolish and wicked monarch, worthy of
arents. His imitation of their idolatrous
le; his attempt to trade with Ophir, de-
by the destruction of his fleet; his mortal
by a fall from his balcony; his folly in send-
consult the oracle of Baalzebub; the severe
and and vengeance denounced by Elijah;
peated messages to that prophet, with the
ction of two companies of his messengers,
is own death, in the second year of his
A. M. 3108, are narrated in 1 Kings xxii.
gs i. and ii. Chron. xx.

AZIAH, king of Judah, the son and suc-
of Jehoram, by Athaliah the daughter of
, came to the crown, A. M. 3119, and
d only one year. During this short period,
ver, he gave sufficient evidence of his being
inclined to follow the bad example of his
r, and her idolatrous and bloody house,
the good one set by his paternal grand-
Jehoshaphat; but he was stopt in his
r, and mortally wounded by Jehu, king of
l, the avenger of the blood of Naboth.

HEAD' On head. See HEAD. In ad-
; used chiefly of vessels on the water.

nd now the mighty Centaur seems to lead;
nd now the speedy Dolphin gets *ahead*.
Dryden's Æneid.

is mightily the fault of parents, guardians, tutors,
governours, that so many men miscarry. They
r them at first, to run *ahead*; and, when perverse
nations are advanced into habits, there is no
ing with them. *L'Estrange's Fables.*

calm ensues; adjacent shores they dread,
he boats, with rowers mann'd, are sent *ahead*;
Vith cordage fastened to the lofty prow,
loof to sea the stately ship they tow.
Dryden.

AHEAD, in sea language, signifies not only
her onward than the ship, but at any dis-
ce before her, lying immediately on that
nt of the compass to which her stern is di-
ted. It is used in opposition to astern, which
presses the situation of any object behind the
p. See ASTERN.

AHIAH, the son of Ahitub, and great grand-
n of Eli, the high priest of Israel under king
ul.

AHIAH, the son of Sisha, and his brother Eli-
reph, were chief scribes, or secretaries of state,
der king Solomon.

AHICCYATLI, in zoology, the name of an
merican serpent, approaching to the nature of
e hæmorrhus and rattle-snake, but larger than
e former, and wanting the rattle of the latter.
is as fatal in the effects of its poison as any
nown species of serpent.

AHIEZER, אחיעזר, i. e. a brother's help, a
rince of the tribe of Dan, who was selected to
ssist Moses in numbering the Israelites.

AHIGH,' } On high. See HIGH.
AHEIGHT'. }

And so, some mounted vpon the walles. and threwe themselfe from *ahyghe*, downe to the grounde, the more parte of whom dyed.
Nicoll's Thucydides, fol. 47. c. 2.

But have I fallen or no,—
—From the dread summit of this chalky bourne?
Look up *aheight!* the shrill-gorg'd lark so far,
Cannot be seen or heard. *King Lear.*

AHIJAH, an inhabitant of Shiloh, and an inspired prophet of Israel, who tore Jeroboam's new garment in twelve pieces, and gave him ten of them, as an emblem that the ten tribes, over which he foretold that Jeroboam should reign, would be rent from the house of David. He also foretold the death of Jeroboam's son, and wrote a history of the reign of Solomon, which is lost. He flourished about the year 3046.

AHIKAM, the son of Shaphan, and father of Gedaliah, the vice-roy of Jerusalem, under Nebuchadnezzar, a prince of Judah, who was one of those employed by king Josiah to consult Huldah the prophetess, and who, in the reign of his son Jehoiakim, protected and preserved the prophet Jeremiah.

AHIMAAZ, the son and successor of Zadok the high priest, a zealous friend of David in his adversity. His exertions along with Jonathan in favour of the old monarch, during the unnatural rebellion of his son; the imminent risk they both ran at Bahurim, from Absalom's party; with his anxious zeal to bring the earliest intelligence to David of the victory, are recorded in 2 Sam. xv. xvii. and xviii.

AHIMELECH, אחימלך, i. e. a king's brother, the son of Ahitub, great grandson of Eli, and brother and successor of Ahia, high priest of Israel under Saul. His kindness to David, in giving him and his followers the shew-bread to eat, when he had no other, and the barbarous massacre, that followed, of him and eighty-four priests, by Doeg the Edomite, Saul's bloody informer, with the total extirpation of the whole inhabitants of his city Nob, not excepting the women, the children, or even the cattle, are mentioned in 1 Sam. xxi. and xxii. These bloody transactions, which happened about A. M. 2944, place the character of Saul in a worse point of view, than almost any other event of his whole unfortunate reign.

AHIMELECH, the son of Abiathar, by Saul's appointment, succeeded his name sake and predecessor as high priest, and acted as sagan, or second priest, in the end of David's reign.

AHINOAM, the daughter of Ahimaaz, and wife of king Saul.

AHINOAM of Jezreel, one of king David's wives.

AHITHOPHEL, אחיתופל, Heb, i. e. a brother forsaken, a native of Giloh, one of king David's counsellors, and highly esteemed for his political sagacity. He was undoubtedly the Machiavel of his age, both for wisdom and wickedness His advice to Absalom, who followed the wicked part of it, but left the wise part unaccomplished, together with the deserved tragical end of this disappointed politician, who is the first suicide recorded in history, are well known.

AHITUB, the son of Phineas, succeeded his grandfather Eli, as high priest of Israel.

AHITUS. See SALT-STONE.

AHLAB, a city of Canaan, from which the original inhabitants were not expelled by the Israelites; Judges i. 31.

AHLDEN, ALEN, or AHLEN, a town and bailiwick of Hanover, principality of Luneburg, situated on an arm of the river Leine, not far from the Aller. Long. 9°. 40′. E. Lat. 52°. 49′. N.

AHLEN, ALEN, or AALEN, in Suabia, once a free imperial town; but since 1802, the head of an upper bailiwick, in the kingdom of Wirtemberg, district of Ellwangen. It is seated on the Kocher, and not far from the town of Gemund: forty miles north-west of Augsburg. It contains 1930 inhabitants,

AHLWARDT, (P.) professor of logic and metaphysics at Griefswalde, was born in that place, Feb. 1716, and became a student of theology in 1727; but applied chiefly to mathematics and philosophy. In three years he removed to the university of Jena; and in 1732, returned to Griefswalde, where he read a course of lectures on his favourite studies. In 1743, he became an adjunct of the philosophical faculty, and nine years after was chosen professor; he also preached often with great approbation. Ahlwardt largely contributed to the critical researches of the society at Griefswalde, of which he was a member, and founded the order of the Abelites. His principal works are, Considerations on the Confession of Augsburgh; Thoughts on the Powers of the Human Understanding; An Introduction to Philosophy; A Treatise on the Immortality of the Soul; and Brontotheologia, or Thoughts on Thunder and Lightning. He is said, never to have corrected what he had once written. He died March 1, 1791.

AHMED (KHAN,) emperor of the Moguls in 1282, was of the race of Jenghis or Zingis, the son of Hulaku, and brother of Abaka khan, whom he succeeded. He assumed the name Ahmed, on his embracing Mahommedanism; and offered, on this occasion, protection to all Mussulmans. This change of religion offended the princes of his family to such a degree, that he could never regain their affection. His nephew Argun raised an army against him, but he was soon defeated and taken prisoner. He was afterwards released by some conspirators, and having killed the emperor's principal officers, he pursued and overtook him; and delivered him up to his mother-in-law, who, in revenge for the loss of her own sons whom Ahmed had caused to be slain, put him to death, after a reign of two years and two months, A. D. 1284. *Mod. Un. Hist.* vol. iv.

AHMEDABAD, the capital of the province of Gujerat in Hindostan: was founded by sultan Ahmed in the year 1409. It stands in long. 72°. 37′. E. and 23°. N. lat. on the banks of the river Sabermaty, which falls into the gulph of Cambay, near to the city of that name: was formerly famous for its manufacture of chintz, brocade, velvet, arms of various kinds, &c.; and is one of the best fortified cities in Hindostan. The walls are of brick and stone, flanked at certain distances with large round towers and battlements. It has twelve gates, and, including the suburbs, is about four miles and a half in length. On the west is the castle, walled with free-ston and almost a spacious city of itself. The caravasary is south of the King's square, which is 7(paces long and 400 broad.

Ahmedabad was taken by the English in t year 1780. On the conclusion of the peace 1783, it was restored to its former possessors, t Poonah Mahrattas, under whom it still continu

AHMEDNUGGAR, a city of Hindostan, the province of Aurungabad, a modern divisi of the Decan. It belongs to the Paishwa, a d pendent of the British empire, and was foun by Ahmed Nizam Shah, in 1493. Before t close of the century, this chieftain establish an independent empire, which he called aft the name of this city, and which continued the dynasty of the founder until 1600, when t last prince of his race was seized, while an i fant, by the Moguls, and the whole of h dominions in a few years became a province the Mogul empire. On the death of Aurem zebe, it partook of the precarious fate of all t neighbouring provinces; but finally fell into t hands of the Mahratta Paishwa, from whom was wrested by Dowlet Row Scindia, *in* 179 The former prince having placed himself en tirely under British protection, in 1801, th army of Fort St. George, headed by our im mortal Wellington, then General Wellesley, ad vanced upon Poonah, to re-instate him in h sovereignty. The British were at this time i war with Holkar and Scindiah, and one of t first operations of the campaign of 1803 wa the reduction of the fortress of Ahmednuggar which led to the victories of Assaye and Argaum, in the former of which Wellesley's army of 4,500 men, beat the allied forces of Scindiah, and the rajah of Nagpoor, amounting t 30,000 men. Ahmednuggar was replaced in t hands of the Paishwa in 1804, and commands the best entrance into his dominions, as well a into those of our neighbouring ally, the Nizam. It stands in N. Lat. 19°. 1′. and E. Long. 75 4 83 miles from Poonah, and 181 from Bombay

AHMEDPORE, a town of Hindostan, in the province of Orissa, thirty-four miles south of Cuttack.

AHMELLA, in botany, a species of bidens, or water hemp agrimony. Its flowers are large, and resemble those of the marigold; growing in large numbers on the tops of the stalk, and large branches, and succeeded by oblong seeds, which have the same sort of points at one end with those of our common bidens. The stalks are square, and the leaves in pairs, in shape like those of the common nettle. We have one species of it very common in all parts of England, about watery places, and easily known by its seeds, in autumn, sticking to the clothes and stockings of those who go near the plant. This plant, and the others of the same genus, bear the name bidens, from the teeth or prickles at the ends of the seeds; but the word should be tridens, for there are certainly three of them.

AHMOOD, a town of Gujerat, belonging to the Mahrattas.

AHNA, a bailiwick of Germany, in lower Hesse, belonging to the elector of Hesse-Cassel

AHRBERG, a bailiwick, market town, and castle in Germany, in the upper division of the bishopric of Eichstad; now in the Bavarian circle of the Rezat, district of Herrieden. Population 1300. The town is three miles S. W. of Ohrenau.

AHRENFELS, a domain (formerly imperial) with a castle, lying on the Rhine, not far from Lintz, and belonging, till lately, to the house of Nassau-Usingen. Also a village, 17 miles N.N W. of Coblentz.

AHU, in zoology, the ibex capensis of Kolben, the kevel of Buffon, the flat-horned antelope of Pennant, and the antelope kevella of Gmelin's Linnæus.

AHUCYATLI, in natural history, an American serpent, approaching to the nature of the hæmorrhus and rattle-snake, but larger than the former, and wanting the rattle of the latter; it is as fatal in the effects of its poison as any known species of serpent.

A-HULL, in sea language, the situation of a ship when all her sails are furled on account of the violence of the storm, and when, having lashed her helm on the lee side, she lies nearly with her side to the wind and sea, her head being somewhat inclined to the direction of the wind.

AHUN, a town of France, in the department of Creuse, seated on the Creuse, eight miles S. E. of Gueret, and in the arrondissement of that name; thirty miles N. E. of Limoges, and fifty-five S. E. of Moulins. Long. 2°. 4′. E. lat. 46°. 5′. N.

AHUN'GRY, or HUN'GRY. See HUNGRY.

When any of the gheastes would have touched any thinge, it vanished suddainely awaie, and was turned to nothinge. And so, when their eies were ful, they put vp theire kniues and rose *ahungred*.

Jewel's Defence of the Apologie.

I am not *a hungry*, I thank you, forsooth.

Shakspeare's Merry Wives of Windsor.

And when he had fasted forty days and forty nights, he was afterward *an hungred*.

St. Matt. iv. 2.

AHUYS, a sea-port town of Sweden, small, but very strong by its situation. It is seated in the principality of Gothland, in the territory of Bleckingby, near the Baltic Sea, about eighteen miles from Christianstadt. Lon. 14°. 15′. E. Lat. 56°. 15′. N.

AHUZZATH, the friend of Abimelech II. king of Gerar, and who, along with Phicol, accompanied him, to witness the alliance made between him and the patriarch Isaac.

AHWAS, AHUAZI, or HAVISA, a town of Persia, on the river Karoon or Karasu, in the province of Kuzistan. It was formerly a large and flourishing city, the capital of a province of the same name, and the wintering place of Artabanes, the last of the Parthian kings. Afterwards it seems to have been independent of the sophis of Persia, and governed by a descendant of Mahomet, who exercised the rights of sovereignty. It is now incorporated with the dominions of the same king, whose authority is acknowledged by most of the Persian provinces: but is a poor place, whose population does not exceed 600 or 700 souls. Close to the edge of the river are the ruins of a spacious palace, whose walls consist of massy hewn stone. Distant forty-eight miles south of Shuster, or Suster, the capital of Kuzistan, and forty north of Bussorah. Long. 48°. 58′. E. Lat. 46°. 10. N.

AI, in ancient geography, a town of Judea, N. from Jericho, called by Josephus Αἰνα, originally a kingdom of the Canaanites, before it was captured by Joshua. See vii. and viii. chapters of Joshua. Some critics pretend to find a discordance between the third verse of the eighth chapter, where 30,000 men are mentioned as 'sent away by night,' and the twelfth verse, where it is said, that 'Joshua took about 5000 men, and set them to lie in ambush.' But this difficulty is easily removed, either by supposing with Masius, that 5000 lay in wait, while 25,000 attacked the city; or with Calmet, and most other interpreters, that two bodies were placed in ambuscade, the one consisting of 25,000, and the other of 5000 men. Ai, being burnt upon this occasion, was rebuilt by the Benjamites, and long after this period, was taken by Senacherib. After the captivity, it was rebuilt a second time. Nehem. xi. 31.

AI, a city of the Ammonites, taken and plundered by the Chaldeans.

AIAIA, in ornithology, the name of a Brazilian bird, of the platea, or spoon-bill kind, called by the Portuguese colhorado. It is exactly of the same shape, and much of the same size, with the European spoon-bill, and its beak is in the same manner, broad at the end. It is of a pale, but very bright and shining flesh-colour on the back and wings; the other parts of its body are perfectly white. It is common upon the shores of rivers, and its flesh is well tasted.

AJACCIO. See AJAZZO.

AJALON, or AIJALON, a town of the tribe of Benjamin, about three miles east from Bethel, rendered memorable by Joshua's victory over the five Canaanitish kings in the adjacent valley and still more so, by the extraordinary circumstance attending it, of the miraculously lengthened day. Whether this was accomplished by an arrestment of the earth's motion round its own axis, or by that of the rays of light proceeding from the sun, and reflected from the moon, it is impossible to determine. But while each of these hypotheses are within the bounds of possibility, and do not, like transubstantiation, baffle the power of credulity itself to believe, those who are willing to give credit to divine revelation, and who believe, that he who established the laws of nature can alter or suspend them at his pleasure, will not readily listen to the scoffs of infidels against this miraculous interposition of divine power.

AJALON, or AIJALON, the name of three other cities in Palestine, viz. 1. a city of Dan, which stood between Timna and Bethshemesh, assigned to the Kohathites, though the Amorites kept possession of it long after. It was taken however by Uzziah, and retaken by the Philistines from Ahaz. 2. A city in the tribe of Ephraim, about two miles from Shechem. 3. A town of Benjamin, between Bethel on the north and Jerusalem on the south. 4. A town of Zebulon, whose situation is not precisely known.

AJAN, a coast and country of Africa, which has the river Quilmanci on the south; the mountains from which that river springs, on the west; Abyssinia, or Ethiopia, and the Straits of Babelmandel, on the north; and the Eastern, or Indian Ocean, on the east. The coast abounds with all the necessaries of life, and has plenty of very good horses. The kings of Ajan are often at war with the Abyssinians; and all the prisoners they take, they sell to the merchants of Cambaya, those of Aden, and other Arabs, who come to trade in their harbours, and give them in exchange, coloured cloths, glass beads, raisins, and dates; for which they also take back, besides slaves, gold and ivory. The whole sea-coast, from Zanguebar, to the Straits of Babelmandel, is called the coast of Ajan; and a considerable part of it the Desert coast.

AJANTIA, Αιαντεια, an annual feast, consecrated to Ajax, the son of Telamon, and observed with great solemnity in the island of Salamis, as well as in Attica: where, in memory of his valour, a bier was exposed, set out with a complete suit of armour.

AJAR'. On jar, i.e. on char, on the turn. A. S. Ɣyþan Acyþan, to turn.

> The leuys remanis vnsterit of thare place,
> Na partis not furthe of reule, quhill per case
> The pyping wynd blaw vp the dure *on char*,
> And driue the leuis.
>
> *Douglas*, b. iii. p. 83. *Æned.*

> The mystic numbers in the cavern laid,
> Are rang'd in order by the sacred maid;
> There they repose in ranks along the floor;
> At length a casual wind *unfolds* the door;
> The casual wind disorders the decrees,
> And the loose fates are scatter'd by the breeze.
>
> *Pitt. Æneid*

> So rumour says, who will believe,
> But that they left the door *ajar*,
> Where safe, and laughing in his sleeve,
> He heard the distant din of war.
>
> *Gray's Long Story.*

AIAS, or Ajasso, a sea-port of Asiatic Turkey, the ancient Issus, in the government of Marasch, standing in a bay of the Mediterranean, of the same name. It is thirty-six miles S.S.W. of Marasch, and twenty north of Scanderoon, and famous for its warm baths.

AJASSALUCK, the Turkish name for a village standing on or near the site of the ancient Ephesus. It occupies the side of a hill, at the top of which is a large mosque, broken aqueducts, and ruinous buildings, interspersed. Its name signifies the temple of the moon, and the whole place seems to have been built from the ruins of Ephesian grandeur. The seats of a theatre, or stadium, some bearing Greek letters, constitute the buttresses of the castle; and over the arch of the gateway are sculptures of the most exquisite workmanship, supposed to represent incidents related in the Iliad. A long Greek inscription also is exhibited in the mosque; and its marbles, together with the large granite columns supporting the roof, are the spoils of Ephesus. Many of the scattered structures, with square domes, have been baths, testifying a more numerous population, whose dwellings have fallen to decay. Several circumstances combine in demonstrating the former [illegible] of Ajassaluck, but its history is [illegible] known. It has flourished chiefly, if not [illegible] under the Mahommedans; and its origin [illegible] referred to the thirteenth century. [illegible] encamped here, after subduing Smyrna [illegible] and the events recorded of Ephesus [illegible] this date seem to relate to Ajassaluck, [illegible] thirty-nine miles south of Smyrna, and [illegible] of Ephesus.

AIATASTO, a river of Peru, in the [illegible] and government of Tucuman, having [illegible] on its banks, which feed about 40,000 [illegible] 6000 horses.

AJAX Oiliades, in classical biogra[illegible] of the most celebrated of the Greek leaders, [illegible] expedition against Troy, and the son of [illegible] a powerful chief of the Locrians. [illegible] cribes to him agility, and promptitude in [illegible] whatever he undertook; and he is said [illegible] excelled in the use of the bow and javelin. [illegible] race is, by some commentators, supposed [illegible] fer to him, *Od.* xv. lib. i. v. 19. *Homer* [illegible] lib. iv. 502, says,

> Impious he roar'd defiance to the gods,
> To his own prowess all the glory gave.
>
> [illegible]

He is said to have incurred the disp[illegible] of the gods, by his violation of Cass[illegible] the daughter of Priam, in the sanctuary [illegible] Minerva, where she had taken refuge. [illegible] however, denied the fact, and imputed the [illegible] to the artifice of Agamemnon, who [illegible] to keep Cassandra for himself. In his [illegible] home, he and his whole fleet were wrecked [illegible] the vengeance of Minerva. Some say that [illegible] escaped; and that in the moment of danger [illegible] exclaimed: 'In spite of the gods, I will esc[illegible] *Homer* ubi supra, v. 504.

Ajax Telamonius, the son of Telamon, [illegible] of Salamis, and one of the principal heroes of [illegible] Iliad, is by Homer represented as inferior [illegible] Achilles in strength and valour, and as the [illegible] bulwark of the Greeks, after the secession of [illegible] warrior. 'His character,' says Dr. Aikin, [illegible] to be intended as the model of that steady [illegible] able courage which is ever at hand, when its [illegible] tions are wanted, and requires no aid of [illegible] stances to excite its energy. He is the only [illegible] who neither asks nor receives the assistance [illegible] deity.' Homer partly vindicates him from [illegible] charge of irreligion: for though he did not [illegible] Jupiter himself, when he prepared to en[illegible] valiant Hector, he desired others to pray [illegible] either with a low voice, lest the Trojans should [illegible] or louder if they pleased; 'for,' says he, [illegible] no person in the world.' *Iliad*, lib. vi. [illegible] When the arms of Achilles were adjudged [illegible] the Greek chieftains to his rival Ulysses, [illegible] was bereaved of his understanding; and [illegible] venting his rage against a flock of sheep, [illegible] them to be Greeks, he then turned his sword [illegible] himself. Fable reports, that the flower [illegible] hyacinth sprung from his blood. The [illegible] erected a noble monument to him on the [illegible] montory of Rhœteum. Pausanias says, [illegible] that one of their tribes bore the name of [illegible] and that the people of Salamis built [illegible]

him. Herodotus, lib. viii. c. 64. c. 121, informs us that the whole country of Greece invoked him a little before the battle of Salamis, and dedicated to him, as part of the first-fruits due to the gods, one of the ships which they had taken from the Persians in that battle. Pausanias states, among other wonderful things, that the waves cast the arms of Achilles upon the tomb of Ajax, after the shipwreck of Ulysses. The fate of Ajax was the subject of several eminent tragedies. In his last exploit, when he was endeavouring to preserve and rescue the dead body of Patroclus, and when he was overwhelmed with a mist or darkness, which intercepted his view of the Grecian host, he made the following address to Jupiter, which has been much admired for its sublimity:

Lord of earth and air,
O king! O father! hear my humble pray'r:
Dispel this cloud, the light of heaven restore:
Give me to see, and Ajax asks no more:
If Greece must perish, we thy will obey,
But let us perish in the face of day.
Pope. Iliad, lib. xvii. v. 645, &c.

Dr. Aikin thus sums up his character: 'Such is the Ajax of the Iliad; a hero (as far as so rude an age admits of heroism) in grain; tried and proved by every difficulty and danger; not the meteor of a day, but shining with equal lustre through the whole period of action; always in his place; resorted to on every emergency, and never in vain; not hurried along by idle bravado or enthusiastic ardour, but making utility the guide of his actions; finally, never yielding but when mortal assistance was unavailable, and when a heaven-born champion, with celestial aid, was necessary to turn the tide of fortune. He may then stand in the number of able and useful men, whose value is superior to their fame: a class of which there are members in every profession and rank of life, and to whose assistance, the first-rate characters owe great part of their celebrity and success.'

Ajax, in Grecian antiquity, a furious kind of dance, in use among the Greeks; intended to represent the madness of that hero after his defeat by Ulysses, to whom the Greeks had given the preference in his contest for Achilles' arms. Lucian, in his treatise of Dancing, speaks of dancing the Ajax.

AJAZZO, or Ajaccio, the capital, formerly, of one of the five provinces of the division of the island of Corsica, called Di la da Monte, is the chief town in this island, the seat of the existing administrative offices, and the head of an arrondissement. It is the best built town on the island, being walled and protected by a citadel; and is delightfully situated on the north side of the Golfo d'Ajaccio, which forms a secure and commodious harbour for ships of the largest size; having a strong mole, but the entrance is rendered somewhat dangerous by a small projecting rock. The number of inhabitants in the town and suburbs, which stretch along the harbour, was in 1815, 6845, having increased rapidly during the present century, in consequence chiefly of the encouragement given to settlers by the French government, who spared no pains on its improvemen and embellishment. It is remarkable for being the birth place of Napoleon Buonaparte. Long. 8°. 53′. E. lat. 41°. 46′. N.

AICH, a town of Germany, in Bavaria, seated on the river Par. It was taken by the Swedes, in 1634, and some time after reduced to ashes.

AICHMALOTARCHIA. See Æchmalotarcha.

AICHSTAET, a town of Germany, in Franconia, and the ancient capital of a bishopric of the same name. It contains several hospitals, a cathedral and other churches, one of which is built after the model of the church called the Holy Sepulchre at Jerusalem; and is remarkable for a curious piece of workmanship, called the Sun of the Holy Sacrament.

AICHSTETTEN, a town of Bavaria, in Suabia; containing 1380 inhabitants.

AICURUS, in ornithology, a species of parrot. See Psittacus.

Aid', *v.* & *n.*
Aid'ance,
Aid'ant,
Aid'er,
Aid'less.
} Ad: *juvo, jutum*: **Fr.** *aider*, a contraction of the foregoing Latin word; to help; to carry a burthen; to assist.

And in the *ayd* of Turnus and supple,
Ane thousand feirs folkis assemblit he.
Douglas, b. 7. p. 234.

Also thou shalt not swere for envie, neyther for favour, ne for mede, but only for rightwisenesse and for declaring of trouthe to the honour and worship of God, and to the *aiding* and helping of thin even Cristen. *Chaucer. The Persones Tale*, v. ii. p. 333.

Into the lake he leapt, his lord to *aid*;
And, of him catching hold, him strongly staid
From drowning. *Fairy Queen.*

Neither shall they give any thing unto them, that make war upon them, or *aid* them with victuals, weapons, money, or ships. *Maccabees* viii. 26.

All along, as he went, were punished the adherents and *aiders* of the late rebels.
Bacon's Henry VII.

Oft have I seen a timely parted ghost,
Of ashy semblance, meagre, pale, and bloodless,
Being all descended to the lab'ring heart:
Who, in the conflict that it holds with death,
Attracts the same, for *aidance* 'gainst the enemy.
Shakspeare's Henry VI.

He had met
Already, ere my best speed could prevent,
The *aidless* innocent lady, his wish'd prey.
Milton's Comus.

——She can unlock
The clasping charm, and thaw the mumming spell,
If she be right invok'd in warbled song;
For maidenhood she loves, and will be swift
To *aid* a virgin, such as was herself. *Comus.*

Boab. Advise, or *aid*, but do not pity me;
No monarch born can fall to that degree;
Pity descends from kings to all below;
But can, no more than fountains, upward flow.
Dryden's Conquest of Granada, Part 1.

——To Turnus' *aid*,
A thousand men the youthful hero led. *Dryden.*

The memory of useful things may receive considerable *aid*, if they are thrown into verses.
Watts's Improvement of the Mind.

A golden coffer in her hand she bore,
The present treacherous, but the bearer more.
'Twas fraught with pangs; for, Jove ordain'd above,
That gold should *aid*, and pangs attend on love.
Parnell's Hesiod.

AID, in ancient customs, a subsidy paid by vassals to their lords on certain occasions. Such were the aids of relief, paid upon the death of the lord mesne to his heir; the *aid cheval*, or capital aid, due to the chief lord on several occasions, as, to make his eldest son a knight, to make up a portion for marrying his daughter, &c.

AID, in the menage, is the same with what some writers call *cherishing*, and used to avoid the necessity of correction.—The inner heel, inner leg, inner rein, &c. are called *inner aids;* as the outer heel, outer leg, outer rein, &c. are called *outer aids*.

AID, in theology; the aids or assistances of divine favour, which are offered to man, have been the subject of much dispute betwixt the Jansenists and Jesuits; for the composing whereof a celebrated congregation was erected at Rome, under the title of congregation of aids, congregatio de auxiliis.

AID, ROYAL, is a name sometimes given formerly to the land-tax.

AIDAB, or GAIDHAB, a town on the confines of Abyssinia in Africa, opposite to Giodda, from whence, great numbers of Africans take shipping to visit Mecca.

AIDAN, a famous Scotch bishop, of Landisfarne, or Holy Island, in the seventh century, was employed by Oswald, king of Northumberland, in the conversion of the English, in which he was very successful. He died in 651. We have an extraordinary instance of this bishop's liberality to the poor. Having received a present from king Oswin of a fine horse and rich housings, he met with a beggar, and dismounting, gave him the horse thus caparisoned. When the king expressed some displeasure at this singular act of humanity, and the slight put upon his favour, Aidan quaintly, but forcibly asked, 'which do you value most, the son of a mare or a son of God?' Bede describes the character of Aidan in terms of high commendation, and ascribes to him miracles, which the credulity of the times in which he lived would be disposed to admit. To the report of one of his miracles we are inclined to give our assent. When the bishop gave the priest, who was to conduct the betrothed wife of Oswi by sea to Northumberland, a phial of holy oil, instructing him, in case of a storm, to pour it into the sea, and assuring him that it would soon become calm, it is possible he might not be unacquainted with the efficacy of oil thus applied; which has been long known, and is now sufficiently established by observation and experiment.—*Biog. Brit.*

AID-DE-CAMP, in military affairs, an officer employed to receive and carry the orders of a general.

AIDERBEITZAN, ADERBIJAN, or, as the Persians call it, AZERBEYAN, in geography, a province of Persia, adjoining east on the province of Ghilan, the Caspian Sea and Tabristan, to the south on Irac-Ajemi, to the west and north-west upon Curdistan and Upper Armenia, and to the north on Schirwan and Georgia. The etymology of the name imports a country of fire; and it is so called on account of the temple erected in it for keeping their sacred fire. The soil is fruitful, and the climate healthy, though cold. The most considerable cities are Tauris, Ardevil, and Sultania. The province extends from about N. lat. 36°. to 39°. and E. long. 48°. to 54°.

AID-MAJOR, or ADJUTANT, in military affairs, is an officer, whose business is to ease the major of part of his duty; and to perform it all in his absence. Some majors have several aid-majors.—Each troop of guards has but one major, and has two aid-majors, as it contains battalions. When the battalion is drawn up, the aid-major's post is on the left, beyond all the captains and behind the lieutenant-colonel.

AIDIN, a district of Asiatic Turkey, of which the city of SMYRNA is the capital, which see.

AIDON, *Aidon*, ancient British or Welsh, the wing of an army, a castle in Northumberland, where Camden supposes there was a station of the Roman army, under Julius Cæsar.

AIDONEUS, in fabulous history, a king of the Molossians, who imprisoned Theseus, for attempting to steal his daughter Proserpine, near the river Acheron; whence the poetical fable of Theseus's descent into hell.

AIEREBA, in ichthyology, the name of a fish of the pastinacha marina kind, but differing from all the others, in that the form of its body is regularly round, and its head placed far within the verge of its thin part. It is common in the Western Ocean: but is not much esteemed for the table, being more loose in its flesh than the other kinds.

AIGHENDALE, the name of a liquid measure used in Lancashire, containing seven quarts.

AIG'LET, or AG'LET. Fr. *aiguillette*, the tag of a lace, or of the points formerly used in dress; sometimes formed into small figures; spangles, &c.

He gyueth alwaye hys old point at one end or other some new *aglet*; but when al his cost is done theron, it is not al worth an *aglet* of a good blewe poynte. *Sir Thos. More's Workes*, p. 675. c. 1.

It all above besprinkled was throughout
With golden *aiglets*, that glister'd bright,
Like twinkling stars; and all the skirt about,
Was hemm'd with golden fringes.
Faerie Queene.

He thereupon gave for the garter a chain worth 200l. and his gown addressed with *aglets*, esteemed worth 25l. *Maynard.*

Why, give him gold enough, and marry him to a puppet, or an *aglet* baby, or an old trot, and never a tooth in her head. *Shaksp. Taming of the Shrew.*

AIGILULF, AIGILULFUS, a king of the Lombards, who took Ravenna, and put an end to the exarchate, A. D. 752, after it had lasted 171 years.

AIGITHALUS, αιγιθαλος, in ornithology, a name by which some old authors call the parus or titmouse.

AIGLE, or AELEN, a district in the Swiss canton of Vaud, (formerly in that of Berne,) with the title of a government. It lies east of the lake of Geneva, was anciently reckoned in the Pays de Vaud, and belonged to the dukes of Savoy. Through this district lies the great road from Vallais into Italy, by Villeneuve, which is at the head of the lake of Geneva, through a deep valley, three miles wide, bordered on one side with the Alps of Switzerland, and on the other

with those of Savoy, and crossed by the river Rhone. It passes through the town of Aigle. See next article. Ivorna, in the district of Aigle, was in part buried by the fall of a mountain, occasioned by an earthquake in 1584.

AIGLE, a large thriving town in the canton of Berne, seated on the banks of the Rhone, six miles from its entrance into the lake of Geneva, is surrounded with vineyards, fields, and meadows. The houses are built of a white marble, found in the neighbourhood. The governor's castle is on an eminence, above the town, and has a lofty marble tower, inhabitants 2500. It is twenty-six miles north-east of Geneva.

AIGLE, a lofty promontory on the coast of Provence, in France, between Marseilles and Toulon. Also a town on the river Rille, in Lower Normandy, the head of a canton in the department of the Orne, arrondissement of Mortagne. 14 leagues N. E. of Alençon.

AIGLE, or EGRE, is likewise a small river of France, in the department of the Loir and Cher, which falls into the Loir.—Also a small island in the St. Lawrence, formed by the confluence with that river of the Riviere des Prairies, which bounds the southern shore of the island of Montreal. It is mostly good meadow land.

AIGLETTE, in heraldry. See EAGLET.

AIGNAN, or AGNAN, a town of France, in the department of the Gers, arrondissement of Mirande. It has a population of 2610, and lies on the river Midou.

AIGNAN (St.), a small town of France, below the conflux of the Saudre and Cher, in the department of the Loir and Cher. It is 8 leagues south of Blois, and 47 S. S. W. of Paris.

AIGNAN, St. an uninhabited island in the South Pacific; one of those denominated the Archipelago of Louisiade by the French. It rises from a precipitous coast on the north into woody mountains; the eastern extremity is in Lon. 152°. 6′. 30″. E. Lat. 10°. 41′. 19″. S.

AIGNAN, (M.) a modern French author of some celebrity, who died in Paris, in the beginning of 1825. He has enriched the French language with a new translation of Homer, which some critics consider very similar in character with that of Pope, in our own tongue—elegant as a composition, rather than an accurate transcript of his author's meaning. He wrote also the tragedy of 'Brunehaut,' once very popular; was the editor of a provincial review, called, Bibliothèque Etrangere, which contains some curious learning; and furnished, on the coronation of Napoleon, a letter-press description of the plates engraved to illustrate that ceremony.

AIGRE, a town of France, formerly in the Angoumois, diocese of Saintes, intendancy of La Rochelle, now the head of a canton, in the department of the Charente, arrondissement of Ruffec. Inhabitants 1430. It is 7 leagues N.W. of Angouleme.

AIGRE-FEUILLE, a small town of France, the head of a canton, in the department of the Lower Charente, arrondissement of Rochefort, two leagues and three quarters E.S.E. of La Rochelle. Likewise the name of several villages in Brittany and Languedoc.

AIGRETTA, in ornithology, the name of a species of heron, which seems to be a synonyme of the ardea alba minor, or the small white heron.

AIGUE MARINE. See AQUA MARINA.

AIGUE-PERSE, a town of France, in Auvergne, the head of a canton, in the department of Puy de Dome, near which there is a very cold spring, which bubbles up with a strong ebullition, and is fatal to animals that drink it. It lies 18 miles N. of Clermont, and 25 S. of Paris, in the arrondissement of Riom. Inhabitants, 5050.

AIGUES-MORTES, a town of France, in Lower Languedoc, in the department of the Gard, arrondissement of Nismes. It formerly stood near the sea, which has retired two leagues from the town, leaving it in a morass, which, however, serves as a defence for it. It is 7 leagues S.S.W. of Nismes.

AIGUES-VIVES, a town of France, in the department of the Gard, 4 leagues S. W. of Nismes. Also a town of France, in the province of Touraine, not far from the Cher; now in the department of the Indre and Loir.

AIGUILLON, a town of France, situated at the confluix of the Lot and Garonne, in the department of the Lot and Garonne, contains 2380 inhabitants. Five leagues and a half N.W. of Agen.

AIGUISCE, in heraldry, denotes a cross with its four ends sharpened, but so as to terminate in obtuse angles.—It differs from the cross fitchee, in as much as the latter tapers by degrees to a point, and the former only at the ends.

AIKIN, (John, M. D.) a modern author, and editor of various useful works, was born 15th of January, 1747, at Kibworth, Leicestershire, being the only son of Dr. T. Aikin, a dissenting minister, and master of a respectable academy at that place. He received the rudiments of his education at home; but was sent early to the Dissenters' academy at Warrington, which was then in considerable repute.

Mr. Aikin evincing a taste for medical pursuits, was first articled to the late Dr. Garthshore, then a practising surgeon and apothecary, at Uppingham, in the county of Rutland. He became a member of the University of Edinburgh, in 1764, where he continued for two years; and after passing three years more as a pupil to Mr. White, of Manchester, settled as a surgeon in Chester; but soon removed to Warrington. In this place he began his career as an author, by publishing several miscellaneous pieces in conjunction with his sister, Mrs. Barbauld; and an excellent translation of Tacitus's De moribus Germanorum; and Life of Agricola. Here also commenced his friendship with Dr. Priestley, and with Gilbert Wakefield, both of whom were then connected with the Warrington academy.

In 1784, Mr. Aikin proceeded to Leyden, where he graduated as a physician; in which capacity, he soon after settled at Yarmouth, in Norfolk. Dr. Aikin throughout life, was distinguished for the liberality of his opinions, as well as the candour and fearlessness with which he professed them. Joining at this time in the strenuous efforts of his fellow dissenters, to obtain a repeal of the corporation and test acts, he ex-

cited considerable jealousy in the high church party of the place; which was increased, by his becoming the advocate of the early measures of the French revolutionists. Our author is said to have been finally compelled to leave Yarmouth upon these grounds. In 1796, Mr. now Sir Richard Philips, engaged him to conduct the Monthly Magazine; of which he was the sole editor for ten years. The volumes published under his superintendence, contain numerous striking proofs of his talents as an essay-writer. During this engagement he projected, in conjunction with Dr. Enfield, a General Biographical Dictionary, which was continued at various intervals of publication, to the extent of ten volumes quarto. The first volume appearing in 1799, and the last in 1815. Dr. Aikin also conducted for Messrs. Longmans a superior magazine, (but of short-lived success,) called the 'Athæneum.' He was also the author of a life of Huet, bishop of Avranches; and of a volume of Medical Biography, 8vo. He likewise edited for the booksellers in 1806, a superior edition of Spenser, 6 vols. 8vo.; bishop Newton's Works of Milton, with a prefatory critical essay, which passed through three editions; and, a volume that fully justified its title, called Select Works of the British Poets, comprising a chronological series of our classical poets, from Ben Jonson to Beattie, without mutilation or abridgment. 'The contents are so comprehensive, that few poems, it is believed, are omitted; except such as are of a secondary merit, or unsuited to the perusal of youth.' Dr. Aikin died at Stoke Newington, Dec. 7, 1822, in the seventy-fifth year of his age.

AIKMAN, (William,) in biography, a painter of eminence, the son of William Aikman, Esq. advocate of Cairney in Scotland. He was born October 24th, 1682, and intended by his father, for his own profession; but devoted himself to the fine arts, and particularly to that of painting. In 1707, he went to Italy; and having resided for three years at Rome, passed to Constantinople and Smyrna, and in 1712 returned to his own country. Here he followed the profession of painting under the patronage of the duke of Argyle, the earl of Burlington, Sir Godfrey Kneller, and other patrons of the arts. For the earl of Burlington he painted a large picture of the royal family, now in the possession of the duke of Devonshire, which his death prevented his finishing; and there are several portraits painted by him in Scotland, which are now in the possession of the duke of Argyle, the duke of Hamilton, &c. Mr. Aikman died in London, June 4th, 1731; having lost his son about six months before, at the age of seventeen. Amongst his intimate friends were Somerville, the well-known author of the Chase, Mallet, Mr. Allan Ramsay, and the celebrated author of the Seasons, each of whom paid an elegiac tribute to his memory. A very neat epitaph by Mallet was engraven on his tomb.

Thomson's poem on the death of Mr. Aikman, contains the following beautiful lines:

A friend, when dead, is but removed from sight,
Sunk in the lustre of eternal light;
And when the parting storms of life are o'er,
May yet rejoin us on a happier shore.
As those we love decay, we die in part;
String after string is sever'd from the heart,
Till loosen'd life at last but breathing clay,
Without one pang is glad to fall away,
Unhappy he, who latest feels the blow
Whose eyes have wept o'er every friend laid low
Dragg'd ling'ring on from partial death to death,
Till dying, all he can resign is breath.

AIL', *v.* & *n.* } A. S. Aiblian, to be
AIL'MENT. } to pain; to trouble; to
in any manner.

And the angel of God called to Hagar out of
and said unto her, What *aileth* thee, Hagar?
for God hath heard the voice of the lad, where
Gen.

Love smiled, and thus said, 'Want,
desire, is unhappy; but, if he nought do desire,
can Heraclitus *ail*?'

What *ails* me, that I cannot lose thy thought
Command the empress hither to be brought:
I, in her death shall some diversion find;
And rid my thoughts at once, of woman-kind.
Dryden's Tyrannic

Little *ailments* oft attend the fair,
Not decent for a husband's eye or ear.
Gran

AILAH, a small but ancient town of
Arabia Petræa, seated on the east side of
the north bays of the Red Sea, near the
Elanites. It is supposed to be the place
Elath and Eloth in Scripture. It lies
road, which the pilgrims travel, from
Mecca. Long. 36°. 40'. E. Lat. 29°. 10'.

AILANAH, AILATH, or AHELOTH. See
article.

AILE, or AIEL, from *aieul*, Fr. grand-
in law, a writ which lies where the grand-
or great-grandfather, called befaile, was
in lands or tenements in fee simple, on the
he died; and a stranger abates or enters
same day, and dispossesses the heir or
child. See ABATEMENT.

AILERONS, in natural history, petty wings
a French term, expressing two small fleshy
stances, resembling part of wings, or young
just growing wings, and found in the two-winged
flies, situated at the root of the larger wings.
is a diminutive of the French aile, wing.

AILESBURY, or AYLESBURY, an ancient
borough and market town of Buckinghamshire
eighteen miles from Buckingham, and thirty-one
from London. It is the Æglesbury of the Saxons,
and was a well fortified British town, maintaining
its independence against the incursions of
the Saxon invaders, till reduced by Cuthwin,
brother to Cealwin, king of the West Saxons, in
the year 571. St. Osyth, who was beheaded
by the Pagans in Essex, was buried at this
place, about the year 600; and numerous miracles
were believed to have been wrought by her
relics in the church here; on which account a
religious house was erected to her memory.
Camden, speaking of this town, says, that it was
bequeathed by Frewald to his daughter Edith,
but to whom it descended from this pious lady
does not appear. Subsequently, however, it became
a royal manor; and William the Conqueror
invested his favourites with some of its lands,
under the tenure of providing 'straw for his bed
chamber: three eels for his use in winter,

and in summer, straw, rushes, and two green geese, thrice every year, if he should visit Ailesbury so often.' In the reign of this monarch, the manor of Ailesbury was purchased by Sir John Baldwin, chief justice of the Court of Common Pleas, whose daughter having been married to one of the Packingtons, this manor came into that family, and has regularly descended in it to the present time. Drayton says,

Aylesbury's a vale that walloweth in her wealth,
And (by her wholesome air, continually in health)
Is lusty, firm, and fat; and holds her youthful strength.

Fuller, in his Worthies of England, states, that 'the best, and biggest-bodied sheep in England, are in the Vale of Ailesbury, where it is nothing to give ten pounds or more for a breed-ram. So that, should a forrainer hear of the price thereof, he would guess the ram rather to be some Roman engine of battery, than the creature commonly so called.' In Leland's time the houses were of timber, but now they are mostly of brick. Here is a county gaol, and the Lent assizes are holden here. Ailesbury consists of several irregular streets, containing altogether about 16,671 inhabitants. The county hall is a handsome modern fabric, and the church a very ancient and spacious edifice. It was made prebendal to the see of Lincoln by William the First. The town was incorporated by royal charter, and empowered to return two members to Parliament in 1553. In the Rolls chapel, among the writs for the parliamentary returns, in the 14th Eliz. is a curious document, addressed by 'Dame Dorothy Packington, late wife of Sir John Packington, Kt., lord and owner of the town of Ailesbury,' to 'all Christian people, &c.' stating, that *she* had 'chosen, named, and appointed her trusty and well-beloved Thomas Litchfield and George Burden, Esqrs., to be *her* burgesses of her said town of Aylesbury;' and further stating, that whatever the said Thomas and George should 'do in the service of the Queen's Highness, in that present parliament,' &c. '*she* did ratify and approve to be of *her* own act, as fully and wholly as if *she* were witness or present there!' On first receiving the privileges of a borough, the electors of Ailesbury were confined to the bailiff, nine aldermen, and twelve burgesses; but this charter being lost through neglect, the elective franchise was extended to all householders not receiving alms; who amounted to between 300 and 400. This privilege also having been abused and corrupted, in the year 1804 a bill was brought into parliament for still further extending the right of election to the three adjoining hundreds; so that the number of voters are now nearly tripled. Besides the church, already mentioned, there are various places of worship for several denominations of Protestant Dissenters. During the late exile of the royal family of France, Louis XVIII., with various members of his family, resided some years at Hartwell, about two miles from this town; and here his consort, Marie Josephine Louise de S voie, comtesse de Lille, died on the 13th Nov. 1810, in her 58th year. Ailesbury gives the title of earl to the Brudenel family. Markets on Saturday.

AILESFORD, Eaglesford, Sax. the eagle's ford, a town in Kent, famous for the great victory obtained by Vortimer, the British king, over Hengist and his Saxon army.

AILES VITREES, in natural history, a French term used to express the wings of a series of insects, which seem of a middle nature, between the fly and the butterfly kind, and are therefore called papilion mouches by these writers. The wings of these insects are in part covered with dust, or scales, and in part free from it, and transparent. In these free parts they look glassy; whence their name, signifying glassy wings.

AILMER, or ÆTHELMARE, earl of Cornwall and Devonshire, in the reign of king Edgar. It is not known of what family he was. His authority and riches were great, and so also in appearance was his piety. He founded the abbey of Cerne, in Dorsetshire. In 1016, when Canute invaded England, and found himself stoutly opposed by Edmund Ironside, this earl Ailmer, with Eadric Streone, earl of Mercia, and earl Algar, joined the Dane against their natural prince, which was one great cause of the ruin of the Saxons.

AILRED, EALRED, abbot of Revesby in Lincolnshire, in the reigns of Stephen and Henry II., was born in 1109, of a noble family, and educated in Scotland with Henry the son of king David. On his return to England, he became Cistertian monk in the monastery of Revesby, of which he afterwards was made abbot. He died in 1166, aged fifty-seven, and was buried in his monastery. 'He was,' says Leland, 'in great esteem during his life; celebrated for the miracles wrought after his death; and admitted into the catalogue of saints.' He was author of several works; most of which were published by Gilbo the Jesuit at Douay, 1631; part of them may be also found in the Bibliotheca Cistertiensis, and Bibliotheca Patrum. His principal work is Speculum Charitatis.

AILSA, an insulated rock on the western coast of Scotland, between the shores of Ayrshire and Cantyre. It is two miles in circumference at the base, is accessible only at one place, and rises to a great height in a pyramidical form. A few goats and rabbits pick up a subsistence among the short grass and furze; but the importance of the rock consists in the great variety and boundless numbers of birds, by which it is frequented; particularly the gannets or solan geese, whose young are used at the best tables, and bring a good price. Other birds are caught for their feathers. The rock is rented from the Earl of Cassilis. The depth of water around the base is from seven to forty-eight fathoms. It is surrounded with excellent banks, well stocked with cod and other white fish. An ancient castle surmounts this rock, which is useful as a sea mark, in W. Long. 5°. 8'. N. Lat. 55°. 18'.

AIM' *v.* & *n.* } Old Fr. *esme*, to point at.
AIM'LESS. } —*Cotgrave* and *Skinner.*—*amyer*, presenter, dresser.—*Ducange.*—Perhaps from the Gothic *haim*, home, primarily, then to direct a missile weapon to a point; to have an immediate object in view, to which the attention is particularly directed.

Then Turnus *aiming* long in hand a dart of sturdy oke,
Well tipt with steele, at Pallas forth it flung, and and thus he spoke,
Lo, see if that our dart be sharper than thy weapon was. *Æneidos, Book* 11, *by Phaer & Twyne.*

Lo, here the world is bliss; so here the end,
To which all men do *aim*, rich to be made;
Such grace now, to be happy, is before thee laid.
Faerie Queene.

It is impossible, by *aim* to fell it; and for experience and knowledge thereof, I do not think that, there was any of the particulars thereof.
Spenser on Ireland.

There is a history in all men's lives,
Figuring the nature of the times deceas'd:
The which observ'd, a man may prophesy
With a near *aim*, of the main chance of things,
As yet not come to life; which, in their seeds
And weak beginnings, lie intreasured.
Shakspeare's Henry VI.

Another kind there is, which although we desire for itself, as health, and virtue, and knowledge; nevertheless, they are not the last mark, whereat we *aim*, but have their further end, whereunto they are referred. *Hooker.*

He trusted to have equall'd the Most High,
If he oppos'd: and with ambitious *aim*,
Against the throne and monarchy of God,
Rais'd impious war. *Paradise Lost.*

But see, how oft ambitious *aims* are crost;
And chiefs contend, till all the prize is lost.
Pope.

Aim'st thou at princes, all amaz'd they said,
The last of games? *Pope's Odyssey.*

Ascanius, young and eager of his game,
Soon bent his bow, uncertain of his *aim*;
But the dire fiend the fatal arrow guides,
Which pierc'd his bowels through his panting sides.
Dryden, Æn. vii. l. 621.

AIMARAEZ, a province of Peru, bounded by that of Andahuailas, on the north-west and west, on the south by Parinacochas, on the south-east by Chumbivilcas, and east by Cotabamba. It is 120 miles from north to south, and 26 miles from east to west. Its surface is full of lofty ridges and snowy summits, and on this account the climate is generally cold, with the exception of some valleys, where the land produces abundantly, sugar, cattle, and grain. It is intersected by three rivers, of little use on account of the lowness of their beds, but which afterwards unite, and form the Pachachaca. There are innumerable veins of gold and silver in the province, which are not worked. Some mines of quicksilver, which have been discovered, have been forbid to be wrought. The number of inhabitants in the province amounts to 15,000. The yearly tribute formerly received by the corregidor used to be 800,000 dollars. The jurisdiction contains fifty settlements.

AIMARGUES, a town of France, in the department of the Gard, five leagues from Nismes. Number of houses 400, inhabitants 1800.

AJMEER, or RAJPOOTANA. See AGIMEER.

AIN, a river of France, giving name to the department of the Ain, and which, rising at the foot of Mount Jura, falls into the Rhone above Lyons.

AIN, a department of France, formed out of the ancient districts of Bresse, Bugey, and a part of Burgundy. It is enclosed by Savoy, Switzerland, and the departments of the Isere; the Rhone and Loire, the Saone and Loire, and finally of Jura, and extends about twenty-two leagues from east to west, and seventeen from north to south; the number of square leagues is 299. It is divided into the four arrondissements of Bourg, Nantua, Belley, and Trevoux, and contained, according to the most recent returns to the board of statistics at Paris, 322,608 inhabitants.

AIN, a town in the pachalic of Bagdad, ninety miles west of Bussorah.

AINA, the name given by Josephus to Ai, which see.

AINOS, or AINUS, sometimes called also Wild Kuriles, the aborigines of Jesso, and Saghalin. See JESSO.

AINIMOSA, a large and opulent town, in the N.E. of Wallachia, N.W. of Tergovitz.

AINOD, a splendid castle and lordship, on the river Gurk, in Carniola, 5 miles N.W. of Rudolfswerth.

AINSA, a town of Spain, in the principality of Sorbrabe, and kingdom of Arragon, seated in a plain, on the river Cinca.

AINSWORTH, (Dr. Henry,) an eminent nonconformist divine, who, about the year 1590, distinguished himself among the Brownists, which drew upon him such troubles, that he retired to Holland, and became minister of a church at Amsterdam. His skill in the Hebrew language, and his excellent Annotations on the Holy Scriptures, which are still highly esteemed, gained him great reputation. He also wrote several pieces in defence of the Brownists, (to which bishop Hall replied,) with other works. The circumstances that occasioned his death, are somewhat extraordinary, and deserve to be mentioned. Having found a diamond of great value in the streets of Amsterdam, he advertised it; and when the owner, who was a Jew, came to demand it, he offered him any acknowledgment which he would desire. Ainsworth, though poor, would accept of no remuneration but a conference with some of the Jewish rabbies, upon the prophecies of the Old Testament relating to the Messiah, which the Jew promised; but not having interest sufficient to obtain it, through shame or vexation, or from some other motive, he is said to have poisoned Ainsworth. This event happened about the year 1629.

AINSWORTH, (Robert,) born at Woodyale, in Lancashire, 1660, was master of a boarding-school at Bethnal-Green, whence he removed to Hackney, and other places in the neighbourhood of London. After acquiring a moderate fortune, he retired, and lived privately till 1743, when he died. We are indebted to him for the best Latin and English Dictionary extant: he published it in 1736; and in 1752, the fourth edition, under the care of Dr. Ward, of Gresham College, and the Rev. William Younge, was enlarged to two vols. folio. It has been since published in quarto and octavo, with various improvements

AINTAB. See ANTAB.

AJOVEA, in botany, a genus of the hexandria monogynia class and order; the characters of which are: CAL. single-leaved and tridentated; COR. three petals, the filaments terminated with

two glandules, the antheræ doubly excavated; STIG. divided into six segments, and the fruit a roundish, single-celled, monospermous berry. There is one species, viz. A Guianensis; which grows in the forests of Guiana.

AIOU, a group of sixteen islands, in the Eastern seas, off the north coast of Waygion, and surrounded by a reef fifty miles in compass, which is penetrated by a deep channel on the north-west side.

AIOU BABA, is the largest about five miles in circuit, and 500 feet high, and lies in 128°. 25′. E. Long. and 0°. 32′. N. Lat. Tropical fruits and roots are produced here; and the inhabitants obtain abundance of fish and turtle. They procure sago from Waygion and Rawak; and sell tortoise-shell and biche de mer, (an animal of the mollusca tribe, much sought for in the Eastern seas,) to the Chinese.

AIPIXIMIRA, in ichthyology, the name of an American fish, more usually known by the name of pudiano. It is small, of the shape of a pearch, with a purple back, and yellow sides and belly.

A I R.

AIR, *v.* & *n.*
ÆRIAL,
Æ'RIE,
AIR'INESS,
AIR'ING,
AIR'LESS,
AIR'LING,
AIR'Y.

Gr. *αηρ, αημι*, to breathe.—Fr. *air*.—The noun designates the fluid which constitutes our atmosphere, and which surrounds or penetrates all substances with which we are conversant; it is variously combined and modified, and is necessary to animal life. The different significations of the root and its derivations, are deduced from the attributes of the air; hence, when its motion is forcible, it is the wind.

The adjectives mostly refer to that which is light, gay, and unsteady. Through the medium of the French and Italian tongues, air signifies the carriage or deportment of a person; sound in music and poetry; aery, is the eagle's nest, so called from its aerial situation.

Lyke as when an arowe is shott at a marck, it parteth the *ayre*, which immediatly commeth together agayne, so that a mā can not knowe where it wēte thorow. *Bible*, 1539. *Wysdome*, c. v.

For Jupiter had from the heuynnis fare,
Send down Iris, quhilk duellis in the *are*
Unto his spous and sister thare at hand,
Ful scharp chargis bringis and command.
Douglas, b. ix. p. 307.

Joy'd to range abroad in fresh attire,
Thro' the wide compass of the *airy* coast.
Spenser.

There be many good and healthful *airs*, that do appear by habitation and other proofs; that differ not in smell from other *airs*.
Bacon's Natural History, No. 904.

The first is the transmission, or emission of the thinner and more *airy* parts of bodies; as in odours and infections; and this is of all the rest, the most corporeal. *Bacon.*

Our *aiery* buildeth in the cedar's top,
And dallies with the wind and scorns the sun.
Richard III.

He that is merry and *airy* at shore, when he sees a sad tempest on the sea; or dances when God thunders from heaven; regards not, when God speaks to all the world. *Taylor.*

Fresh gales and gentle *airs*
Whisper'd it to the woods; and from their wings
Flung rose, flung odours from the spicy shrub,
Disporting! *Paradise Lost.*

Nor think, with wind
Of *airy* threats to awe, whom yet with deeds
Thou can'st not. *Idem.*

Nor (to avoid such meanness) soaring high,
With empty sound and *airy* notions fly.
Roscommon

I have found a complaint concerning the scarcity of money; which occasioned many *airy* propositions, for the remedy of it. *Temple's Miscell.*

The painters draw their nymphs in thin and *airy* habits; but the weight of gold and of embroideries is reserved for queens and goddesses. *Dryden.*

There are fishes that have wings, that are no strangers to the *airy* region. *Boyle.*

If I were to tell what I mean by the word *air*; I may say, it is that fine matter which we breathe in and breathe out continually: or it is that thin fluid body, in which the birds fly, a little above the earth; or it is that invisible matter, which fills all places near the earth, or which immediately encompasses the globe of earth and water. *Watt's Logick.*

As I was here *airing* myself on the tops of the mountains, I fell into a profound contemplation, on the vanity of human life; and passing from one thought to another, surely said I, man is but a shadow, and life a dream. *Spectator.*

As meadows parch'd, brown groves, and with'ring flow'rs,
Imbibe the sparkling dew, and genial show'rs,
As chill dark *air* inhales the morning beam,
As thirsty harts enjoy the gelid stream;
Thus to man's grateful soul from heav'n descend,
The mercies of his Father, Lord, and Friend.
Sir W. Jones.

The eagle falls from her *aerial* tower,
And mingles with irrevocable dust;
But man from death springs joyful,
Springs up to life and to eternity.
Kirk White's Poems.

1. AIR, is a generic name for permanently elastic fluids; or, to speak with more strictness of language, for those exceedingly rare substances which are not condensable, even into what is commonly called the fluid state, by any degree of cold that has hitherto been found in nature, or produced by art. But as this term air, is, in its common signification, limited to the specification of that compound of aëriform fluids by which the *atmosphere* is constituted, we shall in the present article restrict ourselves to the consideration of this last compound, and treat of other gaseous fluids under the words GAS and CHEMISTRY.

2. The atmosphere demands to be considered in three points of view; in the first instance we are naturally called upon to describe its physical and sensible properties; secondly, its chemical composition affords a rich source for minute investigation; and, lastly, it may be found interesting to discuss the medicinal relations of the air we breathe to the general conditions of health

or sickness. It is in this order then that we now proceed.

3. Sect. I. Physical or Mechanical Properties of Air.—The atmosphere is a thin, transparent, invisible, and elastic fluid, which surrounds our planet; and reaches to a considerable height above its surface, probably about forty miles.

4. Air is a *ponduous* body. Of this property the ancients seem to have had some confused notions; thus Aristotle says that all the elements have gravity, and even air itself; and as a proof of it, he says, that a bladder inflated with air weighs more than the same when empty; and Plutarch and Stobœus quote him as teaching that the air in its weight is between that of fire and earth; and, further, he himself, treating of respiration, reports it as the opinion of Empedocles, that he ascribes the cause of it to the weight of air, which by its pressure forces itself into the lungs; and much in the same manner are the sentiments of Asclepiades expressed by Plutarch, who represents him as saying, among other things, that the external air by its weight forcibly opened its way into the breast. Nevertheless it is certain, however unreasonable it may seem, that Aristotle's followers departed in this instance from their master, by asserting the contrary for many ages together. Several of the phenomena arising from this property of ponderosity in the air, had, indeed, been remarked from the highest antiquity. Many centuries since, it was known that, by sucking the air from an open pipe, having its extremity immersed in water, this liquid arises above its level, and occupies the place of the air. In consequence of such observations, sucking pumps were contrived, and various other hydraulic machines; as Heron's syphons, described in his Spiritalia, or Pneumatics, and the watering pots known in Aristotle's time, under the name of clepsydræ, which alternately stop or run as the finger closes or opens their upper orifice. Indeed, the reason assigned by philosophers, many ages after, for this phenomenon, was a pretended horror which nature conceives for a vacuum; so, that rather than endure such vacuum, it makes a body ascend contrary to the powerful solicitations of its gravity. It is curious, we may remark by the way, to observe, how, in every part of ancient philosophy, final were thus mixed and confounded with efficient causes. Every thing in nature was explained on the principle of design.

5. Among the more modern investigators of the properties of air, we may first mention Galileo, who was born in the latter part of the sixteenth century. He found that a copper ball, in which the air had been condensed, weighed heavier than when the air was in its ordinary state of tension. The fact was afterwards demonstrated by Torricelli, whose attention was drawn to the subject by the attempt of a well-digger at Florence, to raise water, by a sucking pump, to a height exceeding thirty-three feet. It was then found that the *pressure* of the atmosphere, and not nature's abhorrence of a vacuum, was the cause of the ascent of the water in the pump-pipes; and that a column of about the height mentioned, was sufficient to equipoise the atmosphere.

6. In the year 1643, this able disciple of Galileo took a glass tube of some feet in length, sealed it hermetically at one end, and filled it with quicksilver; then inverting it, and holding it upright, by pressing his finger against the lower or open orifice, he immersed that end in a vessel of quicksilver; then removing his finger, and suffering the fluid to run out, the event verified his conjecture; the quicksilver descended till the column of it was about thirty inches high above the surface of that in the vessel below. Hence Torricelli concluded that it was no other than the weight of the air, incumbent on the surface of the external quicksilver, which counterbalanced the fluid contained in the tube. The empty space, formed by the descent of the quicksilver from the upper part of the tube, has been called the *Torricellian vacuum*, and is as perfect as any that can be formed.

7. Torricelli thus, not only proved that the air had ponderosity, but also that it is this property of the atmosphere which keeps water and quicksilver raised in pumps and tubes.

8. This experiment and its results soon became generally known. It was repeated and varied in several ways; Messrs. Pascal and Petit in France, especially occupied themselves in the investigation At the age of twenty three, an experimental treatise was published by the former, entitled Experiences Nouvelles touchant la Vuide, in which the writer, after first reasoning on the old notion of nature's abhorrence of vacuum, adopts the Torricellian principle of pressure from the air, and devises several experiments in confirmation of it.

9. The very important discovery was now made, that upon ascending a mountain, quicksilver fell in the tube, because there was less air above to press upon the surface of the metal in the basin; and in this way the doctrine in question was not only illustrated and confirmed, but a method was discovered for ascertaining the height of mountains, by means of the barometer. See Barometer. This instrument, by the rise and fall of its contained fluid, indicating a corresponding change in the density of the atmosphere.

10. At the surface of the earth, it has been seen that the mean density or pressure, is equal to the support of a column of quicksilver thirty inches high.

At	1000 feet	above the surface the column falls to . . . 28·91 inches
	2000	. . . . . 27·86
	3000	. . . . . 26·85
	4000	. . . . . 25·87
	5000	. . . . . 24·93
	1 mile	. . . . . 24·67
	2	. . . . . 20·29
	3	. . . . . 16·68
	4	. . . . . 13·72
	5	. . . . . 11·28
	10	. . . . . 4·24
	15	. . . . . 1·60
	20	. . . . . 0·95

11. The weight of the air, and its mechanical properties in general are well illustrated by the *air-pump*; but for an account of this instrument and its uses, we must refer to another part of

our work See PUMP-AIR. It is sufficient for our present purpose to have established the principle that air has a positive weight, and that its density decreases in proportion to the altitude from the earth at which experiments are instituted.

12. The next quality of air which we may notice is its ELASTICITY, by which it is capable of being compressed into a smaller bulk than ordinary, but returns, like a spring to its original volume, immediately upon the pressing force being removed. It may be proper to remark, that this property of air is susceptible of some diminution, by long-continued and violent pressure. The property itself is easily rendered evident by the following simple experiment. Take a shrivelled bladder, which contains only a small quantity of air, and put it under the receiver of the air-pump; then exhaust the receiver of its air, and the bladder, from being shrivelled or collapsed, will expand itself to its full dimensions; thus proving the elasticity of the air contained within the bladder, which only awaited the taking off of the pressure from without, thus to expand its volume.

13. This property of air is distinct from its density, and indeed is, in a manner, opposed to it; and it will be found a law of elasticity, that it increases as the density of the air increases, for there must necessarily be a balance between action and re-action; i. e. the gravity of the air, which is a compressing power, and its elasticity, which is an expanding quality, will prove equal. Hence, its elasticity increasing or diminishing universally as the density increases or diminishes, it is of no consequence whether the air be compressed and retained in a given space by the weight of the atmosphere, or by any other means; it must endeavour, in either case, to re-act or expand with the same force. And hence, if air near the earth be pent up in a vessel, and all communication with the circumambient fluid be cut off, the pressure of the enclosed air will be equal to the weight of the atmosphere, at the time the quantity was confined.

14. By this property of expansion, air enters with facility into all parts not already occupied by the pressure of solid matter: thus it gains access into the pores of bodies, and creates a perpetual oscillation among the particles of the material universe. Indeed the degree of heat, and the air's gravity and density, and consequently its elasticity and expansion, never remaining the same for the least space of time, there must be an incessant vibration, dilation, and contraction in all bodies. From this cause it is, that the air contained in bubbles of ice, by its continued action bursts the ice. Thus, also, entire columns of marble sometimes are cleft in the winter, from the increased elasticity of some little bubble of air contained in them; and for the same reason it is that few stones will bear to be heated by fire without cracking into many pieces, by the increased expansive force of some air confined within their pores.

15. This principle of reciprocation is indeed traceable in its effects, even upon organic existence, although in this case, it is more under the modification of laws, which apply only to living or organized matter; but the compression and expansion of vessels, in the vegetable kingdom, for example, most unequivocally depends greatly upon the conditions of the atmosphere now alluded to; and it is found that no vegetation or germination is carried on in vacuo. The effects which follow the application of cupping glasses to the surface of the animal body are in proof and illustration of this principle.

16. It has not, however, been fully ascertained to what degree, air of the density which it possesses at the surface of the earth, is susceptible of being compressed. Dr. Hales, by means of a press, condensed it thirty-eight; and afterwards, by forcing water in an iron globe, into 1551 times less space than it naturally occupies. But Dr. Halley, from experiments made both in London and at Florence, concluded that no force whatever is able to reduce air into 800 times less space than that which it naturally possesses on the surface of our earth. Experiments made by Mr. Boyle, however, in reference to the dilatability of the air, present astonishing results. This philosopher dilated it to even 13,679 times its natural space, and this without the help of fire. It is stated, indeed, that the air we constantly inspire, is compressed by its own weight into at least the 13679th part of the space it would occupy in vacuo. But if the same air be compressed or condensed by art, the space it would take up when most dilated, to that it occupies when condensed, will be, according to experiments, as 5500 to 1.

17. This elastic property of the air is exerted equally in all directions; and when air is at liberty and freed from the cause which compressed it, it of course expands equally in all directions; and, in consequence, always assumes a spherical figure in the interstices of fluids in which it is lodged. This is evident when liquors are placed in the receiver of an air-pump, and the air exhausted; at first there appear a multitude of exceedingly small bubbles, like grains of fine sand, dispersed through the fluid mass, and rising upwards; and as more air is pumped out, they enlarge in size, but still they continue round. Also, if a plate of metal be immersed in the liquor, on pumping, its surface will soon be covered over with small round bubbles, *composed of the air which adhered to it*, now expanding itself: and for the same reason it is, that large glass globes, &c. are always blown up of a spherical shape, by blowing air through an iron tube into a piece of melted glass at the end of the pipe.

18. It will be understood, from what has been said, that the space occupied by a determinate quantity of air, is in the inverse ratio of the elastic force; and, from this law, it follows, that, with the same given temperature, the elasticity of two moleculæ of air does not augment by their mutual approach.

19. In order to render this inference sensible, let a mass of air be conceived to be enclosed in a bladder, which communicates with a recurved or syphon-like tube containing mercury, and let it be supposed that its elastic force is in equilibrio with a column of mercury; of thirty inches high: if the bladder be compressed in such manner that the air shall be reduced to half its

volume, the stratum of air contiguous to the surface of the liquid mercury, will evidently have a density twice as great as it had b fore the compression; and consequently, a double number of moleculæ of air will touch and act upon the surface; therefore, since, according to the experiment, the height of the column of mercury has been doubled, the elasticity of each moleculæ has necessarily been the same; thence it follows, as we have stated, that with a given temperature, the elasticity of the moleculæ of air is not increased by their mutual approach, the number is merely multiplied of moleculæ acting upon an assumed surface.

The truth thus established, manifestly conducts to the following results.

20. i. The moleculæ of gas yield sensibly only to the repulsive force of heat, and the attraction which they exercise one upon another, is very small, with respect to that force: thus, *their elasticity depends exclusively upon the temperature*, and the quantity of free caloric which exists in a mass of air, is, at equal temperature, proportional to its volume; for, if there were more under the same volumes in the state of condensation, than in dilatation, the repulsive force of two neighbouring moleculæ would be augmented.

21 ii. If the volume of a gas be diminished, a third or a half, there must be disengaged a third or a half of the free caloric which existed between its moleculæ. The effect of the caloric thus disengaged, is perceptible upon the velocity of sound; it produces the excess of that velocity, over that given by the ordinary theory; as has been shewn by the calculus of Laplace and others.

22. iii. If we conceive equal volumes of two different gases comprised in two envelopes of the same capacity, and inextensible; and suppose that at a given temperature, the elasticity of these two gases is the same; on augmenting in the same manner their temperature, the augmentation of their elasticity will be the same, since it depends only upon their temperature. If we now conceive the envelope comprising the two gases to become extensible, the gases will dilate, until their elasticity is in equilibrio with the pressure of the atmosphere surrounding the envelope; and since for each gas the volume is in the inverse ratio of the elastic force, the two gases will assume the same volume, and will dilate equally; which is conformable to experience.

23. Fluidity is another property which philosophers have ascribed to air; but this quality should be, perhaps, in strict propriety, regarded negatively, or considered as an insusceptibility of being made to assume the condition of a solid, by any extent of condensing power, or pressure, which art is capable of effecting, or perhaps, man of conceiving. True it is, as we shall immediately see, when treating on the chemical properties of the atmosphere, that the specific principles which enter into the formation of air, are capable of passing from an aerial, or fluid, into a solid state; and there is even some complication connecting itself with this result, when minute investigation is given to its rationale; but that air, *as air*, should be solidifiable, implies, under our present acquaintance with the laws of the universe, a contradiction in terms.

24. Sect. II. We now then proceed to the second division of our subject, viz. The Chemical Composition, and Properties of Atmospheric Air—a subject which cannot be contemplated in all its bearings, without exciting astonishment and admiration—a subject, indeed, which involves all the leading, and many of the minor circumstances, by which the line of demarcation is marked out between the chemistry of former times, and the chemistry of the present day, with more decision, fulness, and force, than, perhaps, is done in any other department of scientific inquiry.

25. In following the march of philosophy, commencing from the earliest periods, the reflecting observer will often meet with announcements and intimations, which imply, on the part of the persons making them, and the periods in which they were made, a greater precision and accuracy, in respect of particular insights into nature's laws, than either the persons or the times in other ways substantiate: this remark will be found to apply with especial propriety to the topic now under discussion; so much so indeed, that some have refused the credit of novelty and discovery, to the development of those laws of atmospheric composition, and the circumstances of gaseous being, which have recently operated that vast reformation in chemical research, to which we have above adverted. But it should be recollected, in justice to the moderns, that the lights alluded to were spent and dispersed amidst the surrounding darkness of the æra in which they appeared—that the individuals by whom these anticipations of future discoveries were made, seemed scarcely themselves conscious of the great fundamental truths they were indicating; and even at farthest, as was remarked by a modern chemist of most deserved celebrity: 'We are not to consider conclusions as unavailing, because anticipated; the very circumstance of attaining them by different means justifies the research; and he, whose investigations disclose new views, and unfold new truths, may rest satisfied that he has not laboured in vain, because he ultimately arrives where others have been before him. In estimating, however, the true merits of chemical discoveries and inventions; and more especially in determining the excellence and originality of theories, it is requisite to look to their sources, to examine the steps which led to them, and the paths by which they are surrounded; and upon that examination to found our opinion.'

26. The leading feature and important novelty of the science, as influencing its progress in the last century, was certainly *the discovery of gaseous bodies*, and the perfection of pneumatic chemistry, without which, analysis could have made little progress; and independent of which, all improvement in theory would have been but lame and ineffectual: it was also materially, though less directly assisted by those investigations respecting the agency of heat, in which Dr. Black made himself so eminently conspicuous.'

27. We deem it expedient then, in this place,

instead of limiting ourselves to a statement of the chemical components of the air we breathe, first to give a succinct history of the several circumstances by which the great laws at present known to regulate aerial existence, became gradually developed into their present state of maturity.

28. It is now about two hundred years, since the burning of some substances in the open air, was distinctly observed to be attended with an increase of weight. Le Brun having melted two pounds six ounces of tin, found that in six hours the whole had passed into a state of calx, weighing three pounds one ounce: and, being puzzled at the circumstance, he consulted REY, a physician of Perigord, as to its cause, who immediately set about an investigation of the matter, which terminated in explicitly referring *the cause of the increase to the fixation of air*.

29. We request the reader particularly to notice the above, as being the first among modern intimations, of the relation in which certain kinds of solid substances stand, to the invisible matter by which they are surrounded.

30. Hooke in his investigations, and Boyle by his experiments with the air-pump, which was now just perfected and coming into use, succeeded not merely in demonstrating the important part performed by the pressure of atmospheric air in combustion, but Hooke carried his enquiries still further, and, in his mind's eye at least, seems to have seen, and anticipated, the results that were gained at a much later period of chemical science, and established upon a less questionable authority.

31. These, more than intimations, we may almost say, of Hooke, were further illustrated by John Mayow, who was born in Cornwall, in the year 1645, and died in London, 1697, at the house of an apothecary, in York-street, Covent Garden. This experimentalist seems to have been early struck with the analogy between the phenomena of combustion and those of respiration. He burned a candle-end in a bell-glass, and found the air so deteriorated, as to be unfit for the continuance of combustion. He then confined a mouse in a similar portion of air, and it soon manifested the want of its renewal. Then, by putting a mouse and a candle under the same bell-glass, he found it live only half the time that it had survived when under the glass alone. He then renewed the experiment, and endeavoured to fire combustible matter in air that had been spoiled by breathing; and finding that it would not burn, he observes, that '*the nitro-aërial particles are absorbed both by the candle and the animal.*'

32. Examining the residuary air standing over water after combustion, he found that it was a little lighter than the atmosphere, and extinguished flame; then he described the deleterious as well as the vivifying portion of the atmosphere, and speaks of the former as a non-supporter of combustion, of its being not absorbable by water, and, as we have intimated, of its being lighter than atmospheric air itself. The next individual whom it is in order to name, in this historical sketch, is Dr. Hales, who was born in Kent, in the year 1677, and died at Teddington, 1761. This highly talented and virtuous man commenced the communication of his researches to the Royal Society about the year 1717: and in 1727 he published his 'Statical Essays,' containing a specimen of an attempt to analyse the air by a great variety of chemico-statical experiments, which were read at several meetings before the Royal Society.'

33. Dr H. employed several methods of collecting and examining the gaseous products of a variety of bodies, many of which, approach those that now are in use. Sometimes he placed substances upon a stand, under a bell-glass, inverted over water; or he employed a flask to contain the materials, producing aëriform matter, over which was placed a bell-glass, the whole being confined over water as before; or, where a high temperature was required for the production of the gaseous bodies, he used an iron retort, formed of a bent gun-barrel, and received the air into a vessel inverted in a tub of water.

34. In the course of his investigations, Dr. H. observed that phosphorus, when burned, *absorbed air*, and produced white fumes; but he neglected any examination of the product and of the residue. He distilled air from wood, and found it fatal to animals; from Newcastle coal he obtained one third its weight of gas; from nitre, one hundred aud eighty times its bulk; and from salt of tartar urged by intense heat, he also procured aëriform matter; but in no one instance did he examine these gaseous bodies with the attention that might have been expected from an experimentalist so diligent and original. He found that iron filings, and oil of vitriol produced scarcely any air; but that upon the addition of water, gas was abundantly evolved from such a mixture. Here he obtained hydrogen, but instead of stopping to examine its properties, he hastens on to irrelevant observations, and seems always eager rather to multiply experiments, than to examine their results.

35. In the experiments on respiration, Dr. Hales obtained results of such interest, that one is surprised (says the intelligent historian whom we are now principally following) at the coldness with which he pursued them, and the carelessness with which he drops the enquiry. Finding that a given quantity of air could only be respired for a given time; and that it soon produced oppression and difficulty of breathing, in consequence, as he says, 'of the gross and sulphureous vapours with which it becomes loaded,' he endeavoured to discover some substance, which by absorbing those vapours, might render respired air more fit for breathing and consequently contribute to its purification in small and crowded rooms, and other similar situations. In other experiments the author notices the purification of air spoiled by the burning of candles, and of brimstone, by the action of calcined tartar; but he takes no pains to enquire into the specific actions of the salt, and confounds it with that of saline bodies generally.

36. These charges of oversight and neglect, when seemingly a little closer attention might have effected so much in the way of discovery, scarcely seem applicable to this great man's researches respecting the connection of the vegetable world with the circumambient air; and

besides other important particulars, which are not applicable to our present purpose, he engaged in a series of experiments, to shew that a considerable quantity of air is inspired by plants; but still he always fails of precisely discriminating between common air and the various gaseous products that resulted from some of his experiments; and therefore, as was likewise the case with his contemporary Boerhaave, stopped short of giving any thing like a satisfactory account of the component parts of atmospheric air.

37. Indeed the fixability of air, if we may so express it, remained for proof, until the two great discoveries of Dr. Black came to be applied to the investigation of gaseous being; and it has always appeared to us, that these discoveries effected more towards producing a thorough reformation in the whole body of chemical doctrines, than any thing prior or posterior to them. What were these discoveries? When Dr. Black first entered the precincts of chemistry, (we, in this and several other places, use the words of Brande,) there was a busy and acute controversy respecting the cause of causticity, in earths and alkalies; it was, by some, supposed that the conversion of lime-stone into quicklime depended upon its absorbing certain igneous particles; by others, the change was referred to an acrid acid, contracted in the fire; by others, to non-descript saline particles.

38. Dr. Black's notice appears to have been drawn to this enquiry, by the researches of Hoffman concerning the nature of magnesia: he found that when that earth was obtained, by adding a mild alkali to a solution of Epsom salts, it effervesced upon the addition of an acid; but that, if heated red hot, it no longer effervesced, and, moreover, lost considerably in weight. The same fact applied equally to lime, and led him to believe, that that substance, instead of acquiring its acrimony by the absorption of something from the fire, became caustic, by the loss or expulsion of one of its elements, in consequence of being heated. He then distilled some magnesia in a retort; but finding that though it diminished considerably in weight, the only visible loss it sustained was a minute portion of water, he *conceived the possibility of the escape of some gaseous matter;* and, on mixing common magnesia and an acid in a proper phial, he collected a considerable quantity of a permanently elastic gaseous body; from chalk, or lime-stone, and from the mild alkalies he procured a similar gas, and termed it *fixed air*—a term which, however improper, may be taken partly in proof of the fact, that our present discoverer was the first properly to appreciate the concentrability of gaseous principles. Dr. Black was born in France, of Scotch parents, in 1728. He died at Edinburgh in 1799.

39. The next of the two great discoveries of this extraordinary man, respects the different circumstances in which bodies exist in relation to heat. This power, heat, had only been thought of as a cause of raising the temperature, or changing the form of bodies; but Dr. B.'s remarks established this very important and commanding principle, viz. that, independently of temperature and even of form, heat attaches itself to material substances in such sort as to be [illegible] the senses, or become hidden. It had [illegible] indeed, been observed, that ice, during [illegible] tion, retained an uniform temperature of 32°, as that water, during its boiling, never became hotter than 212°, hence the use of those fixed points in the graduation of thermometers. See THERMOMETER. We have now to indicate merely the [illegible] which these phenomena suggested to Dr. Black and the results that followed his enquiries into their cause and effect. It will be more in order to engage in the detail of these important investigations, in another place, See CHEMISTRY and CALORIC; but it will be necessary here just to state sufficient for the detection of the principle.

40. When water, it has already been said, is made to boil, the steam which rises is not hotter than the water itself, although there be a continual influx of heat, *which, therefore, must become latent in the steam;* and consequently steam and other vapours may be regarded as compounds of liquids and heat. Again, let two masses of matter be mixed together, and the temperature of the mass will not prove a mean of the temperature of the two, but will be higher or lower, according to the nature of the materials employed, without a proportionate quantity of heat being presented to the senses, or even demonstrating itself by causing thermometrical variation: hence the heat which thus by admixture has been made to disappear, was said to become latent; and the principle which effects this, is one which presents a clue to the whole secret of vaporous, aerial, and gaseous existence; and gives a facility to our experiments and reasoning on the subject of gaseous constitution, to an almost incalculable extent.

41. We have now to advert to the labours of another philosopher, whose investigations on the subject of air, have proved especially available in reference to the topic under notice, viz. the chemical habits and circumstances and composition of the air we breathe. What was by him called dephlogisticated air, and what is now usually termed oxygen gas, was discovered by Dr. Priestley, on the first of August 1774. The method of experimenting, which he adopted, consisted in exposing a quantity of red precipitate of mercury to the action of the sun's rays, concentrated by a burning lens; the red precipitate was contained in a small flask, filled up with quicksilver, and inverted in a basin of the same metal: 'I presently found (he says) that by means of this lens, air was expelled from it very readily. Having got about three or four times as much as the bulk of my material, I admitted water to it, and found that it was not imbibed by it. But what surprised me more than I can well express, was, that a candle burned in this air with a remarkably vigorous flame, very much like that enlarged flame with which a candle burns in nitrous air, exposed to iron, or liver of sulphur; but, as I got nothing like this remarkable appearance from any kind of air, besides this particular modification of nitrous air, and I knew no nitrous acid was used in the preparationof the *mercurius calcinatus*, I was utterly at a loss how to account for

42. Nitre and other substances were afterwards shown by Dr. Priestley to afford this kind of air, and in the event it came to be ascertained, that the matter thus detected by our experimentalist, as a constituent, so to say, of those bodies, is in truth the main vivifying ingredient of the aerial mass in which we are enveloped.

43. The constitution indeed of the atmosphere, was one among the many enquiries that engaged Dr. Priestley's diligence, and that was made out during the period of his activity. In 1772, Dr. Rutherford demonstrated the existence of a peculiar elastic fluid in atmospheric air, differing from fixed or mephitic air; and yet, like it, extinguishing flame, and unfit for respiration. This component part of the atmosphere, was denominated by Dr. Priestley phlogisticated air, as the other had been dephlogisticated.

44. While Priestley was thus occupied in Britain, Scheele, on the Continent, was almost simultaneously engaged in investigations that led to nearly similar results. Finding air necessary for the production of fire, this last experimentalist turned his attention to its analysis. He found that a solution of liver of sulphur, and certain other sulphurous compounds, occasioned a diminution in the bulk of air to which they were exposed, equal to one part in about five. He likewise obtained what he calls empyreal air, the dephlogisticated air of Priestley, and the oxygen gas of the new nomenclature, by the decomposition of the nitrous acid, and other processes; he also shews by direct experiments, that the absorption occasioned in atmospheric air by liver of sulphur, is referrible to the abstraction of its empyreal portion; that it totally absorbs empyreal air; and that upon adding to the residuary portion of atmospheric air, a quantity of empyreal air, equal to that absorbed by the sulphureous liquor, an air is again compounded, similar in all respects to that of the atmosphere.

45. But now the terms dephlogisticated, empyreal, &c. were to be exploded, and a new nomenclature introduced into the science of pneumatic chemistry, founded on the principle, that the old theories assumed the presence of an undemonstrable material. It has already been said, that one of the first steps leading to the detection of aerial circumstance was, the observation that the burning of some materials in the open air, occasioned an increase of weight in the materials so treated; this increase of weight in the calcined body, was subsequently found to correspond, *cæteris paribus*, with the quantity of air that disappeared during the experiment; and it is upon this fact that the Lavoisierean or oxygenous theory came to oppose itself to the phlogistic principles and nomenclature of Priestley and others. Lavoisier analysed atmospheric air in the following way: he exposed fifty cubic inches of it to heated mercury, by which it underwent a decrease equal to one sixth of its original bulk, and became unfit for respiration and combustion; at the same time the quicksilver was partly converted into a reddish matter, forty-five grains of which, heated red hot in a proper retort, afforded 41.5 of running mercury, and seven or eight cubical inches of gas, eminently supporting combustion, and being the dephlogisticated air discovered by Priestley. The recombination of the forty-two cubical inches of the mephitic air of the retort, with the eight cubical inches of dephlogisticated air, separated from the mercury, reproduced fifty cubic inches of atmospheric air.

46. Here then, say the opponents of the phlogistic hypothesis, we have both analysis and synthesis, both composition and reduction, to prove that the principle of phlogiston is a gratuitous and unnecessary assumption, complicating what is simple, and implying a contradiction in terms. All aeriform fluids, says Lavoisier, are compounds of a ponderable basis, with heat and light; in the above experiment, the ponderable part of what, in the school of Priestley, was named dephlogisticated air unites to the quicksilver; this union is effected under other circumstances in different ways and various degrees, and according to the manner of junction, or the quantity combined with the base, different compounds are formed; in all instances, however, it is assumed that the process of combination is effected by taking this same something from the air, and fixing it in the material employed in the experiment. This something was denominated oxygen gas by the new theorists, from its general tendency to form acids; and a system of highly ingenious and plausible, but in some instances, as has been subsequently proved, of untenable generalization, was now made to apply in the way of exposition to all the phenomena of pneumatic chemistry. See COMBUSTION.

47 Thus we see, by taking a slight retrospective glance upon the ground that has been gone over, that Le Brun's experiment on combustion, together with Mayow's observation of the concentration of nitro-aerial particles, that Hale's subsequent experiments proving the absorption of air during combustion and respiration—that Black's discovery of the actual fixidity of air, and the latency of heat; and lastly, that Priestley's detection of the presence of dephlogisticated air, or according to the more modern nomenclature, oxygen gas, in the presence of certain metallic substances, have constituted altogether the materials out of which our present knowledge of the laws and constitution of the atmosphere has come to be established; and we now proceed to state more precisely, the component parts of which it is formed, the general habits of the ingredients which enter into its composition, and the means to which nature resorts in order to perpetuate its uniformity and purity.

48. Atmospheric air is composed of at least two species of air, or elastic fluid—the one called oxygen gas or vital air, the other azotic, or more recently nitrogen gas. The first of these is the great agent in respiration and combustion; and upon the proper proportion of it depends the purity of the atmosphere. The latter possesses contrary qualities, is noxious to animals, and incapable of maintaining combustion; the proportion of these two parts of atmospheric air, is commonly about twenty-six or twenty-seven parts of oxygen air, and seventy-four or

seventy-three parts of azotic gas by weight; or about twenty-two parts of the former, and seventy-eight of the latter by bulk. A small portion of hydrogen and carbonic acid gases are found indeed to enter its composition; but these two last ingredients are naturally in such small quantity as scarcely to deserve notice.

49. The immense mass of permanently elastic fluid, (says Ure,) which surrounds the globe we inhabit, must consist of a general assemblage of every kind of air which can be formed by the various bodies which compose its surface. Most of these, however, are absorbed by waters; a number of them are decomposed by combination with each other, and some of them are seldom disengaged in considerable quantities by the processes of nature. *Hence it is that the lower atmosphere consists chiefly of oxygen and nitrogen*, together with moisture, and the occasional vapours or exhalations of bodies. The upper atmosphere seems to be composed of a large proportion of hydrogen, a fluid of so much less specific gravity than any other, that it must naturally ascend to the highest places, where, being occasionally set on fire by electricity, it appears to be the cause of the aurora borealis and fire-balls. It may easily be understood that this will only happen on the confines of the respective masses of common atmospherical air, and of the hydrogen, or inflammable air, that the combustion will extend progressively, though rapidly, in flashings from the place where it commences; that when by any means a stream of inflammable air, in its progress towards the upper atmosphere, is set on fire at one end, its ignition may be much more rapid than what happens higher up, where oxygen is wanting, and at the same time more definite in its figure and progression, so as to form the appearance of a fire-ball. See METEOROLOGY.

50. In the historical sketch we have above given, of the successive steps by which we have acquired the knowledge of aerial compound, will have been seen the Lavoisierean mode of analyzing the air; but it may be right to be still more particular on this head, and give the following experimental method of ascertaining the component principles of the atmosphere. If heat, then, be applied to mercury enclosed in a proper vessel of atmospheric air, the air will be diminished, and the mercury will lose its splendour, gradually changing to a reddish powder, and acquiring an addition to its weight. When no further change is observed, the separation of the principles of air has taken place. That portion which remains in the receiver is unfit for supporting flame, or maintaining respiration, and is azotic or nitrogen gas; the other part which is oxygen gas, is absorbed by the mercury, which it reduces to the state of an oxide, and from which it may afterwards be extracted by heat. By this last operation the mercury will be restored to its metallic state, and will lose the weight it had acquired during its oxidation. These separated gases thus differing in their properties from each other, and from atmospheric air, being again mixed in the proportions above stated, form atmospheric air of the ordinary degree of purity; differing from it, however, in some trifling respects, yet not so much as to invalidate the general conclusion, but which differences are probably occasioned by our inability to combine the ingredients so perfectly as they are combined by nature.

51. Oxygen, then, and azote, being the main and primary, while carbonic acid, and hydrogen gases are the less and more incidental components of the atmosphere, we now go on to treat separately of these several ingredients in the order above enumerated.

52. i. OF OXYGEN GAS.—This gas forms about a fifth part of the atmosphere. Water contains 88.88 per cent. of it; and it exists in most vegetable and animal products, acids, salts, and oxides.

53. This gas may be obtained from nitrate of potash, exposed to a red heat in a coated glass, or earthen retort, or in a gun barrel, from a pound of which about 1200 cubic inches may be obtained; but this is liable, particularly towards the end of the process, to a mixture of nitrogen. It may be expelled from the red oxide of mercury or that of lead, and still better from the black oxide of manganese heated red hot in a gun-barrel, or exposed to a gentle heat in a retort with half its weight, or somewhat more of strong sulphuric acid. To obtain it of the greatest purity, however, the chlorate of potash is preferable to any other substance, rejecting the portions that first come over, as being debased by the atmospheric air in the retort. Growing vegetables exposed to the solar light, give out oxygen gas; so do leaves laid on water in similar situations, the green matter that forms in water, and some other substances.

54. Oxygen gas has neither smell nor taste.—Its specific gravity is 1.1111, 100 cubic inches weigh 33.88 gr. It is a little heavier than atmospheric air. Under great pressure water may be made to take up about half its bulk. It is essential to the support of life—hence called vital air; an animal will live in it a considerable time longer than in atmospheric air; but its respiration becomes hurried and laborious before the whole is consumed, and it dies, though a fresh animal of the same kind, can still sustain life for a certain time in the residuary air.

55. Combustion is powerfully supported by oxygen gas. Any inflammable substance previously kindled and introduced into it, burns rapidly and vividly. If an iron or a copper wire be introduced into a bottle of oxygen gas, with a bit of lighted touch-wood or charcoal at the end, it will burn with a bright light, and throw out a number of sparks. The bottom of the bottle should be covered with sand, that these sparks may not crack it. If the wire coiled up in a spiral form like a cork-screw, as it usually is in this experiment, be removed with a jerk, the instant a melted globule is about to fall, so as to throw it against the sides of the glass, it will melt its way through in an instant; or if the jerk be less violent lodge itself in the substance of the glass. If it be performed in a bell-glass, set in a plate filled with water, the globules will frequently fuse the vitrious glazing of the plate, and unite with it so as not to be separable without detaching the glaze, though it has passed through perhaps two inches of water.

56. ii. OF AZOTIC OR NITROGEN GAS.—

This gas constitutes four-fifths of the volume of the atmosphere. The readiest mode of procuring it is, to abstract its oxygenous associate, by the combustion of phosphorus, or hydrogen. It may be also obtained from animal matters, subjected in a glass retort to the action of nitric acid diluted with eight or ten times its weight of water.

57. Azote possesses all the physical properties of air. It extinguishes flame and animal life. It is absorbable by about 100 volumes of water. Its specific gravity is 0.9722. 100 cubic inches weigh 29.65 grains. It has neither taste nor smell. It unites with oxygen in four proportions, beside that of atmospheric air, forming four important compounds. These are, 1st. The nitrous oxide, or protoxide of azote. 2d. Nitrous gas, nitric oxide, or deutoxide of azote. 3d. Nitrous acid. 4th. Nitric acid. It also combines with chlorine and iodine, constituting by the union, two very formidable compounds. For an account of the habits of these several compounds, the reader must consult the general article CHEMISTRY, and turn to the respective substances: some under the head of Gas, and others in their respective alphabetical order.

58. Azote has hitherto resisted all attempts to decompose it; but it is supposed to be of a compound nature, from its being found abundantly in the organs of animals, which feed on substances that do not contain it.

59. Its uses in the economy of the globe are little understood. This is likewise favourable to the idea that its real chemical nature is as yet unknown, and leads to the hope of its being decomposable.

60. It would appear that the atmospheric azote and oxygen spontaneously combine in other proportions, under certain circumstances, in natural operations. Thus we find that mild calcareous, or alkaline matter favours the formation of nitric acid in certain regions of the earth; and that they are essential to its production in our artificial arrangements for forming nitre from decomposing animal and vegetable substances.

61. iii. OF CARBONIC ACID GAS.—This gas cannot be formed by the chemist from the direct combination of its constituents; for, at the temperature requisite for effecting a union, the carbon attracts its full dose of oxygen, and thus generates carbonic acid. To obtain it pure, our only plan is to abstract one proportion of oxygen from carbonic acid, either in its gaseous state, or as condensed in the carbonates. Thus by introducing well-calcined charcoal into a tube traversing a furnace, and, when heated to redness, passing over it backwards and forwards, by means of two attached mercurial gasometers, or bladders, a slow current of carbonic acid, we convert the acid into an oxide more bulky than itself. Each prime of the carbon becomes now associated with only one of oxygen, instead of two as before. The carbon acting here by its superior mass is enabled to effect the saturation of the oxygen.

62. The specific gravity of this gas is stated by Gay Lussac, and Thenard, from theoretical considerations, to be .96782, though Mr. Cruickshanks's experimental estimate was mentation, and on account of its great weight it occupies the apparently empty space, or upper part of the vessels in which the fermenting process is going on. A variety of experiments may be made in this elastic fluid. Lighted paper, or a candle dipped into it, is immediately extinguished, and the smoke remaining in the carbonic acid gas renders its surface visible, which, by agitation, may be thrown into waves like water. If a dish of water be immersed in this gas, and briskly agitated, it soon becomes impregnated, and obtains the pungent taste of Pyrmont water. In consequence of the weight of carbonic acid gas, it may be lifted out in a pitcher or bottle, which, if well corked, may be used to convey it to great distances, or it may be drawn out of a vessel by a cock like a liquid. The effects produced by pouring this invisible fluid from one vessel to another have a very singular appearance. If a candle or small animal be placed in a deep vessel, the former becomes extinct, and the latter expires in a few seconds after the carbonic acid gas is poured upon them; though the eye is incapable of distinguishing anything that is poured. If, however, it be poured into a vessel full of air, in the sunshine, its density, being so much greater than that of the air, renders it slightly visible by the undulations and streaks it forms in this fluid as it descends through it.'—*Ure*. For a further account of this gas see CARBONIC ACID, and CHEMISTRY.

4. iv. OF HYDROGEN GAS.—This is the lightest species of ponderable matter hitherto discovered. It can be procured from water, of which it forms an essential ingredient. It was discovered by Mr. Cavendish in 1766.

65. Hydrogen gas is about 14.4 times less dense than common air; sixteen times less dense than oxygen; and fourteen times less dense than azote. It is colourless and possessed of all the physical properties of air. It has usually a slight garlic odour, arising probably from arsenical particles, derived from the zinc used in its preparation. When water is transmitted over pure iron in a state of ignition, it yields hydrogen free from smell. It is eminently combustible, and if pure, burns with a yellowish white flame; but from accidental combination, its flame has frequently a reddish tinge. Animal life, and flame are extinguished by this gas, though Sir H. Davy has shewn, that if the lungs be not previously exhausted by a forced expiration, it may be breathed for a few seconds without much seeming inconvenience.

66. When five measures of atmospheric air are mixed with two of hydrogen, and a lighted taper, or an electric spark is applied to the mixture, explosion takes place, three measures of gas disappear, and moisture is deposited on the inside of the glass.—When two measures of hydrogen, mixed with one of oxygen, are detonated, the whole is condensed into water These experiments give us, on a small scale, instances of thunder, lightning, and rain.

67. Hydrogen, combined with oxygen forms water, with chlorine, muriatic acid; with iodine, hydriodic acid; with prussine, prussic acid; with carbon, subcarbonates, carbonates, and hydrates; with azote, ammonia; with phosphorus, phos-

phates, &c.; with sulphur, sulphates, &c.; with arsenic, arsenuretted hydrogen; with tellurium, telluretted hydrogen; with potassium, potassuretted hydrogen; for an account of which, see CHEMISTRY, and the articles in their alphabetical order.

68. A Question of much interest has been agitated among chemical philosophers, viz. whether the different ingredients which enter into the composition of air, be commingled in a merely mechanical manner, or whether there be an actually chemical junction of the materials by which the atmosphere is constituted.

69. Now, as oxygen and azote, or nitrogen, differ in specific gravity, in the proportion of 135 to 121, according to Kirwan, and 139 to 120 according to Davy, it has been presumed, that the oxygen would be more abundant in the lower regions, and the azote in the higher, if they constituted a mere mechanical mixture, which appears contrary to fact, because they both retain their distinctive properties unaltered, and no change of temperature or density takes place on their union. But perhaps it may be said, as they have no repugnance to mix with each other, as oil and water have, the continual agitation to which the atmosphere is exposed, may be sufficient to prevent two fluids, differing not more than oxygen and nitrogen in gravity, from separating by subsidence, though simply mixed. On the contrary, it may be argued, that to say chemical combination cannot take place without producing new properties which did not exist before in the component parts, is merely begging the question; for though this generally appears to be the case, and often in a very striking manner, yet combination does not always produce a change of properties, as appears in M. Biot's experiments, with various substances, of which water may be instanced, the refraction of this being precisely the mean of that of the oxygen and hydrogen, which are indisputably combined in it.

70. Mr. Dalton considers the general atmosphere as composed of four fluids principally, or four particular atmospheres, namely, those of the four gases above-mentioned. These, he supposes, to be totally unconnected with each other; the particles of the one, not acting on the particles of the other; agreeably to his opinion that in a mixture of two or more different elastic fluids, the particles of the one neither attract nor repel those of the other, differing in this, from the particles of homogeneous elastic fluids, which repel each other, with a force reciprocally proportional to the distance of their centres from each other. Applying this principle to atmospheric air, he supposes that the density and elastic force of each gas at the earth's surface, are the effects of the the weight of the atmosphere of that gas solely; different atmospheres not gravitating one upon another, any more than if each were in a vacuum.

71. This hypothesis, says Dr. Ure, might account for the state of the atmosphere, it is true; but it does not agree with certain facts. In the case of the carbonic acid gas in the Grotto del Cani, and over the surface of brewers' vats, why does not this gas expand itself freely upward, if the superincumbent gases do not press upon it? Mr. Dalton himself too, instances as an argument for this hypothesis, that oxygen and hydrogen gases when mixed by agitation, do not separate on standing. But why should either oxygen or hydrogen, require agitation to diffuse it through a vacuum in which, according to Mr. Dalton it is placed?

72. The theory of Berthollet (continues Dr. Ure) appears consistent with all the facts, and sufficient to account for the phenomena. If two bodies be capable of chemical combination, their particles must have a mutual attraction for each other. This attraction, however, may be variously opposed by concomitant circumstances, that is may be diminished in any degree. Thus we know that the affinity of aggregation, may occasion a body to combine slowly with a substance for which it has a powerful affinity; or, even entirely prevent its combining with it; the presence of a third substance may equally prevent the combination; and so may the absence of a certain quantity of caloric. But in *all* these cases the attraction of the particles must subsist, though diminished or counteracted by opposing circumstances. Now we know that oxygen and nitrogen are capable of combination, their particles therefore must attract each other; but in the circumstances in which they are placed in our atmosphere, that attraction is prevented from exerting itself to such a degree, as to form them into a chemical compound, though it operates with sufficient force to prevent their separation by their difference of specific gravity. Thus the state of the atmosphere is accounted for, and every difficulty obviated without any new hypothesis.

73. It is a curious fact, that the proportions of the atmosphere are preserved under a vast variety of circumstance and place; and the proportion of oxygen to its antagonist ingredient, appears to be very nearly the same, whether it be in this country, or on the coast of Guinea; on low plains, or lofty mountains, or even at the height of 7250 yards above the level of the sea; as ascertained by Gay Lussac, in his aerial voyage in September, 1805. This being the case, it becomes interesting to ascertain, or to endeavour at ascertaining, what are the *provisions* of nature by which this proportion of oxygen in the atmosphere, that is continually consumed in respiration and combustion, is again restored to the atmosphere. As far as an estimate can be formed of the great and general operations of nature, there appears to be at least as great an emission as there is consumption of oxygen. Thus in volcanic eruptions there appears to be at least as much oxygen emitted, or extricated by fire from various minerals, as is sufficient to maintain the combustion, and perhaps to ameliorate the atmosphere; and in the bodies of plants and animals, which appear in a great measure to derive their sustenance and augmentation from the atmosphere and its contents, it is found that a large proportion of nitrogen exists. Most plants, as shewn by the experiments of Dr. Priestley and others, emit oxygen in the sunshine, from which it is highly probable, that they imbibe and decompose the air, retaining carbon, and emitting the vital part. Lastly, to this we add the decomposition of water, and

the effects consequent upon the agitation of large seas and rivers, there will be numerous occasions in which the aqueous fluid will supply us with disengaged oxygen; while, by a very natural supposition, the hydrogen of this fluid may be considered as having entered the bodies of plants, for the formation of oils, sugars, mucilages, &c. from which it may again be extricated. On this head, however, we have still much to learn.

74. On this interesting topic, which as we have just said, demands further investigation, we may here, with propriety introduce an extract from an author, whose labours we have already made use of in the present article. Among the many and ingenious investigations of Dr. Priestley, says Mr. Brande, none have produced more pleasing subjects of inquiry, than those relating to the influence of vegetation upon air, contaminated by combustion, respiration, and the putrefaction of animal matter.

75. Finding that air was not spoiled by the growth of a sprig of mint kept in it for some months, our author thought it possible that the process of vegetation might restore the air injured by burning candles; and, accordingly, on the 17th of August, 1777, he put a sprig of mint into air, in which a wax candle had burned out; and on the 27th of the same month, found that another candle burned perfectly well in it; and then, to verify the conclusion, he divided the injured air into two separate portions, putting the plant into one of them, and merely leaving the other standing over water; he never failed to find, that a candle would burn in the former, but not in the latter.

76. This restoration of air, says Dr. Priestley, I found, depended upon the vegetating state of the plant; for though I kept a great number of the fresh leaves of mint, in a small quantity of air, in which candles had burned out, and changed them frequently for a long space of time, I could perceive no melioration in the state of the air. This remarkable effect does not depend upon any thing peculiar to *mint;* for I found a quantity of this kind of air, to be perfectly restored by sprigs of *balm.*' Grounsel, spinach, and some other plants were used, with like effect, to show that it did not depend upon aromatic effluvia.

77. In Dr. Priestley's observations on air, infected with animal respiration and putrefaction, a multitude of facts are adduced to demonstrate its renovation, when exposed to growing vegetables, and he is thus led to the following general remarks on the subject. 'These proofs of a partial restoration of air, by plants in a state of vegetation, though in a confined and unnatural situation, cannot but render it highly probable, that the injury which is continually done to the atmosphere by the respiration of such a number of animals, and the putrefaction of such masses of both vegetable and animal matter is, in part, at least, repaired by the vegetable creation, and notwithstanding the prodigious mass of air that is corrupted daily by the above mentioned causes; yet, if we consider the immense profusion of vegetables upon the face of the earth, growing in places suited to their nature, and, consequently at full liberty to exert all their powers, both inhaling and exhaling, it can hardly be thought but that it may be a sufficient counterbalance to it, and that the remedy is adequate to the evil.

78. When treating on the economy of vegetation, we shall have again to advert to this subject, and to mention the experiments of Ingenhousz and others in reference to these particulars.

79. The air of the atmosphere, like other fluids, appears to be capable of holding bodies in solution; and 'the dissolving faculty of the air,' is treated of by authors among its chemical properties. It indeed takes up water in considerable quantities, with a consequent diminution of its own specific gravity; from which circumstance, as well as from the consideration that water rises very plentifully in the vaporous state *in vacuo,* it seems probable that the air suspends vapour, not so much by a real solution, as by keeping its particles asunder, and preventing their condensation. Under the words DEW, RAIN, &c. we shall have more fully to engage in considerations relative to the circumstances of air, in connection with aqueous fluid.

80. We now proceed to the last division of our subject and treat of the PROPERTIES OF AIR ON THE LIVING SYSTEM.—When chemistry had at length succeeded in fully unfolding the constitution of the atmosphere, it was natural enough to conceive that variations in the ingredients of which it was composed, whether found naturally or produced in an artificial manner, would be productive of much variety of effect on the physical constitution; hence were broached theories and opinions, respecting a more or less oxygenous atmosphere—and hence too, speculations were eagerly engaged in, on the probable influence that artificial airs might possess in controlling the actions, or abating the malignancy of disease. It happened that pneumatic chemistry came into play and repute, about the time that the public mind was agitated by the political convulsions that were going on in France and other countries; and this circumstance, aided by the novelty and interest of the new views and doctrines, excited in the minds of some of the more ardent and enthusiastic, anticipations of the happiest results in the physical, as had already been supposed about to take place in the moral and political relations of man.

> 'See palsy dance, spasmodic action still;
> And asthma pace, without a puff, up hill.'

81. These golden visions have, however, passed by, and it even appears that the administration of medicinal aid, through the medium of the pulmonary organs is now become unjustifiably neglected: there certainly are cases in which the inspiration of air made artificially more than ordinarily vivifying, might much assist in invigorating the frame, and restoring a healthy tone of action to organs debilitated by protracted disease; and it has often appeared to us probable, that a judicious employment of that singular combination of oxygen and azote, which constitutes the nitrous oxide, or protoxide of azote, as above noticed, might in the hands of judicious physicians, be made to apply beneficially under several conditions of nervous derangement.

82. To justify this opinion, we may here cite

a few examples taken from the researches of Sir H. Davy, of the extraordinary effects which followed the inspiration of this, as it had been called, laughter-producing gas.

83. Sir H. Davy first describes the effect it had upon himself as follows: 'Having previously closed my nostrils, and exhausted my lungs, I breathed four quarts of nitrous oxide from and into a silk bag. The first feelings were those of giddiness; but in less than half a minute, the respiration being continued, these feelings diminished gradually, and were succeeded by a sensation analogous to gentle pressure on all the muscles, attended by a highly pleasurable thrilling, particularly in the chest and in the extremities. The objects around me became dazzling, and my hearing more acute. Towards the last inspiration the thrilling increased, the sense of muscular power became greater, and at last an irresistible propensity to action was indulged in. I recollect but indistinctly what followed: I know that my motions were various and violent.

84. These effects very soon ceased after respiration. In two minutes I had recovered my natural state of mind. The thrilling in the extremities continued longer than the other sensations.

85. The gas has been breathed by a great number of persons, and almost every one has observed the same things. On some few, indeed, it has no effect whatever; and on others the effects are always painful.

86. Mr. J. W. Tobin, (after the first imperfect trials) when the air was pure, experienced sometimes sublime emotions, with tranquil gestures; sometimes violent muscular action, with sensation indescribably exquisite; no subsequent debility —no exhaustion; his trials have been very numerous. Of late he has only felt sedate pleasure.

87. Mr. James Thomson. Involuntary laughter, thrilling in his toes and fingers, exquisite sensations of pleasure. A pain in the back and knees, occasioned by fatigue the day before, recurred a few minutes afterwards. A similar observation, we think, we have made on others; and we *impute it to the undoubted power of the gas to increase the sensibility, or nervous power*, beyond any other agent, and probably in a peculiar manner.

88. Mr. Thomas Pople. At first unpleasant feelings of tension; afterwards agreeable luxurious languor, with suspension of muscular power; lastly, powers increased both of body and mind.

89. Mr. Stephen Hammick, surgeon of the Royal Hospital, Plymouth. In a small dose, yawning and languor. It should be observed that the first sensation has often been disagreeable, as giddiness; and a few persons, previously apprehensive, have left off inhaling as soon as they have felt this. Two larger doses produced a slow unrestrainable tendency to muscular action, high spirits, and more vivid ideas. A bag of common air was first given to Mr. Hammick, and he observed that it produced no effect. The same precaution against the delusions of the imagination was of course frequently taken.

90. Mr. Robert Southey could not distinguish between the first effects, and an apprehension of which he was unable to divest himself. His [illegible] definite sensations, were a fulness and [illegible] in the head, such as to induce a fear of [illegible] This was succeeded by a laugh, which was [illegible] voluntary, but highly pleasurable, accompanied with a peculiar thrilling in the extremities; a sensation perfectly new and delightful. For many hours after this experiment, he imagined that his taste and smell were more acute; and is certain that he felt unusually strong and cheerful. In a second experiment, he felt pleasure still superior; and has once poetically remarked, that he supposes the atmosphere of the highest of all possible heavens to be composed of this gas.

91. Robert Kinglake, M.D. Additional freedom and power of respiration, succeeded by an almost delirious, but highly pleasurable, sensation in the head, which became universal, with increased tone of the muscles. At last, an intoxicating placidity absorbed for five minutes all voluntary power, and left a cheerfulness and alacrity for several hours. A second stronger dose, produced a perfect trance for about a minute; then a glow pervaded the system. The permanent effects were, an invigorated feeling of vital power and improved spirits. By both trials, particularly by the former, old rheumatic feelings seemed to be revived for the moment.

92. Mr. Wedgewood, breathed atmospheric air first, without knowing it was so. He declared it to have no effect, which confirmed him in his disbelief of the power of the gas. After breathing this some time, however, he threw the bag from him, kept breathing on laboriously with an open mouth, holding his nose with his left hand, without power to take it away, though aware of the ludicrousness of his situation; all his muscles seemed to be thrown into vibrating motions; he had a violent inclination to make antic gestures, seemed lighter than the atmosphere, and as if about to mount. Before the experiment, he was a good deal fatigued by a long ride, of which he permanently lost all sense. In a second experiment, nearly the same effect, but with less pleasure. In a third, much greater pleasure.'

93. The effects of a gas containing more than its natural proportion of oxygen have already been noticed, both upon vegetable and animal life; and it is so stimulating upon the respiratory organs as to have endangered, and even produced, inflammation, when unduly or injudiciously employed. That azote, and carbonic acid gases, breathed without any admixture, are speedily fatal to life, has also been made evident by a variety of experiments and observations.—Every one has heard of the destructive effects upon dogs, consequent upon these animals breathing the air of the *Grotto del Cani*; and when faintness, or suspended animation, is caused by holding the head over the fermenting vats of brewers, the cause here in operation is the same, viz. the inhalation of carbonic acid gas; and that the taking into the lungs of hydrogen gas is followed by marked results, the following, from among many other instances, may be taken in proof. It is extracted from the *Journal Britannique*, published at Geneva, by Prevost.

"Maunoir was one day amusing himself with

Paul at Geneva, in breathing pure hydrogen air. He inspired it with ease, and did not perceive that it had any sensible effect on him, either in entering his lungs or passing out. But after he had taken in a very large dose, he was desirous of speaking, and was astonishingly surprised at the sound of his voice, which was become soft, shrill, and even squeaking, so as to alarm him. Paul made the same experiment on himself, and the same effect was produced.

94. It may be said in objection to proposed medicinal trials of factitious airs, founded upon these and other observations, that their effects are too transient and uncertain for any practical inference that might otherwise be deduced from them; but it should be recollected, that even medicinal substances that are taken into the stomach, lay claim to no more than temporary excitation; and the degree of uncertainty that accompanies medicinal agency altogether is proverbial. In giving it, however, as our opinion that more might be made of pneumatic medicine than the fashion of the present day inclines to believe, we protest against any mis-use that may be made of our admissions, by unwarrantable enthusiasm, or bungling indiscrimination.

95. But it was not only on air artificially produced, but on that presented by the hand of nature at once, that speculation grew out of pneumatic discoveries; and air was talked of for the sick, as being more oxygenous, or more azotic, or more hydrogenous, according to the several circumstances of individual requirement. On this head, however, much of what was not only crude and inapplicable, but absolutely fallacious, was conceived and propagated. It has already been intimated, that the relative proportions of the air are generally preserved amidst every variety of place and circumstance; and we may here repeat, from a modern author, that the most celebrated chemists have been unable to discover any difference in the component parts of the atmosphere taken from different situations. Berthollet found the proportions the same in Egypt and in France. Dr. Thomson found them the same at Edinburgh at all seasons of the year; and Gay Lussac examined air brought from the height of 21,000 feet above Paris, and found it precisely the same as the air at the earth's surface: nor does it appear that an increased purity of the atmosphere would be so congenial to human life as has been supposed. It is well known, that the effect of inhaling an atmosphere with a superabundant proportion of oxygen is to produce a state of morbid excitement, and greatly to quicken the circulation. And so, it will be advanced, does a lightened atmosphere; but there is a wide difference between an aided and a stimulated circulation, between the increased action effected by external and mechanical means, and that produced by external stimuli. In the one case, the materia motûs, or which is the same thing, the removal of resistance, is supplied from without, and calls for no additional exertion of the power of life. In the other, the same principle and the same effect are to be produced by direct sensorial excitement, and increased labour of the vital powers. In the feverish and inebriating excitement of the one, the powers of life are too quickly exhausted. In the other, they are assisted in their labours, and enabled to maintain them for a longer period.—*Mansford, on the influence of situation on the duration of life.*

96. The author, from whom we have made the above quotation, has endeavoured to prove that health and longevity, as far as situation and air are concerned, are best secured by situations that are at once high, dry, and temperate. He supposes, that although there be no appreciable difference in the chemical ingredients of the air in any part of the habitable globe, yet that the difference of the weight of the atmosphere may, at different elevations, when it comes permanently to operate, be productive of permanent results.

97. An elevation, says he, of 500 feet, a very common variation in the surface of a hilly country, diminishes the average weight of the atmosphere pressing on the human body something more than a sixtieth part, or nearly 600 pounds; and although this reduction of pressure is not felt, it cannot be doubted, but that the removal of so large a degree of resistance, must give a greater freedom of action to the main spring of the circulation, as well as a greater power of distension to the vessels themselves, especially to the superficial vessels; both of which causes, like all others, will operate most powerfully on a diseased part.

98. This last effect is supposed to prove unfavourable to those individuals whose pulmonary system and general frame are already under the influence of morbid irritation; he therefore infers, that the situation which will prove genial and productive of longevity to the individual free from pulmonary taint, will prove the reverse to those who have such taint. He is disposed to think, that under these last circumstances, low and moist situations are best adapted to the demands of the case; and this opinion Dr. Wells has supported in the third vol. of Transactions of a Society for improving Medical and Chirurgical Knowledge. Sir James Mac Grigor, in his Observations on the Diseases of the Army in Portugal, also gives his testimony to the same effect. Dr. Harrison, whose situation afforded peculiar opportunities of observation, says, in an Address to the Medical Society of Horncastle, in Lincolnshire, that idiopathic consumptions, which were frequent in the wolds of that country, were seldom found in the fens; which he attributes to a difference in the component parts of the air in those situations. This observation was confirmed by Mr. Wayet, an experienced practitioner at Boston. Dr. Harrison also asserts, on the authority of Mr. Boucherett, M. P. for Great Grimsby, that consumption is a rare disease in Holland. We have also the testimony of Dr. Cogan, who resided several years in that country, that consumptions were much less frequent than in England. These concurrent testimonies, says our author, to which others might be added, would appear sufficient to establish, as a fact, that air impregnated with moisture, or with different effluvia, or miasmata, by which its purity is lowered, is rather favourable to the consumptive than otherwise

But air answering to these conditions, is for the most part, to be found only in low situations; where the increased density of the atmosphere, and the resistance offered by it to inordinate action of the vessels, especially of their extreme branches, may be supposed to have a share in the beneficial effect.

99. We feel but little doubt that there is something both in the above statements, and in the inferences made from them by Mr. Mansford; at the same time, it should be observed, that the observation does not obtain universally of fenny countries being comparatively free from consumptive ailment. In Dr. Southey's Work on Consumption, we recollect to have seen two letters from respectable physicians in Chelmsford, stating, that disorders of the lungs were as common in the fenny, as in other parts of the county of Essex; and other remarks might be cited of the same import. At any rate, we are disposed fully to concur in the opinion advanced by the writer to whose speculations we are now referring, respecting the advantage of elevation and dryness, and moderate temperature, as conducing generally to the preservation of health and the maintenance of life: a short residence in an elevated place may be sufficient to invigorate the young convalescent; but that of the old man must be more permanent; he may perhaps quit it occasionally a short time with impunity, but he must consider it as his residence, where nine-tenths of his time are to be spent. Above all, those who have passed the whole, or the greater part, of a long life in an elevated situation, should be cautious of quitting it, to reside in a lower one. If lightening the atmospheric load can give fresh vigour to the vital actions, and thus prolong life; increasing it must necessarily, by depressing them, shorten it. The lives of Parr and John Jacobs soon terminated after quitting their native hills; the one of Jura, and the other of Shropshire.

100. Now, beyond these sensible qualities in the air, viz. of different degrees of temperature and humidity, and density, we fear the experimental observer can go but little way in predicating medicinal property. Contagious and infectious miasmata are indeed conveyed on 'the wings of the wind'—the *malaria* of the southern parts of Europe carries sickness and death with it wherever it travels; but still these changes and circumstances are only known in their effects; and we must be possessedof a nicer test of ascertainment, than any we have hitherto been furnished with, before the why and the wherefore of endemic and epidemic visitations can be satisfactorily made out. At the very time we are penning this page catarrhal affections are visiting the inhabitants of London with a frequency and force beyond what even the circumstances of temperature, or humidity, or dryness can account for; this being the case, the imagination is naturally led to something noxious in the air that surrounds us, of a specific nature; but no eudiometrical trials have satisfied us as to what this something is; and, for the present, at least, we must rest content with what mere observation, unassisted by science, imparts to us.

101. Even respecting the extent to which animal and vegetable poison impregnates the air of districts, and causes disease, opinions are unanimous. It has been observed, for instance, that fevers of a certain kind and aspect appear in much greater frequency where shallow stagnant waters abound; and these forms of disease order have thence been attributed to a poison generated by the decomposed vegetable matter of the marsh or morass; but of what this matter consists, and how it impregnates the atmosphere, are so far from being matters of demonstration, that some have derided altogether the notion of its specific agency, contending that the cold and humidity of the places in question are quite sufficient sources whence to trace the diseases: and that temperature and humidity *have* a great deal to do with it, may be inferred from the especial unhealthiness of those regions where a rapid transition is made from the sultriness of the day to the damps and fogs of the night; but it certainly implies too much of a sceptical and generalizing disposition to deny that besides the common physical and chemical conditions of an atmosphere, a something superadded of a positive and specific nature

102. In the counteraction of this some however, it is pleasing to feel that much has been accomplished by the industry of man—and that much *has* been effected. During the last century, as stated by a modern writer, the greater part of Europe has been most laboriously and efficaciously acting upon this principle of counteraction—swampy lands have been drained—waste marshes cultivated—filth removed from our cities—air made to circulate through our dwellings—superstitious apprehensions respecting pestilential visits considerably lessened—and, adds the writer from whom we are extracting, 'in consequence, shall we say, without incurring the charge of assuming what we ought to prove, the greater part of Europe and our own country and cities in particular, instead of harbouring and fostering contagion into venomous, and permanent, and wide spreading pestilence, have merely afforded a scanty and niggardly entertainment to the mildest form of contagious fever.' See CONTAGION and INFECTION.

103. We now bring this article to a conclusion, by subjoining the following observations on the medicinal qualities of air, from the Medical Dictionary of Dr. Parr.

104. 'The physical or medicinal qualities of the air have occasioned numerous disquisitions. But extensive enquiries, the comparison of tables of mortality, and experience long continued, have allowed us to draw few conclusions that will bear the test of careful examination. In spring we find inflammatory complaints, in autumn bilious diseases; in every season fevers in the commencement inflammatory, in the conclusion more or less of an opposite type. To be more particular, continued cold produces that tension of the fibres, that strong and steady action which we style inflammatory diathesis; warm situations with a pure bracing atmosphere produce similar effects. These are partly owing to an excess of oxygen; but in a great measure

to moderate continued cold. A previous moist temperate winter, which predisposes to scrophulous complaints, will at this period produce the most fatal consequences in hectic cases. The fever will increase, the ulceration proceed with rapidity, and the heat of the ensuing summer close the scene Those, however, who are moderately healthy, and not peculiarly robust, will find a winter of no extreme cold healthy; and the opening spring expanding the fibres, will give a genial glow and new life to every organ. Summer of course may produce its own diseases; but if we peruse the history of Epidemics, we shall with difficulty trace any particularly bad effects of the heat, till the evenings begin to cool, the fruit to be plenty, and the bile to become a conspicuous cause of disease, from its accumulation and excessive discharges. Winter again recurs; and Dr. Heberden has endeavoured to show, from the bills of mortality, that it is a fatal season. 'It may be so in general; old people resist cold with difficulty, and the catarrhous suffocations,asthma, and similar complaints, are often fatal at this period. In our experience, however, it is not the cold, but the early warmth of spring succeeding cold, which is most injurious; the constitution, braced by cold, cannot bear the subsequent relaxation. A long damp summer has had similar effects.

105. Philosophers have taught us how much pressure we bear from the atmosphere; and of course from the diminution of that pressure, we shall feel the want of tension or tone, which results from the removal of any support. Thus, when the air is lighter we find a languor come on—when heavier, we find our spirits are more brisk and lively. The whole, however, is not owing to the absolute weight of the air, but in part to its elasticity; or rather our feelings of health and activity are in the compound ratio of both. Thus, at the height of from 1200 to 2000 feet above the level of the sea, the pressure is greatly diminished; but we feel increased activity, as we are in general above the region of the clouds, and the air is more elastic; and the languor felt in very high situations is not uniform or constant; so that it cannot depend on a constant cause. During rain, the mercury in the barometer is not depressed half an inch. Yet, we feel more languor than on the tops of mountains, where it has probably fallen from five to ten inches.

106. In other respects, the physical properties of the air seem to have little influence. The warmest and longest summers are often healthy; the coldest winters, with the exception of inflammatory complaints, are the same. The warmest weather, with the dampest fogs, have been followed by no peculiar epidemic. It is what Hippocrates long since called the το θειον, something divine or inexplicable, that produces fevers, or similar diseases; but before we notice 'the divinity that stirs within us,' we must add a few remarks on our situation, as connected with the physical properties of the air.

107. A dry elevated spot, on a gravelly soil, is said to be most wholesome, especially if sheltered from the east wind. Elevation is, however, relative; light clouds float in the atmosphere, about 1000 feet above the level of the sea, and the healthier spot is said to be some way above this elevation. This appears, however, to be fanciful; and it has not been proved that atmospheric moisture alone is injurious. In dry gravelly elevated spots, experience has fixed the most salutary residence for consumptive cases; yet in these oxygen seems to abound, which is peculiarly injurious in such complaints; and air of a lower quality, as it has been styled, is seemingly as good, in the opinion of some preferable. In asthmatic cases, elevated spots are manifestly injurious. In fact, theorists may declaim, but facts give the lie to the most plausible declamations. A change is often necessary; and from the effects of the change, the conduct proper for each individual must be ascertained.

108. It is observed by some authors, that vaults, corn magazines, and apple garrets, &c. should open to the north; for that point is invariably proper; but the south and west are constantly improper. The most healthy exposure, if a house is to be built, is said to be found by cutting one of the trees that grow there transversely with a saw, observing the rings; the side of the tree on which the distances between each ring is widest, is the most healthy exposure, and the windows of the house, all other circumstances being the same, should ever face that way.

109. We have mentioned the effects of the east wind in general, and we shall now notice them more particularly, though it cannot be yet determined whether they belong to the chemical or physical properties of the air. The atmosphere, while the east wind prevails, is lucid; and even when clear, the sun has not its brilliant hue. The strength is not equal to the usual exertions, the respiration not free, the spirits not lively. Asthmatics and hypochondriacs feel it severely. Yet it is often dry, and when it rains during a south-east wind, its fall is frequently periodical, extending only to twelve or twenty-four hours. While the clouds constantly display a promise of fair weather, there is seemingly a perpetual contest between the causes of rain and their antagonists, whatever they may be.

110. As we have now instruments by which the quality of the air may be measured, it might be presumed that these would inform us of the cause of this singular state of the atmosphere. The east wind is not peculiar to any situation, so that it is not injurious from passing over a baleful desert, or a successive series of marshes; nor does the eudiometer show any particular ingredient which may impair health or induce disease. The assistance which this instrument affords to the medical chemist is indeed inconsiderable. In crowded cities, and the most apparently healthy situations, remote from 'the busy hum of men,' its results are nearly the same. Chemists must decide whether this similarity in the appearances are owing to the imperfections of the instrument, or whether the injurious qualities of the air are not cognizable by it.

111. The aerial pathology has not yet been successfully cultivated. Man can live and enjoy health from the heat of twenty-eight to one

hundred and eight degrees of Fahrenheit. He can exist in a constant fog, where the hygrometer proceeds beyond the extreme of humidity; and in air which supports the mercury only at twenty-two or twenty-three inches, he is robust and active. Sudden changes are injurious; but the injuries are often transitory or inconsiderable; or if severe, producing only temporary or acute diseases. Yet the air is accused as the cause of numerous diseases, and it really is so. Sudden cold, checking perspiration, will apparently produce almost every form of the pyresiæ. Partial cold will produce rheumatisms; damp air, catarrhs; and, in old people, those diffusions which are called humours, as asthmas, and catarrh suffocavit. The *continued* heat of summer occasions bilious disorders; and the cold of winter, return of the more active inflammations. The air, however, is chiefly a vehicle of injurious effluvia, some of which only can be ascertained. Marsh miasmata, as they are styled by pathologists, are the causes of numerous intermittent and remittent fevers, as well as those apparently of a more continued form. It has been ascertained that a clayey soil, when moistened, will attract the oxygen of the air, and leave the azotic part not sufficiently guarded to support the vis vitæ; and it is found that districts become unhealthy, chiefly when the earth begins to appear in consequence of a diminution of the water. It is singular that Linnæus, with a view to prove the cause of intermittents to be an argillaceous earth, has traced very minutely the prevalence of intermittents in clayey countries; a circumstance which may be explained from the views just assigned. To this diminution of the oxygen must be added a larger and unusual proportion of inflammable air, from the parts of marshes still covered with water. To these conjoined causes many epidemics are owing; and when the changes in the physical properties of the air appear to produce fevers, they act only as exciting causes of these miasmata.

112. Many objections might be taken to some of the above views of our ingenious author. We shall only advert to two particulars, in which there appears to be a fallacy in Dr. Parr's reasoning. The unhealthiness of an argillaceous, or clayey soil, seems to be rather referrible to the difficulty with which moisture percolates through it; and the extreme, or, if it may be so said, *evaporating* dryness of east winds appears to be in a great measure the cause of their peculiar unhealthiness. Dr. Hutton, of Edinburgh, found that a wetted thermometer, exposed to a moderate east wind, in the month of March or April, sunk between eight and nine degrees below the temperature of the air, but in the driest summer weather, it never fell more than four, and often only two or three.

INDEX.

ACIDITY, principle of, 46.

ACTION and re-action in the air, 13.

AIR, definition of, 1. Its properties and composition but recently discovered, 25. Gravity of, 4. Elasticity of, 12. Compressibility of, 16. Chemical composition of, 24. Composed of two ingredients mainly, with two additional ones in small quantities, 48. How purified, 74. But little different in different regions of the globe, 73, 95. Volume of, diminished by combustion, 45. Purity of, interfered with by respiration, 31. Not discoverably different when plagues and pestilences prevail, otherwise than by its effects, 100. Medicinal properties of, 89.

ANIMAL LIFE, how affected by air, 31. Processes of, render the air impure, 77.

ATMOSPHERE, pressure of, 4. Chemical composition of, 24. Not so different as might be supposed under different circumstances of place, &c. 73, 95. How kept in a pure state, 74. Proportion of its component parts, 48.

AZOTIC AIR, forms part of the atmosphere, 48. How procured, 56. Properties of, 59. Its unison with oxygen, in a given proportion, constitutes the main portion of the atmosphere, 56. In another proportion forms the gaseous oxide of azote, or protoxide of azote, or laughing-gas, 57. Properties and effects of this last, 83.

BERTHOLLET'S, theory of the mode in which the particles of air are mixed in the atmosphere, as opposed to the hypothesis of Dalton, 72.

BLACK, Dr. the importance of his two discoveries in the science of aerology, 37. His discovery of carbonic acid gas, first called *fixed air*, 38. His discovery of the different relations of bodies to heat independently on temperature, 39.

BLADDER, experiment with a shrivelled one, to show the different forms under which air exists, 12.

BOYLE, Mr. his remarks on the gravity and elasticity of air, 16.

BRANDE, Mr. his history of pneumatic chemistry alluded to, and extracts made from, 27.

CALCINATION, effects of, upon the air, and upon the body calcined, 50.

CARBONIC ACID AIR, first discovered by Dr. Black, 38. Composition and property of, 61.

CATARRHS, occasioned by a poison in the air, 100.

CAVENDISH, Mr. discoverer of hydrogen air, 64.

CLAYEY SOIL, how it affects air, 112.

COMBUSTIBLE BODIES take oxygen from the air during combustion, 48.

COMMON AIR, its properties, 3. Its chemical composition, 48.

COMPRESSIBILITY of air, 5.

CONSUMPTIVE individuals, what kind of air most suitable to, 98.

CONTAGION, not detectable in air, 100.

CONTAMINATED AIR, how purified by nature, 74.

DALTON, Mr. his hypothesis respecting the mode in which the moleculæ of air are mixed, 70.

DAVY, Sir Humphrey, extracts from his researches, 83.

DENSITY of air, 4.

DEPHLOGISTICATED AIR, 41.

DILATATION of air, 12.

DISEASES, how influenced by air, 98. By factitious gases, 80.

DRYNESS of air, 96, 112.

ELASTICITY, a property of air, 12.

ELECTRICITY, its action on hydrogen air, 49.

ENTHUSIASTIC feelings from gases, 80.

EUDIOMETRICAL TRIALS fail in detecting certain impurities in the air, 100.

EVAPORATION, quick in an east wind, 112.

EXPANSIBILITY of air, 12.

EXPLOSION from hydrogen being inflamed by the electric spark, 66.

FACTITIOUS GASES, their operation upon the living system, 80. Question whether their medicinal powers are sufficiently appreciated in the present day, 81.

ED AIR, discovered by Dr. Black, 38. Proportion of, in common air, 48. Properties of, 61. oisonous qualities of, 63.
NCH CHEMISTRY, notice of, 45.
ES factitious, their medicinal and other properes, 80.
EOUS SUBSTANCES, their nature, and mode of ing, only recently ascertained, 24.
ES, DR. on the compressibility of air, 16.
T LATENT, Black's discovery of, how important in ie science of aerology, 39.
H SITUATIONS, why salubrious, 97.
KE, his investigations referred to, 30.
ROGEN AIR, qualities of, 65. Discovered by avendish, 64. Exists in larger proportions in ry high regions, 49. Inflamed by the electric ark, 66. Forms water with oxygen, 67.
cause of the bursting of, in certain circumstances, 1.
URITY of air falsely judged, 95.
ECTION, not discoverable in the air, 100.
AMMABLE AIR, discovered by Cavendish, 64. inflames by the electric spark, 66. Exists in greater roportions in very high regions, 49. Qualities of, 5. Forms water with oxygen, 67.
AMMATORY complaints, where prevalent, 104.
ENHOUSZ, his experiments alluded to, 78.
WAN, Mr. his experiments on the specific gravity f oxygen, &c. 69.
ENT HEAT, importance of the discovery of, 39.
OISIER, his proposed alteration in chemical theory nd nomenclature, 45.
E, carbonic acid gas in, 38.
NESIA, contains carbonic acid in its impure state, 8.
NGANESE, gives out oxygen, 53.
NSFORD, his speculations on the best air for consumptive invalids, 98.
RSHES, kind of air from, 101. Miasmata, what o they consist of? *ib.*
YOW, came near to the actual discovery of oxygen as, 31. And the true principles of combustion, 32.
RCURY, experiments with, 41.
LECULÆ of air, how intermingled, 69.
MORASSES, kind of air from, 101.
MOUNTAINOUS AIR, why salubrious, 97.
NITROGEN, 43. Its properties, 57. How procured, 56. Proportion in which it exists in the atmosphere, *ib.*
NOXIOUS AIR, nature's processes for rectifying, 74.
OXYGEN AIR, how procured, 53 Its properties, 54. Origin of the term, 46.
PARR, DR., his account of the medicinal qualities of air, 104. Erroneous notions of, 112.
PHILOSOPHERS, erroneously referring to final causes, 4.
PHLOGISTON derided by the French chemists, 45.
PLANTS, manner in which they promote the purity of the air, 74.
PNEUMATIC CHEMISTRY, nearly discovered by Mayow, 31. Progressive development of, 47.
PRESSURE of air, 4.
PRIESTLEY, DR., the importance of his discoveries, 41. He first discovered oxygen, which he called dephlogisticated air, 41. His observations and experiments on the economy of nature in preserving the purity of the air, 74.
PURITY of air falsely judged of, 95. How preserved, 74.
RAIN, how produced in the atmosphere, 56.
REGIONS, sameness of the air in different, 73.
SCHEELE, his observations and experiments, 44.
SOIL, why certain kinds of, unhealthy, 112.
SITUATIONS more or less salubrious, 96.
SOLIDIFICATION of air, 23.
SPRING SEASON, disorders of, 104.
TABLE shewing the different degrees of the air's weight in different altitudes, 10.
TEMPERATURE of air, important, 96.
TESTS, eudiometrical, fail in shewing upon what salubrity or insalubrity of air depends, 100.
THUNDER, how produced, 66.
URE, DR., extracts from, 71.
WATER, consists of hydrogen and oxygen, 67. Exists in air in the form of moisture, 79. Of the sea and rivers, purifies the air, 73.
WEIGHT of bodies increased by burning, 28.
WIND, easterly, why noxious, 112.

AIR, in music, is taken in different senses. s sometimes contrasted with harmony; and, this sense, it is synonymous with melody in eral. Its proper meaning is, a tune, which set to words, or to short pieces of poetry. metimes it denotes simply the treble part a musical composition. There are three ds of airs in dramatic music; the aria cantile, or the air of song; the aria di bravura, air of execution; and the aria parlanta or aking air. The first is usually applied to pathos, or effect of music; the second, (bravura) to prove the brilliancy and difficulty of ecution; and the parlanta to that music which proaches nearest to the natural manner of mest speech. This last is therefore used in itative. These and the several correspondg movements are varied to infinity, whence o air, with variations, a melody varied, ad itum, by the compiler.—Air tendre, an air, denominated for the tenderness of its style. In operas, the name of air is given to such eces of music, as are formed with measures d cadences, to distinguish them from the reitative; and, in general, every piece of music called an air, which is formed for the voice, even for instruments, and adapted to stanzas, whether it forms a whole in itself, or whether it can be detached from any whole of which it forms a part, and be executed alone.—If the subject admits of harmony, and is set in parts, the air is, according to their number, denominated a duett, a trio, a quartetto, &c. We need not follow Rousseau and others in their endeavours to investigate the etymologyof the word air. The curious may consult this whimsical writer's article in the Dictionaire de Musique. In modern music, there are several different kinds of airs, each of which agrees to a certain kind of dancing, and from these dances, the airs themselves take their specific names. The airs of our operas, are, if we may be permitted the expression, the canvas, or substratum, upon which are painted all the pictures of imitative music; melody is the design, and harmony the colouring; every picturesque object selected from the most beautiful parts of nature, every reflected sentiment of the human heart, are the models which the artist imitates; whatever gains attention, whatever interests the soul, whatever charms the ear, or causes emotion in the heart, these are the objects of his imitation. See IMITATION. An air which delights the ear, and discovers the talents of the composer; an air invented by

genius, and composed with taste, is the noblest effort of music: it is this which explores the compass, and displays the delicacy, of a beautiful voice; it is this in which the charms of a well-conducted symphony shine; it is by this, that the passions, excited and inflamed by nice gradations, reach and agitate the soul through the avenues of external sense. After hearing a beautiful air, the mind is acquiescent and serene: the ear is satisfied, it remains impressed on the fancy, it becomes a part of our essence, we carry it with us, we are able to repeat it at pleasure; without the ability acquired by habit to breathe a single note of it, we execute it in our imagination, in the same manner as we heard it: one beholds the scene, and the musician: one hears the accompaniments and the applauses. The real enthusiast in music never forgets the beautiful airs which he has heard: when he chooses, the opera recommences. The words to which airs are adapted, are not always rehearsed in regular succession, nor spoken in the same manner with those of the recitative; and though, in general, they are very short, yet they are interrupted, repeated, transposed, at the pleasure of the artist. They do not constitute a narrative, which once told is over: they either delineate a picture, which it is necessary to contemplate in different points of view, or inspire a sentiment in which the heart acquiesces with pleasure, and from which it is neither able nor willing to be disengaged: and the different phrases of the air, are nothing else but different manners of beholding the same image. This is the reason why the subject of an air should be one. It is by these repetitions properly placed, it is by these redoubled efforts, that an impression, which at first was not able to move you, at length shakes your soul, agitates and transports you out of yourself: and it is likewise upon the same principle, that the runnings, as they are called, or those long, mazy, and inarticulated inflections of the voice, which, in pathetic airs, frequently seem, though they are not always so, improperly placed; whilst the heart is affected with a sentiment exquisitely moving, it often expresses its emotions by inarticulate sounds, more strongly and sensibly than it could do by words themselves. The form of airs is of two kinds. The small airs are often composed of two strains, which ought each of them to be sung twice; but the important airs in operas are frequently in the form of rondeaus.

Air, in mythology, was adored by the heathens, under the names of Jupiter, and Juno; the former representing the superior and finer part of the atmosphere, and the latter the inferior and grosser part. The augurs also drew presages from the clouds, thunder, lightning, &c.

Air, in painting, &c. denotes the manner and very life of action; or it is that which expresses the disposition of the agent. It is sometimes also used in a synonymous sense with gesture or attitude. Thus Correggio and Guido are said to have excelled in the *airs* of the heads, as well as of the whole figures they painted.

Air, in surgery, has a medicinal efficacy that ... attracted the consideration of various emi... writers. Fixed air, or carbonic acid gas, ...en applied by means of the fermenting cataplasm to fetid and gangrenous sores. It ... also been used in malignant ulcers of the ... nose, &c. as well as in caries of the bones. ... Witstock recommends the application of ... means of a receiver or air bell, connected ... a flexible tube or pipe sufficiently air-... supposing the fixed air to be produced ... effervescence of fixed alkali and vegetable ... Others impregnate water with the gas, and ... ing compresses therein, lay them on the ... the disorder. Mr. Loeffler, a German ... has recommended a particular apparatus ... purpose, which may be easily constructed, ... which he employs for saturating water ... fixed air, by the mixture of chalk and ... acid, or during the process of fermentation. When we wish to apply the air to a cancerous breast, for example, we are to fill a bladder ... the air as it rises from the above mixture. To introduce a tube, fixed to its orifice into ... bladder, which is to be cut round in such a manner that it can be applied like an open ... the breast, and held close to it with the ... When it is fastened below, it must be ... so that the fixed air may pass out of the ... into the second bladder, and find access to ... ulcerated part. In order to facilitate this ... cess, a gentle degree of pressure is to be ... plied to the bladder, and as one bladder ... not be sufficient, a number of them should ... provided in readiness, and filled for immediate use in succession. This operation is to be continued half an hour or longer each time, and repeated twice or thrice a day.

Air, in the menage, is the artificial motion ... taught horse; as the demivolt, curvet, capriole, ...

Air, circulation of, in rooms. To ... der the circulation of air perceptible, let the ... of a room be heated by a strong fire, whilst ... of a contiguous room is cold; then let the ... between those two rooms be opened, in which case the hot air of one room being lighter, will pass through the upper part of the opening ... door into the cold room; and, on the contrary, the cold air of the other room being heavier, will pass into the former room through the lower part of the opening. Accordingly, it will be found that applying a lighted candle at the top, in the middle, and at the lower part of the opening between the two rooms, a strong current of air will appear to pass from the hot into the cold room near the top; a contrary current of air will appear to pass from the latter into the former room near the lower part of the said opening, as may be clearly perceived by the direction of the flame of the candle, whilst in the middle there is little or no motion at all. It is for the same reason that when the fire is lighted in a grate, a strong current of air is occasioned to enter the room, which may be felt by applying the hand near the key-hole, or other such small opening, if the doors and windows are shut; for the air over the fire, being heated, becomes lighter, and ascends up the chimney; consequently other colder air must supply its place, which forces its way through the small openings it can find. Were a room with a fire in it to be perfectly closed, except the chimney, the air in it would soon become unwholesome for respiration, and the fire would ...

soon extinguished, besides other inconveniences. Hence it appears that those persons mistake who expect to keep the air of a room sweet and wholesome, especially for convalescents, by accurately stopping all the smallest openings that admit fresh air. When the current of air that enters into a room is on some side of it, and falls immediately on persons of delicate constitution, it may be injurious. In that case, such opening should be closed; but at the same time another should be made for admitting fresh air, in a more convenient part; for a circulation of air, especially in rooms where a fire is kept, is not only salutary and useful, but is absolutely necessary.

In an ingenious publication, entitled, a Practical Treatise on Chimneys, there are the following useful remarks, on the best method of admitting air into a room. The author directs a vent-hole to be made near the top of the room, in order to expel the heated and contaminated air, and says, that 'this might be done by means of a small tube opening into the room, either in or near the ceiling; which should be carried to the top of the building, or be made to communicate with the external air, by a small perforation through the wall at the roof of the room; by means of either of which, a proper circulation would be established, and the foul air carried off. For the fire would no sooner have warmed any particle of air within the room, than these would be greatly expanded, and rise immediately upwards, so as to fill the higher parts of the room with rarefied air; and as other particles would be successively heated and rarefied in their turn, by their expansive force they would press upon the sides of the apartment in every place, so as to force the lightest particles through the opening, left for that purpose, in the top of the rooms: by which means the foul air would be gradually drawn off, without descending again into the lower regions.' But in order to admit fresh air into the room, 'Let,' says he, 'another opening be made in the ceiling of the room, having a communication with a small pipe that should lead from thence, either to the outside of the wall of the house, or to any other part of the building that might be judged more convenient, where it should be bent, and conducted downwards, till it reached the ground; where it should be left open, to communicate with the external air. In this situation, the cool external air would be forced in at the lower opening of the tube, and made to ascend into the apartment, in proportion to the quantity that escaped towards the higher regions, by means of the ventilator. And as that weighty air would no sooner enter the room, than it would tend towards the floor by its own natural gravity, it would gradually mix with the heated air in its descent; become, in some measure, warmed by that means, and equally dispersed through the room, so as slowly and imperceptibly to reach the candles and the company in the room, and supply them with a sufficient quantity of fresh and wholesome air, without the inconveniences to which the company are subjected, by the usual way of admitting fresh air.' Such of our readers as have been unaccustomed to speculations of this sort, will be at a loss to comprehend in what manner two holes, both of them in the roof of the room, and communicating with the air, without any valve, or other contrivance for opening or closing of themselves, should yet answer the two very opposite purposes, the one, of constantly bringing cool air into the room without emitting any warm air, and the other, of as constantly emitting warm and admitting no cool air. They will observe, that the one of these tubes communicates with the atmosphere, at the bottom of the house, and the other towards the top: the opening of the one is beneath the level of the room, that of the other above it. Now, as the air is more dense at the surface of the ground, than at the height above it, the warm rarefying air will naturally issue at the opening where it meets with least resistance, which must invaribly be through that which opens to the external air at the greatest height; and as the cool air will naturally be pressed into the room, by that opening where the air is most weighty, this must invariably be by that which is nearest the surface of the earth.

A friend of Dr. Franklin's, whose observations on a topic of this kind are always as useful and practical, as they are philosophical, writes thus:

'Dr. Franklin was, if I mistake not, the first who observed that respiration communicated to the air a quality resembling the mephitic; such as the Grotto del Cano near Naples. The air impressed with this quality rises only to a certain height, beyond which it gradually loses it. The amendment begins in the upper part, and descends gradually until the whole becomes capable of sustaining life. The Doctor confirmed this by the following experiment. He breathed gently through a tube into a deep glass mug, so as to impregnate all the air in the mug with this quality. He then put a lighted bougie into the mug; and upon touching the air therein the flame was instantly extinguished; by frequently repeating this operation, the bougie gradually preserved its light longer in the mug, so as in a short time to retain it to the bottom of it; the air having totally lost the bad quality it had contracted from the breath blown into it.

'At the same time that the lower part of the air is thus affected, an acrid noxious quality may be communicated to its upper part in the room, occasioned by the volatile putrescent effluvia of the persons enclosed therein. 'It is surprising,' says Sir John Pringle, in his observations on the diseases of the army, fourth edit. p. 109, 'in how few days the air will be corrupted in close and crowded wards; and what makes it hard to remedy the evil, is the difficulty of convincing either nurses or the sick themselves, of the necessity of opening the windows and doors at any time for a supply of fresh air.'

'It may be inferred from the preceding account of mephitic air, that such air can be but little altered by a ventilator in the ceiling of a room; and Dr. Franklin justly concluded, that in crowded rooms, and especially in bed-rooms in dwelling-houses, a current of air should be kept up in the lower part of the rooms, to carry off what is thus affected. He approved of the use of chimnies for this purpose, especially when

the current is quickened by a fire. Even when there is not any fire in the chimney, a current of air is constantly kept up in it, by its ascending or descending in the flue, as the weight of the internal or external air preponderates. This creates a kind of tide in the flue, conducing much to the healthiness of air in rooms: and hence we may see the injudiciousness of having chimney boards which fit closely, and thereby prevent a salutary circulation in the air. Hence also in warm weather we may account for liquors or other things kept in a chimney being cooled, and more so if means are used to create an evaporation around them.

'Every person has an atmosphere of his own, he observed, heated by the warmth of his body, which can be dissipated only by motion in the circumambient air. Thus in warm weather wind cools the body, by carrying off the personal atmosphere, and promoting at the same time a more free evaporation of the effluvia arising from the body. This creates a great degree of coolness on the skin. The personal atmosphere can be but little affected by a ventilator in the ceiling of a room, unless the admission of external air is so directed as to act principally on the air surrounding those in the room. Dr. Franklin, when consulted on ventilating the House of Commons, represented that the personal atmosphere, surrounding the members, might be carried off by making outlets in the perpendicular parts of the seats, through which the air might be drawn off by ventilators, so placed, as to accomplish this without admitting any by the same channels. It will appear from what has been said, that windows placed high in the walls of churches, or rooms intended for large assemblies, can contribute but little towards correcting the mephitic quality of the lower part of the air, or towards carrying off the personal atmospheres.'

'Dr. Stephen Hales endeavoured to suggest an easy and effectual way to carry off such vitiated air. But his ventilators were attended with the inconveniency of occasioning smoky chimnies, by drawing off so much air, that there was not a sufficiency left to keep a current strong enough to carry the smoke up the chimney, unless a door or window was left open. And the circulating ventilators in windows were intended for refreshing the air in rooms, without affecting the current of air up the chimney; but they did not affect the mephitic air, nor the higher air near the ceiling of lofty rooms, which is most vitiated with putrescent particles; and they were besides often out of repair.

'Instead of either of these, Dr. Franklin proposed that openings should be made close to the ceilings of rooms communicating with a flue, which should ascend in the wall close to the flues of the chimnies, and, where it can be done conveniently, close to the flue of the kitchen chimney; because the fire burning pretty constantly there, would keep the sides of that flue warmer than those of the other chimnies; whereby a quicker current of air would be kept up in the ventilating flue. Such a flue might be carried from the vaults or under ground offices. This would render them drier, without altering their temperature much as to heat or cold. These ventilating flues would cause a constant discharge of the volatile putrescent effluvia without interfering with the current of air up the chimnies, while the current towards the chimney would carry off the mephitic air below. These ventilating flues would be peculiarly beneficial in bed-rooms, the ceilings of which are low.

'Dr. Franklin mentioned an instance of a number of Germans, who on their arrival in Pennsylvania were obliged to live in a large barn; there being at that time no other place of residence fit for them. Several small windows were made on both sides of the barn under the eaves. These windows were kept constantly open, even during a severe frost in the winter; and this without any detriment to the health of the Germans. Prejudice, said he, has raised so great a dread against cold air in England, that such openings would make persons shudder at the thought of being exposed to so great a degree of cold: and therefore I did not dare to recommend a practice, the good effects of which I had known. The dormitory for the youths of Westminster school is a similar instance; for the glass put in their high lofty windows is soon broken, but seldom repaired; yet without prejudice to the health of the youths.

'An attentive observer will soon be convinced,' continues our author, 'that there is a current of warm air which ascends in the room from the chimney, while a fire burns. Dr. Franklin showed that this was the case, by the following experiment. He suspended by a thread, a piece of pasteboard cut in a spiral form. The thread was fastened to the chimney-piece, so that the pasteboard drawn out in a spiral form, came near to the edge of the chimney. The constant current of warm air, heated by the fire, gave a continued circular motion to the pasteboard. This warm air ascending to the ceiling, there spread, and kept a constant motion in the upper part of the air. The warm air thus ascending, coming into contact with the cool walls, and being thereby condensed, becomes heavier, and so falls along the sides of the walls. Also the glass in windows being exposed to the temperature of the external air, in cold weather, becomes colder than any other part of the room: therefore more sensibly descends, as may be seen by approaching a lighted bougie to a window. The flame is then carried downwards by the air; or if the flame is extinguished, the smoke will more clearly shew this truth, by descending along the window till it meets the air of an equal temperature. This will be the case, however tight the window; and the more so, the brighter and stronger the fire is, and the colder the external air; the circulation of the air being thereby quickened. This accounts for the familiar caution of avoiding to sit in or near a window. This circulation of the air is yet more evidently proved by the following instance: When there is a bright strong fire in a close room, open the door and present immediately a lighted candle to the upper part of the doorway, the flame will bend outward; though warm air in the higher part rushes out, lower the candle gradually, and the strength of the current outward will lessen by degrees, as the candle is lowered.

till it comes to a space in which the flame shall rise upright: continue to lower the candle gradually, and then the current of cold air inward will gradually increase and more strongly bend the flame of the candle inward. This will be the case even in frosty and windy weather.—May it not be inferred from this circumstance, of so strong a current of air outwards in the upper part of the door-way, that an opening over or in the upper part of the door in the ward of an hospital might be of advantage, especially if there is no ventilating flue in the ceiling? By such means a circulation of the air in the upper part of the ward could be constantly kept up; and thereby a vent would be given to the volatile putrescent particles. This vent might remain open at all times, without any prejudice to the patients.

'What is said on this subject by Dr. John Armstrong, a gentleman no less remarkable for his benevolence than for his judgment and fine taste, may be properly mentioned here. 'A constant circulation of fresh air is so necessary, so important in fevers, and in all feverish disorders, that it ought to be particularly considered in the construction of houses. It would be well, if in all the apartments of every house, but especially in bed-chambers, the upper sashes of every window were contrived to let down; for by this means the admission of fresh air would at all times be perfectly safe; except during a raw, damp, foggy night; as the body, even when under such a sweat as could not without danger be interrupted, may receive all the refreshing, restorative, and invigorating influence of the air, without being exposed to a stream of it; meantime, where this is wanting, the best method to supply it, is by drawing the bed-curtains close, now and then, for a few minutes at a time, while a free passage is made to the foul air, by opening the doors and windows.' *Medical Essays*, page 22.

'The noxious vapours that fill a sick room are not only offensive, but dangerous to those who continue in it for any time. If dangerous then to people in health, how detrimental must they be to one oppressed and struggling under an enfeebling disease! It is a common thing in a campaign to distribute the sick soldiers, ill of malignant fevers, in open barns, where the putrid volatile poison is in a short time dissipated.

'There is in a volume of the Mémoirs et Observations recueillies par la Société Economique de Berne, a letter concerning the health of the inhabitants of the Pays de Vaud; part of which I beg to present here as bearing a near analogy to this subject. The letter is written by a most accurate and judicious clergyman. 'One fact,' says he, 'deserves to be noticed. Taking one year with another, a greater proportional number always die in towns than in villages. But whence comes it, that when epidemic diseases prevail, the mortality takes quite a different road; that is, it is much more considerable in villages than in towns? I have taken great pains to find out the cause of this phenomenon, and am apt to impute the difference to the difference of habitations. The poor in cities and great towns dwell in houses originally not intended for them; but which being so old and past repairing, as to be no longer tenantable by persons at their ease, fall to the lot of the lower class of people. In these houses the rooms are spacious, cold as ice, where the air plays freely around, with doors and windows that do not half shut. The inhabitants of these shattered houses are pitied; and yet the very circumstance of their being out of repair, is what contributes to the health of those who live in them, and facilitates their cure when diseases reign.'

'The more I see of hospitals, the more I am convinced of the great want of instructions on duly ventilating them.'

The many excellent observations of a variety of eminent men, on a universally interesting topic, may excuse the length of this extract from Mr. Small's 'Essay on Ventilation, containing Dr. Franklin's Observations on the Subject,' lately published in the complete works of Dr. F. 6 vols. 8vo.

The 'Philosophical Survey of Ireland' has this singular passage:—'Smith mentions a Dr. Lyne, of Cork, who, for the last fifty years of his life, never glazed a window in his house; four of which he had in his bed-chamber, two on each side of his bed. It is remarkable, that during all that time, nobody died in the house, till he was himself carried off by the small pox, at the age of eighty-five.—After the windows were glazed by his own son, death became a frequent visitor.'

Air-bag, in botany, or Folliculus, a small distended seed-bag, or bladder, opening on one side, as in the perriwinkle, or bladder-sena, and having the seeds loose in it. Also a name given by Withering to little bags filled with air in other parts of plants, as at the root of the utricalaria.

Air-balloon, in aeronautics, the machine that has of late been so frequently used for the purposes of aerial navigation. See Aeronautics.

Air-bladder, in ichthyology, vessels containing elastic air, found in the bodies of fish, and sometimes called the swim, or swimming-bladder, sometimes the *sound* This membranous bag by means of which, fish elevate, sustain, and sink themselves in water, lies close to the back-bone, and is furnished with a strong muscular coat, by which it has the power of contraction and dilatation. Because it is connected with a glandular substance, which contains a quantity of red blood, some have supposed that the air contained in the swimming-bladder is derived from this substance. Two processes or appendices issue from its anterior part, and terminate in the fauces. But cartilaginous and cetaceous fish, (or sea-animals,) are wholly without air-bladders. This membrane was discovered by observing, that a bubble of air, in rising from the bottom of a fluid, dilates till it reaches the top, by reason of the continual diminution of the weight, or pressure of the incumbent water. The air, in the bladder, is like the bubble, more or less compressed, according to the depth the fish swims at, and takes up less or more space; and consequently the body of the fish, part of whose bulk this bladder is, is greater or less according to the several depths, though it retains the same

weight. Now by a rule of hydrostatics, if the fish in the middle region of the water be of equal weight with an equal bulk of the water, it will rest there, without any tendency either upwards or downwards; and if the fish be deeper in the water, its bulk becoming less by the compression of the bladder, and yet retaining the same weight, it will sink and rest at the bottom: on the other hand, if the fish be higher than the middle region, the air dilating itself, and the bulk of the fish consequently increasing, without any increase of the weight, the fish will rise and rest at the top of the water.

Fish have been supposed to have some power of emitting air out of the bladder, and afterwards out of their bodies; also that when there is not enough, to take in more air, and convey it to this bladder; in which case it will be easily accounted for, that there should be always a proper supply of air in the bodies of fish, according to the depth of water they live in. Perhaps also, by some muscle, the fish can contract this bladder beyond the pressure of the weight of water; and by its sides, or some other defence, keep off the pressure of the water and permit the air to dilate.

In lieu of a bladder, the water-snake, has a large membranous air-bag on its back, which empties and fills with air at pleasure, by an aperture, which it can shut very close, by means of a sort of valve, so that the least globule of water cannot enter without its consent. By this artifice it can enlarge or lessen the bulk of its body, and inhabit all depths of the water. Ray has conjectured that it is by the help of water, which they take in and let out by two holes in the lower part of their abdomen, near to the ventricle, that they ascend and descend; that they sink in the water, by letting in some of it at these holes; the orifices whereof are opened and shut at pleasure, by means of proper muscles, and the water being thus received into the abdomen, which it contracts or dilates at pleasure, that portion of its body becomes, in fact, its air-bladder. In some fish, as carp for instance, the air-bladder is divided into two compartments, in others into three. Some maintain that all fish which have teeth in their jaws, have only a single air-bladder; but this seems no certain criterion. If the air-bladder of a fish be pricked or broken, the fish presently sinks to the bottom, unable either to support or raise itself up again. Flat fishes, as soles, plaice, &c. which always lie grovelling at the bottom, have no air-bladder. Dead fishes are found swimming on the surface of the water, because the muscles of this membrane cease to act; and their bellies are uppermost, as the back-bone cannot yield, and the distended sac is protruded into the abdomen: the back becomes consequently heaviest at its upper part.

In most fishes there is a channel, leading from the gullet, or upper orifice of the stomach to the air-bladder, which doubtless serves for conveying air into it. In a sturgeon it has been observed, that upon pressing the bladder the stomach presently swelled; so in that fish it seems the air passes freely both ways; and possibly the fish may have a power to raise up this valve, and let out air on occasion.

In a variety of other fishes there are communications with some parts of the alimentary canal, particularly the œsophagus and stomach. The salmon has an opening from the fore end of the air-bladder into the œsophagus, which is surrounded by a kind of muscular fibres. The herring has a sort of funnel, connecting the bottom of the stomach with the air-bag; by which the air probably comes out from it.

Dr. Priestley supposes that the air, enclosed in the air-bladder of fishes, serves some further purpose in their economy besides that of enabling them to rise or sink in water. Some fish have no air-bladder, and yet rise or sink without difficulty. That fishes cannot live without air is a well known fact, established long ago by the experiments of Mr. Haukshee. The fishes he employed were gudgeons, which are lively in the water, and which subsist for a considerable time when taken out of it. Having put three of these into a vessel of water which had no communication with the external air, and which was designed to resemble a frozen pond, and other three into a vessel of water exhausted of its air; he observed, that in about half an hour the latter manifested signs of uneasiness by an unusual motion of their mouth and gills; and the former frequently ascended to the top of the vessel in which they were confined and then sunk down again, without any sensible alteration. After five hours the gudgeons in the vessel exhausted of its air, became less active; and in about three hours more those in the confined air lay at the bottom of the vessel with their bellies upwards, without moving their fins or tail, but indicating life by a motion with their mouths. On uncovering the vessel, they revived in two or three hours, and were perfectly well next morning; at which time those in the vessel purged of its air were also recovered. When this last vessel was put under the receiver of an air-pump, and the air was exhausted, they all died. When the air was exhausted they remained at the top, but on its re-admission, they sunk to the bottom. It is not easy to explain the manner in which fishes are supplied with air, nor the benefit they derive from it; nor are the nature and qualities of the air, contained in their air-bladder, satisfactorily ascertained. Priestley confined minows, and other small fish in water without any access of common air, till they died, and upon examining this water, he found that it was somewhat worse than air in which a candle just goes out. Hence he infers, that air contained in water, in an unelastic state, is as necessary to the life of fishes, as air in an elastic state is to that of land-animals. Upon putting fish into water impregnated with phlogisticated air, he found that it was not only injurious, but in process of time fatal to them; although he observes, that fish, like insects and some other exsanguinous animals, can live a considerable time without any thing equivalent to respiration. In mentioning some experiments on the state of the air, which is contained in the air-bladder of fish, he remarks, that when these are taken out of the fish, the air cannot be discharged from them by pressure through any existing aperture, but he was always obliged to cut or burst them. The air itself, obtained from

many of them was not affected by nitrous air; but that of some, particularly of roaches, exhibited slight indications of the effect of this test. It thus appears, that he seldom met with oxygen, and with that only in a small quantity. Exp. and Obs. relating to Nat. Philos. vol. ii. p. 138. Fourcroy found that for the most part, the air contained in the air-vessel of the carp, was perfectly pure azotic gas, though it sometimes contained a small quantity of carbonic acid gas. From the nature of the fluid, he infers, that the air in the bladders of fishes is produced in the stomach. Ann. de Chem. i. 47. Dr. Monro, in his lectures, led his auditors to conclude, that it was fixed air. But Dr. Brodbelt of Jamaica, collecting about a quart of the air from the bladder of a large sword-fish, which, he says, consisted of innumerable cells that had no communication with one another, found to his surprise that it was oxygen. A flame was brightened and an ignited stick was rekindled by it; and it was so strong and pure, that the common experiment of a piece of steel-wire, heated and put into it, succeeded well, and threw out a most vivid light when melting. This pure air, he supposes, is adapted to serve the purposes of life, when the fish is far below the surface of the water. *Duncan's Ann. of Med.* for 1796, p. 393.

Air-bladders, or Air-bags, in ornithology, cells or receptacles of air in the bodies of birds, which are found to be lodged both among the fleshy parts, and in the hollow bones of these animals. Hunter contends that the air-cells, which are found in the soft parts of birds, have no communication with the cavity of the common cellular membrane of the body; some of them communicate immediately with one another; and all of them may be said to have a communication together, by means of the lungs as a common centre. Some are placed in larger cavities, such as the abdomen; others are so lodged in the interstices of parts, that they would, at first, appear to be the common connecting membrane, as about the breast, axilla, &c. The bones, which receive air are of two kinds; some, as the sternum, ribs, and vertebræ, have their internal substance divided into innumerable cells; whilst others, as the os humeri and the os femoris, are hollowed out into one large canal. These bones may be distinguished from those that do not receive air, by their less specific gravity; by being less vascular, and consequently whiter, than others; by containing little or no oil; by having no marrow nor bloody pulpy substance, even in their cells; by not being, in general, so hard and firm as other bones; and by the ease with which the passage that conveys the air into the bones may be perceived. The mechanism by which the lungs are adapted for communicating air to the above-mentioned parts consists principally in the attachment of the lungs to the diaphragm and their connection with the ribs and sides of the vertebræ. These adhesions are peculiar to this tribe of animals. For the communication of the air from the lungs to the other parts, the diaphragm is perforated with large holes, which open a free passage between the cells of the lungs and the abdomen: to each of these perforations is annexed a distinct membranous bag, which is very thin and transparent, and these bags, which receive the air, are extended over the whole abdomen. The lungs open at their anterior part, or towards the sternum, into membranous cells, which lie open upon the sides of the pericardium, and communicate with the cells of the sternum. The superior part of the lungs opens into large cells of a loose net work, through which the trachea, œsophagus, and large vessels, in their way from and to the heart pass. When these cells are distended with air, the size of the part where they lie is enlarged, and this distension indicates passion, as appears in the turkey-cock, pouting pigeon, &c., and in the breast of a goose, when it cackles. These cells communicate with others in the axilla, under the large pectoral muscle, &c.; and those again with the cavity of the os humeri by small openings in the hollow surface, near the head of that bone. The posterior edges of the lungs, which lie on the sides of the spine, and project backwards between the ribs, open into the cells of the bodies of the vertebræ, ribs, canal of the medulla spinalis, sacrum, and other bones of the pelvis; and thus the air finds a passage to the cavity of the thigh-bone. This supply of the bones with air is not wholly by means of the lungs; for the cells of the bones of the head, in some birds, are filled with it, as in the case of the owl, which has the diploe between the two plates of the scull cellular, and capable of admitting a considerable quantity of air from the Eustachian tube.

Hunter finally conjectures that these air-bladders are to be considered as appendages to the lungs; and that they answer the same purpose with the two bags that form the lungs of amphibious animals, which are continued down through the belly, the upper part of which performs the office of respiration, and the remainder of which is a reservoir of air. In consequence of this conformation, these animals can breathe less frequently than others; and birds are thus aided in their flight, which must render frequency of respiration difficult, and a reservoir of air singularly useful. He farther suggests that this construction of the respiratory organs may assist birds in singing; and that the long continuance of the song of a canary-bird between its breathings may be owing to this cause. See *Philos. Trans.* vol. lxiv. p. 205. Dr. Latham, Linnæan Transactions, vol. iv. p. 94, queries, whether this construction may not enable some birds to dive and stay for a considerable time under water. According to Dr. Monro, these air vesicles are of considerable use in two respects. They serve, by distending the lungs with air, to render the bodies of birds specifically light, and also to straiten the trachea arteria, and thus return the air; and moreover to supply the place of a muscular diaphragm and strong abdominal muscles, and thus to aid the exclusion of the eggs and fæces.

Air-cane, an air-gun adapted to the shape and dimensions, and commonly carried about as a walking-stick,—see the following article. It is the same in principle as the air-gun, the only difference being, that the syringe is applied to the extremity of the barrel, and the lock

and trigger shut up in a brass case, and the trigger pulled, or the discharge made by pulling the chain. In this form of the machine, there is a round chamber for the condensed air; and it has a valve acting in a similar manner to that of the copper ball.

The Air-gun is a pneumatic instrument for the projection of bullets by the condensation of air. The ancients were certainly acquainted with the principles of its construction, as well as the general properties of air. Aristotle speaks of all the elements having weight, with the exception of fire; and Plutarch and Strobœus represent him as having taught, that the weight of air was between that of fire and earth. The last philosopher also quotes Empedocles, as attributing the action of respiration to the pressure of air, by which it insinuates itself into the lungs. Hero, of Alexandria, in his works, Spiritalia, applies the principle of the elasticity of the air to explain various phenomena, and in such a way as sufficiently to prove that he was no stranger to its common properties. Ctesibus adopting the principle of electricity, as well known, constructed 'wind-guns,' between which, and the modern air-gun, there was only this difference, that in the former the ball was not immediately exposed to the action of the air, but was impelled by the longer arm of a lever, while the air acted on the shorter; but the principle of operation is the same in both, and shows clearly that the elastic property of common air, if it could not be accurately measured, was at least well known at that time. The first modern account of an air-gun which we meet with, is in the Elemens d'Artillerie of David Rivaut, who was preceptor to Louis XIII. He ascribes the invention to Marin, of Lisieux, who presented one to Henry IV. of France.

The elasticity of condensed air has been estimated as equal to about 1000 times that of common air: admitting, therefore, this to be correct, (although there seems to be great reason to suppose it to be under-rated) it would be necessary that air should be condensed 1000 times more than in its natural state, to produce the same effect as gunpowder. There is, however, this important consideration to be attended to, viz. that the velocities with which equal balls are impelled, are directly proportional to the square roots of the forces; so that if the air in an air-gun be condensed only ten times, the velocity with which it will project a ball will be one-tenth of that arising from gunpowder; and if the air were condensed twenty times, it would communicate a velocity of one-seventh of that of gunpowder, and so on.

But air-guns project their balls with a much greater proportion of velocity than that stated above, for this reason, that as the reservoir, or magazine of condensed air, is commonly very large in proportion to the narrow tube which contains the ball, its density is very little altered by expanding through that tube, and, consequently, the ball is urged all the way by nearly the same uniform force as at the first instant; whereas the elastic fluid arising from inflamed gunpowder, is but very small in proportion to the tube or barrel of the gun, occupying, indeed, but a very small portion of it next the butt-end and, therefore, by dilating into a comparatively large space as it urges the ball along the barrel, its elastic force is proportionally weakened, and it acts always less and less on the ball in the tube. Whence it happens that air condensed into a pretty large machine only ten times, will project its ball with a velocity but little inferior to that given by gunpowder; and if the valve of communication be suddenly shut again by a spring, after opening it to let some air escape, then the same charge may serve to impel several balls in succession. In all cases where a considerable force is required, and, consequently, a great condensation of air, it will be requisite to have the condensing syringe of a small bore, perhaps not more than half an inch in diameter; otherwise the force requisite to produce the compression will become so great, that the operator cannot work the machine; for, as the pressure against every square inch is about 15 lbs., and against every circular area of an inch diameter, 12 lbs.; if the syringe be an inch in diameter, it will require a force of as many times 12 lbs. as the density of the air in the receiver exceeds that of the common atmosphere; so that when the condensation is ten times, the force required will be 120 lbs.; whereas, with a half-inch bore, it will only amount to 30 lbs.

The common air-gun is made of brass, and has two barrels; the inside barrel A, plate II. fig. 10, which is of a small bore, from whence the bullets are exploded; and a large barrel, E C D R, on the outside of it. There is a syringe, S M P, fixed in the stock of the gun, by which the air is injected into the cavity between the two barrels through the valve E P. The ball K is put down into its place in the small barrel, with the rammer, as in any other gun. At S L is another valve, which, being opened by the trigger O, permits the air to come behind the bullet so as to drive it forwards. If this valve be opened and shut suddenly, one charge of condensed air may be sufficient for several discharges of bullets; but if the whole air be discharged on one single bullet it will drive it out with a greater force. This discharge is effected by means of a lock, fig. 13, placed as in other guns; for the trigger being pulled, the cock will go down and drive the lever O, fig. 10, which will open the valve, and let in the air upon the bullet K.

An improvement of this air-gun has been made by Dr. Ellis, in which the chamber containing the condensed air is not in the stock, but in five or six hollow copper balls, about three inches in diameter. These are fitted to a screw on the lock of the gun, and are so furnished with valves as to retain at pleasure the air forced into their cavities, whereby they may be carried about from place to place, ready charged with condensed air, and the gun itself is rendered as light and portable as the smallest fowling-piece.

The best construction, of modern times, has, however, been suggested by the late Mr. B. Martin, and is represented fig. . A is the barrel with the lock, stock, ram-rod, &c. of the size and weight of a common fowling-piece. Under the lock at *b*, is a round steel tube, having a small moveable pin in the inside, which is pushed out when the

ger *a* is pulled, by the spring work within the k; to this tube, a hollow copper ball *c*, screws fectly air-tight. This copper ball is fully rged with condensed air by the syringe, B 9, previous to its being applied to the tube *b* fig. 11. It is then evident that if a bullet be med down in the barrel, the copper ball ewed fast at *b*, and the trigger *a* be pulled, t the pin in *b* will, by the action of the spring rk within the lock, forcibly strike out into copper ball, and thereby in pushing suddenly alve within the copper ball, let out a portion the condensed air; which air will rush up ough the aperture of the lock, and forcibly act inst the bullet, driving it to the distance of sixty seventy yards, or further. If the air is strongly ndensed, at every discharge only a portion of air escapes from the ball; therefore, by re-king the piece, another discharge may be made; l thus repeated to the amount of fifteen or six-n times. An additional barrel is sometimes de, and applied for the discharge of shot, in-ad of the one above described. The air in the pper ball is condensed by means of the syringe, fig. 9, in the following manner. The ball *c* is ewed quite close on the top of the syringe. the end of the steel-pointed rod *a*, is a stout g through which passes the rod *k*: upon this l the feet should be firmly set; then the hands e to be applied to the two handles *i i*, fixed on e side of the barrel of the syringe. Now by ving the barrel B steadily up and down on e rod *a*, the ball *c* will become charged with ndensed air; and it may be easily known en the ball is as full as possible, by the ir-sistible action that the air makes against the ston when you are working the syringe. At e end of the rod *k* is usually a four-square hole, hich, with the rod, serves as a key to fasten the ll *c* fast on the screw *b* of the gun and syringe, ose to the orifice in the ball *c*. In the middle fixed a valve and spring which gives way for e admission of air; but upon its emission comes ose up to the orifice, shutting up the internal r. The piston rod works air-tight by a collar leather on it, in the barrel B; it is therefore lain, when the barrel is drawn up, the air will ush in at the hole *h*. When the barrel is pushed own, the air therein contained will have no other ay to pass from the pressure of the piston but nto the ball *c* at top. The barrel being drawn p, the operation is repeated, until the conden-ation is so strong as to resist the action of the iston. Sometimes the syringe is applied to the nd of the barrel C, see fig. 12, the lock and rigger shut up in a brass case *d*; and the trigger ulled, or discharge made, by pulling the chain *b*. n this contrivance there is a round chamber for he condensed air at the end of the syringe at *e*, nd it has a valve acting in a similar manner to hat of the copper ball. When this instrument s not in use, the brass case *d* is made to slide ff, and the instrument then becomes a walking tick; from which circumstance, and the barrel eing made of cane, brass, &c. it has received he appellation of air-cane. The head of the cane unscrews and takes off at *a*, where the ex-tremity of the piston rod in the barrel is shown: an iron rod is placed in a ring at the end of this, and the air condensed in the barrel in a similar manner to that of the gun as above; but its force of action is not near so strong and permanent as that of the latter.

M. L. Colbe's magazine air-gun is also an improvement of the common air-gun. By his contrivance ten bullets are so lodged in a cavity; near the place of discharge, that they may be drawn into the shooting barrel, and successively shot so quickly, as to be nearly of the same use with so many different guns; the only motion required, when the air has been previously injected, being that of shutting and opening the hammer, and cocking and pulling the trigger. In fig. 18 is exhibited a section of the gun, as large in every part as the gun itself; and so much of its length is shewn as is necessary to give a complete idea of the stock; G is the end of the injecting syringe, with its valve H; opening into the cavity, F F F F between the barrels. K K is the small or shooting barrel, which receives the bullets, one at a time from the magazine, E D, which is a serpentine cavity, wherein the bullets, *b*, *b*, &c. are lodged, and closed at the end, D. The circular part, S I *s k* M *i*, is the key of a cock, having a cylindrical hole, I K, through it, equal to the bore of the small barrel, and forming a part of it in the present situation. When the lock is taken off, the several parts, Q, R, T, S, W, &c. come into view, by means of which the discharge is made by pushing up the pin, P *p*, which raises and opens a valve, V, to let in the air against the bullets, I, from the cavity, F F F; which valve is immediately shut down again by means of a long spring of brass, N N. This valve V, being a conical piece of brass, ground very true in the part which receives it, will of itself be sufficient to confine the air. To make a discharge, pull the trigger, Z Z, which throws up the seer, *y x*, and disengages it from the notch, *x*; upon which the strong spring, W W, moves the tumbler, T, to which the cock is fixed. The end, *u*, of this tumbler bears down the end, *v*, of the tumbling lever, R, which, by its other end, m, raises the flat end, *l*, of the horizontal lever, Q, by which means the pin, P *p*, is pushed up, and opening the valve, V, discharges the bullet; all which is evident from a bare view of the figure.

To bring another bullet instantly to succeed I, there is a part, H, called the hammer, represented in fig. 19, and fig. 20, which by a square hole goes upon the square end of the key of the cock, and turns it about, so as to place the cylindric bore of the key I *k*, in any situation required.

Thus, when the bullet is in the gun, the bore of the key coincides with that of the barrel K K; but when it is discharged, the hammer, H, is instantly brought down to shut the pan of the gun; by which motion the bore of the key is turned into the situation *i k*, so as to coincide with the orifice of the magazine; and upon lifting the gun upright, the ball next the key tumbles into its cavity, and falling behind two springs, *s s*, fig. 18, is by them detained. Then lifting the hammer again, the ball is brought into its proper place, near the discharging valve, and the bore of the key again coincides with that of the shooting-barrel. It appears how expeditious a

method this is of charging and discharging a gun; and if the force of condensed air was as great as that of gunpowder, such an air gun would actually answer the end of many guns, and prove the best defence against highwaymen or robbers; because, when there is reason to suspect them, they might then make five or six discharges before the robber could come within pistol-shot.

AIR-JACKET, a sort of jacket made of leather, in which are several bags, or bladders, composed of the same materials, communicating with each other. It is designed for the use of bathers and young swimmers. The bags or bladders are filled with air through a leather tube having a brass stop-cock accurately ground at the extremity, by which means the air blown in through the tube is confined to the bladders. The jacket must be wet before the air be blown into the bladders, as otherwise, it will immediately escape through the pores of the leather. By the help of these bladders, which are placed near the breast, the person is supported in the water.

The AIR-LAMP is formed by a combination of inflammable air and electricity: and although depending upon principles different from the foregoing instruments, is generally classed with pneumatic machines. The construction of it is as follows:

A, fig. 57, is a glass jar, containing inflammable air, B an open glass urn holding water, by the pressure of which, the air is forced out of the jar A, through the brass pipe *a*; C is the stop-cock, so perforated that the water may descend from B into A, and the air pass out through the pipe *a*. By turning the bar of the stop-cock into a horizontal position, the communication between the two vessels is cut off, and the passage of the air obstructed; but by placing it in a vertical position, the communication is again opened. The lower jar A is supplied with inflammable air by means of the bladder, fig. 58, and two bladders of this kind are attached to each lamp. The method of using the machine is as follows: Take off the cover D from the lamp, and turn the stop-cock upwards, then pour as much clean water into it as will fill the vessel A up to the pipe *a*, unscrew this pipe, and put in its place the small brass piece W, and to this screw one of the stop-cocks and bladder, fig. 58.

With the bladder under one arm, and with one hand applied to the cock at C, while the other is directed to the bladder, press the latter, and at the same time open the apertures; by which means, the air will be forced upon the water in A, and driven up the glass pipe through the tube into B. When the vessel A is thus charged with air, the stop-cocks are to be turned, so as to cut off the communication with the external air; and care must be taken that the common atmospheric air does not mix with the inflammable; for, if this takes place, the explosion would be great, and might be attended with unpleasant circumstances.

For lighting the lamp the electric fluid is employed, the apparatus being as follows: The wooden base E F, fig. 59, is a sort of box, about twelve inches square, and five inches deep; and in this is placed an electrophorus, consisting of a resinous cake *c*, and metallic plate *d*, which, by a hinge at its back, admits of being pulled upwards and downwards by the silken string *b*, connected both with it and with the stop-cock C. When this cake is once excited, its electric effect upon the metallic plate will be continued a long time. A metallic chain G, communicates with a wire and ball, passing through a brass tube below, in the box over the plate; and above, with a fine wire passing through a glass tube. This upper wire is bent to about one-eighth of an inch distance from the flame-pipe. It is evident that when the electrophorus in the box is previously excited, and the stop-cock C turned, the silken string *b* will raise the metallic plate; and this will give an electric spark to the ball and wire above, which will convey it instantly to the flame-pipe, and inflame the air issuing out of the pipe, in consequence of the pressure of the water in its descent into the vessel A. The cock C being turned back, the flame ceases; and turned again, appears; and will serve to light a candle, match, &c. whenever it may be thought proper.

The number of times in which light may be produced will be very great, depending on the quantity of inflammable air in the vessel A. If the cock be not turned back, the flame will continue till the whole of the inflammable air is consumed. The light thus produced will be sufficient for reading a large print in the night, or seeing the hour by a watch. When the electrophorus is to be excited, the silken string *b* is unhooked from the plate, and the apparatus taken out of the box; and the metallic plate is lifted up, whilst with a silken string, or dry cat-skin rubber, you may briskly rub the surface of the resinous cake. About 20 revolutions in rubbing will be sufficient, so that the plate will give a spark to the knuckle about the distance of an inch; and by the strength of the spark the degree of excitation is to be estimated. The silken string and small glass tubes, through which the wire G passes, should always be very dry, that the passage of the electrical spark may be quite perfect. The whole length of this apparatus is about 22 inches; but it may be made of any dimensions. Dr. Ingenhousz used a small apparatus, constructed upon a similar principle, in obtaining light for domestic purposes, both when at home and on his travels. Adams's Lectures, by Jones, vol. ii. p. 99, &c.

AIR-PIPES, are an invention for drawing foul air out of ships, or any other close places, by means of fire, and were first suggested by Mr. Sutton, a brewer in London; from him they received the name of Sutton's air-pipes. The principle on which their operation depends, is this simple one, that air is necessary for the support of fire; and, if it have not access from the places most adjacent, it will not fail to come from those that are more remote. Thus, in a common furnace, the air enters through the ash-hole; but if this be closed up, and a hole made in the side of a furnace, the air will rush in with great violence; if a tube of any length whatever is inserted, the air will rush through the tube into the fire, and of consequence there will be a continued circulation of air in that

place where the extremity of the tube is laid. Mr. Sutton's contrivance, as communicated to the Royal Society by Dr. Mead, is thus described:—'As, in every ship of any bulk, there is already provided a copper or boiling-place, proportionable to the size of the vessel; it is proposed to clear the bad air, by means of the fire already used under the said coppers or boiling-places for the necessary uses of the ship. It is well known, that, under every such copper or boiler, there are placed two holes, separated by a grate; the first of which is for the fire, and the other for the ashes falling from the same; and that there is also a flue from the fire-place upward, by which the smoke of the fire is discharged at some convenient place of the ship. It is also well known, that the fire once lighted in these fire-places, is only preserved by the constant draught of air through the forementioned two holes and flue; and that if the said two holes are closely stopped up, the fire, though burning ever so briskly before, is immediately put out. But if, after shutting up the above-mentioned holes, another hole be opened, communicating with any other room or airy place, and with the fire, it is clear, the said fire must again be raised and burn as before, there being a like draught of air through the same as there was before the stopping up of the first holes; this case differing only from the former in this, that the air feeding the fire, will now be supplied from another place. It is therefore proposed, that, in order to clear the holds of ships of the bad air therein contained, the two holes above-mentioned, the fire-place and ash-place, be both closed up with substantial and tight iron-doors; and that a copper or leaden pipe, of sufficient size, be laid from the hold into the ash place, for the draught of air to come in that way to feed the fire. And thus it seems plain, from what has been already said, that there will be, from the hold, a constant discharge of the air therein contained; and consequently, that the air, so discharged, must be as constantly supplied by fresh air down the hatches or such other communications as are opened into the hold; whereby the same must be continually freshened, and its air rendered more wholesome and fit for respiration. And if into this principal pipe so laid into the hold, other pipes are let in, communicating respectively, either with the well or lower decks, it must follow, that part of the air, consumed in feeding the fire, must be respectively drawn out of all such places to which the communication shall be so made.' It is evident, that, by means of pipes of this kind, a constant circulation of fresh air would be occasioned through those places where it would otherwise be most apt to stagnate and putrefy. Several other contrivances have been used for the same purpose; and Doctor Hale's ventilators have, by some, been reckoned superior in efficacy, and even simplicity, to Mr. Sutton's machine.

A machine capable of answering the same purpose was invented by Mr. Desaguliers, which he called the ship's lungs. It consisted of a cylindrical box set up on its edge, and fixed to a wooden pedestal. From the upper edge of the box issued a square trunk open at the end, and communicating with the cavity of the box. Within this box was placed a cylindrical wheel turning on an axis. It was divided into thirteen parts, by means of partitions placed like the radii of a circle. These partitions did not extend quite to the centre, but left an open space of about eighteen inches diameter in the middle: towards the circumference, they extended as far as possible without interfering with the case, so that the wheel might always be allowed to turn freely. It is plain, that if the wheel were now turned towards that side of the box on which the trunk was, every division would push the air before it, and drive it out through the trunk, at the same time that fresh air would come in through the open space at the centre, to supply that which was thrown out through the trunk. By turning the wheel swiftly, a strong blast of air would be continually forced out through the square trunk, on the same principles on which a common fanner winnows corn. If the wheel is turned the opposite way, a draught of air may be produced from the trunk to the centre. If this machine, then, is placed in a room where a circulation of air is wanted, and the trunk made to pass through one of the walls; by turning the wheel swiftly round, the air will be forced with great velocity out of that room, at the same time that fresh air will enter, through any chinks by which it can have access, to supply that which has been forced out. It is evident, that the circulation which is promoted by this machine, is entirely of the same kind with that produced by Mr. Sutton's; the turning of the wheel in Mr. Desagulier's machine being equivalent to the rarefaction of the air by fire in Mr. Sutton's; but that the latter is vastly superior, as acting of itself, and without intermission. Mr. Sutton's machine has yet another conveniency, of which no other contrivance for the same purpose can boast; namely, that it not only draws out putrid air, but destroys it by causing it to pass through fire; and experience has abundantly shown, that though putrid air is thrown into a great quantity of fresh air, it is so far from losing its pernicious properties, that it often produces noxious diseases. We do not say, indeed, that putrid air becomes salutary by this means; but it is undoubtedly rendered less noxious than before; though, whether it is equally innocent with the smoke of fire fed in the common way, we cannot pretend to determine. Besides this machine by Mr. Desagulier, and the ventilators of Dr. Hale, already mentioned, those called wind-sails, are likewise used for the same purpose. The former of which is an improvement of the Hessian bellows, see VENTILATOR; the other is a contrivance for throwing fresh air into those places where putrid air is apt to lodge; but this has the last mentioned inconvenience in a much greater degree than any of the others, as the blast of fresh air throws out that which was rendered putrid by stagnation, in such a manner as to contaminate all around it. See WIND-SAILS.

AIR-PUMP, in PNEUMATICS. The discovery of this pneumatic instrument was perhaps the most important event connected with the history of that science. It is ascribed to Otto de Gue-

ricke, the consul of Magdeburg, who exhibited his first public experiments with it before the emperor and the states of Germany, at the breaking up of the Imperial diet, at Ratisbon, in the year 1654; and his description of the instrument, and of the experiments performed upon it, were first published in his Experimenta nova Magdeburgia de Vacuo Spatio, in the year 1672; but like many other important inventions and discoveries, its true origin has been warmly contested. Dr. Hook and M. Duhamel ascribe the invention of the air-pump to Mr. Boyle; but that ingenious philosopher frankly confesses, that 'De Guericke was before-hand with him.' In a letter which Boyle wrote to his nephew, Lord Dungarvon, at Paris, about two years after Schottus's book was published, he introduces the acknowledgment of his obligation for the discovery of this useful machine, to what he had heard of it, though he had not perused it, by that well-applied passage of Pliny, 'benignum est et plenum ingenui pudoris fateri per quos profeceris.' Some attempts, he assures us, he had made upon the same foundation, before he knew any thing of what had been done abroad; but the information he afterwards received from Schottus's Mechanica Hydraulico Pneumatica, published in 1657, wherein was given an account of De Guericke's experiments, first enabled him to bring his own instrument to maturity. Hence, with some assistance from Dr. Hook, arose a new air-pump, more simple and manageable than the German original, but this noble instrument has since received various modifications and improvements. We shall now, therefore, give a sketch of De Guericke's pump, and the one first constructed by Mr. Boyle, that contrasting them with the modern instruments, the progress of this important invention may be clearly traced. De Guericke's machine is exhibited in plate I. fig. 1, PNEUMATICS. It consists of an iron three-legged frame *a b c d f*, supporting a round iron plate *b c*, in the middle of which is inserted a brass syringe *g h*. The upper part of this syringe is furnished with a rim of lead *y*, fig 1-*a*, and it is fastened below by means of an iron ring *k*, *k*, and three iron arms, *o*, *o*, *o*, to the legs of the frame. Within the rim *y* there is a brass plate, *m n* fig. 1-*b*, encompassed by a ring of leather, and fixed by three screws, which terminate upwards in a small tube *n*, into which the pipe connected with the vessel to be exhausted is inserted as occasion requires. To this, on the lower side, is adapted a valve of leather, through which the air passes into the syringe. In this plate there is also another small valve at *z*, opening upwards, through which it escapes; the plate being covered by a copper vessel, *x*, *x*, intended for containing water. The piston of the syringe *s h*, fig. 1, and fig. 1-*c*, is connected by a joint at *t*, with the iron rod *t u*, which is fastened to the handle *w u u*, and this moves round the pin at *w*, by which it is connected with one of the legs of the frame. In order to prevent the air from entering into the syringe, a copper vessel of water is suspended by hooks to the arms *o*, *o*, *o*, so that the lower part of the syringe at *k*, *k*, and the piston, may be always covered with water when the machine is at work.

The receiver L is a glass sphere, adapted to a brass cap *p p*, which has a pipe with a stop-cock *q r*, and this pipe is fitted to the tube *n* above-mentioned. From this brief description of the machine, its operation may be easily understood. When the piston *s h* is depressed, the air will be expanded in the syringe *g h*, and that of the receiver, will descend into it through the valve in the lower surface of the plate *m n*; but when the piston is elevated, and the air is compressed, this valve, shutting upwards, will close the passage to the receiver, and make it escape through the valve *z*, which opens upwards. In order to render the exhaustion more complete, a small exhausting syringe is adapted to the plate, which is represented at *m*.

Considering that at this time the elastic property of the air was but little known, this machine has not perhaps more defects than were to be expected in a first attempt; but amongst others, the labour of working it was very considerable, and its operation very slow; moreover, being worked under water, the number of experiments that might be performed upon it was very limited.

Mr. Boyle's air-pump is represented in the same plate fig. 2. It consisted of a spherical receiver A, with a hole at the top, whose diameter B C was about four inches; this was covered with a plate, having a brass rim D E, which was firmly cemented to the ring of glass that surrounded the hole, and to the tapering orifice of the brass rim was adapted a brass stopple F G, ground so exactly as to prevent, as much as possible, the admission of air. In the centre of the cover was a hole, of about half an inch diameter, provided with a socket; to which the brass stopple K was so fitted as to prevent the entrance of the air; the lower part of this stopple was perforated with a hole, and through this passed a string for the convenience of moving to and fro the subjects of experiments. To the neck of the receiver a stop-cock N was fastened, and to the shank of the cock X, a tin plate, M T U W, was so cemented as to prevent the admission of air. The lower part of the machine consisted of a wooden frame with three legs, *a*, *a*, *a*, and a transverse board *b*, *b*, *b*, on which the pump rested. The cylinder of the pump was cast brass, and it was fitted with a sucker, of which one part was covered with shoe leather, so as exactly to fill the cavity of the cylinder; and to this was fastened the other part, which was a thick narrow plate of iron *e e*, somewhat longer than the cylinder, indented on one edge with narrow teeth, so as to admit the corresponding teeth of a small iron nut, fastened by two staples to the under side of the transverse board *b*, *b*, *b*. On this the cylinder rested, and was turned to and fro by means of the handle *f*. The last part of this cylinder is the valve R, consisting of a hole bored through at the top of the cylinder, somewhat tapering towards the cavity, into which a ground peg of brass is fitted, to be taken out or put in at pleasure. In order to prevent more effectually the admission of air, and to prepare the sucker of the pump for motion, a quantity of oil was poured in at the top of the receiver, and also into the cylinder. The

operator having fixed the lower shank of the stop-cock into the upper orifice of the cylinder, turns the handle, and thus forces the sucker to the top of it, so that no air may be left in its upper part. Then shutting the valve with the plug, and turning the handle the other way, he draws down the sucker to the bottom of the cylinder, and thus its cavity, into which no air is admitted, will be in an exhausted state. By turning the stop-cock, and opening a passage between the cylinder and the reservoir, the air contained in the one will descend into the other; and this air being prevented from returning, by turning back the key of the stop-cock, will be made to open the valve, and to escape into the external air, by forcing the sucker to the top of the cylinder; thus, alternately moving the sucker upwards and downwards, turning the key, and stopping the valve, as occasion requires, the exhaustion may be carried on to any extent.—We now pass to

AIR-PUMP, BOYLE'S, AS IMPROVED BY HAWKESBEE.—The description of this machine as given by Desaguliers, in vol. ii. of his Exper. Philos. is as follows: It consists of two brass barrels *a a*, *a a*, fig. 22, twelve inches high and two wide. The pistons are raised and depressed by turning the winch *b b*. This is fastened to an axis passing through a strong-toothed wheel, which lays hold of the teeth of the racks *c c c c*, the one being raised, while the other is depressed; by which means the valves, which are made of limber bladder, fixed in the upper part of each piston, as well as in the openings into the bottom of the barrels, perform their office of discharging the air from the barrels, and admitting into them the air from the receiver to be afterwards discharged; and when the receiver becomes pretty well exhausted of its air, the pressure of the atmosphere in the descending piston is nearly so great, that the power required to raise the other is little more than is necessary for overcoming the friction of the piston; this renders the pump preferable to all others, which require more force to work them as the rarefaction of the air in the receiver advances. The barrels are set in a brass dish about two inches deep, filled with water or oil to prevent the insinuation of air. The barrels are screwed tight down by the nuts *e e*, *e e*, and thus force the frontispiece *f f* down on them, through which the two pillars, *g g*, *g g*, pass.

From between the barrels rises a slender brass pipe *h h*, communicating with each by a perforation in the transverse piece of brass on which they stand. The upper end of this pipe communicates with another perforated piece of brass, which screws on underneath the plate *i i i i*, of ten inches diameter, and surrounded with a brass rim to prevent the shedding of water used in some experiments. This piece of brass has three branches: first, an horizontal one communicating with the conduit-pipe *h h*. Second, an upright one screwed into the middle of the pump-plate, and terminating in a small pipe *k*, rising about an inch above it. Third, a perpendicular one, pointing downwards in the continuation of the pipe *k*, and having a hollow screw in its end receiving the brass cap of the gage-pipe *l l l l*, which is of glass, thirty-four inches long, and immersed in a glass cistern, *m m*, filled with mercury. This is covered on the top with a cork float, carrying the weight of a light wooden scale divided into inches, which are numbered from the surface of the mercury in the cistern; and the scale will therefore rise and fall with the mercury in the cistern, and indicate the true elevation of that in the tube.

There is a stop-cock immediately above the insertion of the gauge-pipe, by which its communication may be cut off; and another at *n*, by which a communication is opened with the external air, for allowing its re-admission; there is sometimes also another, immediately within the insertion of the conduit-pipe, for cutting off the communication between the receiver and the pump. This is particularly useful when the rarefaction is to be continued long, as there are by these means fewer chances of the insinuation of air by the many joints. The receivers are made tight by simply setting them on the pump-plate with a piece of wet or oiled leather between; and the receivers, which are open at the top, have a brass cover set on them in the same manner. In these covers there are perforations and contrivances for various purposes. The one in the figure has a slip wire passing through a collar of oiled leather, having a hook or a screw in its lower end for hanging any thing on, or for producing a variety of motions. Sometimes the receivers are set on another plate, which has a pipe screwed into its middle, furnished with a stop-cock and a screw, fitting the middle pipe *k*. When the rarefaction has been made in it the cock is shut, and then the whole may be unscrewed from the pump, and removed to any convenient place. This is called a *transporter-plate*.

It only remains to explain the gage *l l l l*. In the ordinary state of the air its elasticity balances the pressure of the incumbent atmosphere. We find this from the force that is necessary to press it into less bulk in opposition to this elasticity. Therefore the elasticity of the air increases with the vicinity of its particles; consequently it is reasonable to expect, that when we allow it to occupy more room, and its particles are further asunder, its elasticity will be diminished, though not annihilated; that is, it will no longer balance the WHOLE pressure of the atmosphere, though it may still balance part of it. If, therefore, an upright pipe have its lower end immersed in a vessel of mercury, and communicate by its upper end with a vessel containing rarefied, and therefore less elastic, air, we should expect that the pressure of the air will prevail, force the mercury into the tube, and cause it to rise to such a height that the weight of the mercury, added to the elasticity of the rarefied air, acting on its upper surface, shall be exactly equal to the whole pressure of the atmosphere. The height of the mercury is the measure of that part of the whole pressure which is not balanced by the elasticity of the rarefied air, and its deficiency from the height of the mercury in the Torricellian tube, is, in like manner, the exact measure of this remaining elasticity. It is evident, therefore, that the pipe will be a scale of the elasticity of the remaining air, and will indicate the degree of rarefaction; for there must be some analogy be-

tween the density of the air and its elasticity, and we have seen, (except in extreme cases of condensation and rarefaction) that they increase and diminish together and according to the same law. This gage must be considered as one of the most important improvements introduced into this machine by Hawkesbee; at the same time it must be acknowledged to have certain imperfections and inconveniences attending it, which are obviated in other contrivances of a like kind.

It will be immediately perceived, that air-pumps merely serve to rarefy the air to a greater or less degree, and that none of them can produce a complete exhaustion. But, independent of this theoretical impossibility, there are mechanical defects which prevent us from carrying on the exhaustion according to the law laid down in theory; few pumps will bring the mercury, in such a gage as that above described, to within one-tenth of an inch; and that of Hawkesbee's, fitted up according to his own instructions, will seldom bring it within one-fifth. Pumps with cocks of the best construction, and under the most favourable circumstances, will bring it within one-fortieth; but this degree of rarefaction has never been attained, when valves fitted up with wet leather were employed: in such cases, one-fifth of an inch is the least that the gage falls short of the Torricellian column. Pumps with stop-cocks, when well made and newly put together, are generally found to rarefy the air to a greater degree than those which are made with valves; but after being used for some time they become less accurate than those with valves. The valves, however, are also imperfect, because the external air, pressing upon that in the piston, prevents its rising when the elastic force of air in the receiver under exhaustion is much diminished; and attempts have therefore been made, particularly by the Abbé Nollet and Gravesande, to perfect the construction of cocks.

In the latter author's double-barrelled-pump, the cocks at the bottom of the pistons are turned by an apparatus that is moved by the handle of the pump. The piston has no valve, and the rod is connected with it by a stirrup, as in a common pump. This rod has a cylindrical part, which passes through the stirrup and moves stiffly in it, through the space of about half an inch, between a shoulder above and a nut below. The stirrup supports a round plate, which has a short square tube that fits tight into the hole of a piece of cork, and which has also a square shank that goes into the square tube. Between the plate and the cock is put a piece of thin leather, soaked in oil, and another is placed between the cork and the plate, which forms the sole of the stirrup. When the winch is turned to raise the piston from the bottom of the barrel, the friction of the piston against it keeps it in its place, and the rod is drawn up through the stirrup. The wheel has thus liberty to turn about an inch, and this is sufficient to turn the cock, so as to cut off the communication with the external air, and to open that with the receiver. When this is done, the continued motion serves to raise up the piston to the top of the barrel. When the winch is turned in the opposite direction, the piston remains fixed till the cock is turned, so as to shut the communication with the receiver and open that with the external air. The cock has one perforation diametrically through it, and another in a perpendicular direction to this, and after reaching the centre, it passes along the axis of the cock, and communicates with the external air. By means of this communication, when it is opened, the air rushes in and balances the pressure on the upper side of the piston in this barrel, so that the pressure on the other must be counteracted by the person who works the pump. In order to obviate this inconvenience, Gravesande put a valve on the orifice of the cock, by tying over it a slip of wet bladder, or oiled leather; and by means of this the piston is pressed down as long as the air in the barrel is rarer than the outward air, just as if the valve were in the piston itself. This is all that is necessary to be described in Gravesande's pump; its performance is highly extolled by him, as far exceeding his former pumps with valves; and the same preference was given to it by his successor Muschenbroeck. Hawkesbee's pump, however, maintained its pre-eminence in this country, and, indeed, pretty generally on the continent, except in France, till about the year 1750, when Smeaton, so celebrated for his mechanical skill, undertoook to improve and perfect the cock-pumps, which, however, he at length, after various attempts, gave up, finding it absolutely impossible to bring them to that degree of accuracy he had in view; and he then turned his attention to the valve-pumps; and the great advantages, gained by his construction, have been thus explained:

His first object was to diminish the resistance to the entry of the air from the receiver into the barrels, which he rendered almost nothing, by enlarging the surface on which this feebly elastic air was to press. Instead of making these valves to open by the pressure of the air on a circle of one-twentieth of an inch in diameter, he made the valve hole an inch in diameter, thus enlarging the surface 400 times; and to prevent this piece of thin leather from being burst by the great pressure upon it, when the piston in its descent was approaching the bottom of the barrel, he supported it by a delicate but strong grating, dividing the valve-hole like the section of a honey-comb; and that the points of contact between the bladder and grating might be as few as possible, the holes were made hexagonal, and the partitions filled almost to an edge. The breadths of these hexagons are three-tenths of an inch, and, consequently, the surface nine times larger than common; and, as the circumference is three times greater than that of the common valve, and the cohesion to be overcome is, in the first moment of the air exerting its force, proportional to the circumference of the hole, the valve over any of these holes will be raised with three times more ease. Beside, the raising of the valve over the centre hole is aided on all sides by those that are placed round it; and, as they all contribute as much to raise the bladder over the centre hole, as the air acting immediately under it, the valve will be raised with

much more facility than we have already supposed, that is, with about one-sixth of the force commonly necessary. The other defect in the common constitution would still hinder the rarefaction from being carried on beyond a certain degree; for, as the piston does not fit so closely to the bottom of the barrel as totally to exclude the air, this air, as the piston rises, will expand itself, and, pressing upon the valves in proportion to its density, prevent the air within the receiver from coming out. Therefore, if a vacancy, for example, equal to 150th part of the capacity of the whole barrel had place, no air could pass out of the receiver when expanded 150 times, though the piston were constantly drawn to the top; because the air in the receiver would be in equilibrio with that in the barrel when in its highest state of rarefaction. In order to obviate this inconvenience, Mr. Smeaton shut up the top of the barrel with a plate, having in the middle a collar of leather, through which the cylinder works that carries the piston; by which means the external air is prevented from pressing on the piston; but, for the discharge of the air that passes from below through the valve of the latter, there is another valve applied to the plate at top, which opens upwards. By this construction, when the piston is put down to the bottom of the cylinder, the air under it will evacuate itself so much the more, as the valve of the piston opens more easily when pressed by the rarefied air above it, than when pressed by the whole weight of the atmosphere; and, as the piston may be made to fit as nearly to the top of the cylinder as it can to the bottom, the air may be rarefied as much above the piston as it could before have been in the receiver; whence it follows, that the air may now be rarefied in the receiver, in the duplicate proportion to what it could be upon the common principle. By this means a pump, consisting of a common barrel, may be worked with more ease than the common pump with two barrels, because the pressure of the outward air is taken off by the upper plate; and when a considerable degree of rarefaction is required, it will produce it more speedily.

This gentleman's air-pump, as constructed by Nairne, may be described as follows: Upon a solid base or table are set up three pillars F, H, H, fig. 23; the pillar F supports the pump-plate A; and the pillars H, H, support the front or head, containing a brass cog-wheel, which is turned by the handle B, and works in the rack C fastened to the upper end of the piston-rod. The whole is still farther steadied by two pieces of brass, *c b* and *o k*, which connect the pump-plate with the front, and have perforations communicating between the hole *a* in the middle of the plate and the barrel. DE is the barrel of the pump, firmly fixed to the table by screws through its upper flanch; *e f d c* is a slender brass tube screwed to the bottom of the barrel, and to the under hole of the horizontal canal *c b*. In this canal there is a cock which opens a communication between the barrel and the receiver, when the key is in the position represented in the figure; but when the key is at right angles with this position, this communication is cut off. If that side of the key which is here drawn next to the pump-plate be turned outwards, the external air is admitted into the receiver; but if turned inwards the air is admitted into the barrel. *g h* is another slender brass pipe, leading from the discharging valve at *g* to the horizontal canal *h k*, to the under side of which it is screwed fast. In this horizontal canal there is a cock *n* which opens a passage from the barrel to the receiver when the key is in the position here drawn; from the barrel to the external air when the key is turned outwards, and from the receiver to the external air when the key is turned inwards. This communication with the external air is not immediate, but through a sort of box *i*; the use of which is to receive the oil discharged through the top valve *g*. In order to keep the pump tight, and in working order, it is proper sometimes to pour a table-spoonful of olive oil into the hole *a* of the pump-plate, and then to work the pump. The oil goes along the conduit *b c d f e*, gets into the barrel and through the piston-valve, when the piston is pressed to the bottom of the barrel, and is then drawn up, and forced through the discharging valve *g*, along the pipe *g h*, the horizontal passage *h n*, and finally into the box *i*. This box has a small hole in its side, near the top, through which the air escapes. From the upper side of the canal c *b* there arises a slender pipe, which bends outward and then turns downwards, and is joined to a small box, which cannot be seen in this view. From the bottom of this box proceeds downwards the gage-pipe of glass, which enters the cistern of mercury G fixed below. On the upper side of the other canal at *o* is seen a small stud, having a short pipe of glass projecting horizontally from it, close by, and parallel to, the front piece of the pump, and reaching to the other canal. This pipe is closed at the further end, and has a small drop of mercury or oil in it at the end *o*. This serves as a gage in condensing, indicating the degree of condensation by the place of the drop; for this drop is forced along the pipe, and condenses the air before it in the same degree that it is condensed in the barrel and receiver. In constructing this pump, Mr. Smeaton introduced a method of joining together the different pipes and other pieces, which has great advantages over the usual manner of screwing them together with leather between, and which is now much used in hydraulic and pneumatic engines. The piece *h i p* in fig. 24, is the same with the little cylinder observable on the upper side of the horizontal canal *c d*, in fig. 23. The upper part *h i* is formed into an outside screw, to fit the hollow screw of the piece *d e e d*. The top of this last piece has a hole in its middle, giving an easy passage to the bent tube *c b a*, so as to slip along it with freedom. To the end *c* of this bent tube is soldered a piece of brass *c f g*, perforated in continuation of the tube, and having its end ground flat on the top of the piece *h i p*, and also covered with a slip of thin leather strained across, and pierced with a hole in the middle. It is plain, from this form, that if the surface *f g* be applied to the top of *h i*, and the cover *d e e d* be screwed down on it, it will draw or press them together, so that no air can escape by the joint,

and this without turning the whole tube *c b a* round, as is necessary in the usual way. The conduit-pipe, E *e f c*, fig. 23, is fastened to the bottom of the barrel, and the discharging pipe *g h* to its top, in the same manner.

In describing Hawkesbee's, or Desagulier's air-pump, we mentioned the gage employed by that author for estimating the degree of rarefaction produced by the operation of the machine; we have also stated that it was subject to some inconveniences, and particularly on account of its length, which rendered its application very incommodious. In order to remove this inconvenience, a short barometer-gage was next introduced. This was, in fact, only the bottom part of a common barometer, about eight or nine inches in length, filled with mercury, and immersed with its aperture into a small quantity of mercury contained in a glass vessel, which forms the cistern. This may either be placed under the receiver, upon the principal flat of the pump, or under a small receiver, upon a small auxiliary plate, which is annexed to some air-pumps for this purpose. As this gage is not equal to a whole barometer, it will not show the first stages of the rarefaction; but its indications will commence when about three-fourths of the air have been removed from the receiver; that is, when the air has been rarefied till its remaining elasticity is not able to support that short column of mercury. The siphon-gage, which is shown in the figure of Smeaton's air-pump, differs from the short barometer-gage merely in this circumstance, that, instead of terminating in a cistern, the tube is here bent and rises upwards with its aperture, which, by means of a brass tube, is made to communicate with the inside of the pump, so that the ascending leg of the tube performs the office of a cistern.—Hence, in rarefying the air, the mercury descends from the closed end of the tube, and rises into the ascending leg; and, consequently, the altitude of it in one leg, above its altitude in the other, shows the degree of rarefaction; and this altitude, as in the long and short barometer-gages, is shown by an annexed scale of inches and parts. The gages above mentioned evidently indicate the elasticity of the fluid, which remains in the receiver of the pump after a certain degree of rarefaction; and it is immaterial whether that elastic fluid be air or vapour. Mr. Smeaton invented another instrument of this kind, which, from its form, is called a pear-gage; this shows (not at the actual time, but after the re-admission of the air into the receiver) how much of that fluid had been left in the receiver in the preceding rarefaction. This gage is also shown in the figure of Smeaton's pump above described. It consists of a glass vessel, which has a small projecting orifice, and at the other end it is extended into a tube closed at the upper extremity; the capacity of which is 100th part of that of the whole vessel. The instrument is suspended with its aperture downwards to the lower end of a slip of wire, or a wire which passes through a collar of leather, within the glass receiver of the pump, and exactly under it, a small cup, containing quicksilver, is placed upon the plate of the pump. When the machine has been worked to the intended degree, the air in the pear-gage is evidently rarefied as much as it is in the receiver; and in that state, by lowering the wire, the pear-gage is let down till its aperture has reached the bottom of the mercury. This done, the external air is admitted into the receiver; which cannot, as is obvious, enter the pear-gage, on account of the aperture being immersed in the quicksilver; but the pressure of the atmosphere, now acting on the surface of the mercury, forces that fluid into the gage, and raises it up to a certain degree, for instance to the upper part of the gage will contain all the air or vapour which occupied the whole capacity during the rarefaction. To the upper part of the gage is annexed a divided scale, which shows what part of the capacity of the whole gage is filled with air, and of course measures the degree to which the rarefaction of the air had been carried.

Mr. Smeaton on making use of this gage, was much surprised to find that it did not give always the same results as the common gages above described. When the receiver contains no other fluid besides air, the pear-gage and the other gages will indicate the same degree of rarefaction; but if the receiver contain the vapour of water or of other liquor, then the pear-gage will indicate a much greater degree of rarefaction, than the siphon or short barometer-gage: because the vapour, which has elasticity sufficient to support the place of air in the receiver, on the re-admission of air, is condensed into a much smaller space than the same quantity of rarefied air would be, so that the pear-gage shows the quantity of air alone which had been left in the receiver; whereas the other gages show the quantity of elastic fluid which is actually remaining in it. This cause, however, of the difference in these two kinds of gages was not in the least suspected at first; but some experiments upon it being repeated before the honourable Mr. Cavendish, the latter accurate philosopher immediately accounted for the difference which the two gages indicated on the principles above stated, by referring to some experiments of his father, the late Charles Cavendish; from which it appeared, that water, whenever the pressure of the atmosphere on it is diminished to a certain degree, is immediately turned into vapour, and reduced as suddenly to water again on restoring the pressure. The degree of pressure varies according to the temperature of the water; for when the heat is 72° of Fahrenheit's scale, it is converted into vapour as soon as the pressure is reduced to three-quarters of an inch of quicksilver, or about one-fortieth of the usual pressure of the atmosphere; but when the heat is only 41° of Fahrenheit's scale, the pressure must be reduced to that of a quarter of an inch of quicksilver, or to a one hundred and twentieth part of the usual pressure, before the water turns into vapour. According to this hypothesis, whenever the air in the receiver is exhausted to the above-mentioned degree, the moisture adhering to the different parts of the machine will be converted into an elastic vapour, and supply the place of the air which is drawn away by the working of the pump, and the fluid left in the receiver or pear-gage will be chiefly this vapour. When the air is let into the receiver again, the vapour

within the pear-gage will be reduced to water, and only the real air will remain uncondensed; consequently, this gage shows only how much real air is left in the receiver, and not how much the pressure or spring of the included air is diminished; whereas either of the other gages shows how much the included elastic fluid is diminished, and that equally, whether it consist of air or vapour.

In order to ascertain the truth of this theory, Mr. Nairne proceeded to free every part of his apparatus as much as possible from any adhering moisture, concluding that, by these means, he should be able to bring the two gages to an agreement. Instead, therefore, of placing the receiver on leather as before, he put it on the pump-plate, made as clean and dry as possible, and applied a cement round its edge to exclude the outward air. When the pump, in this state, was worked for ten minutes, the barometer-gage indicated a degree of exhaustion nearly equal to 600; and on letting the air into the receiver, the pear-gage showed also an exhaustion but little exceeding the former. In another experiment he put a piece of the oiled leather above-mentioned into the receiver, and found, on working the pump, that the barometer-gage indicated a degree of exhaustion of nearly 300, while, on the re-admission of the air, the pear-gage gave an exhaustion of little less than 400, and thus confirmed the hypothesis advanced by Mr. Cavendish. He performed, likewise, numerous other experiments relating to this subject, which may be seen in vol. lxvii Phil. Trans.

There still remained one imperfection which Mr. Smeaton had not attempted to remove. The discharging-valve was opened against the pressure of the atmosphere; and although the ingenious contrivances of this celebrated mechanist had greatly diminished, it had not annihilated, the obstructions to the passage of the air from the receiver into the barrel. His success, however, encouraged other attempts, but they are too numerous for us to enter upon in detail in this article; we shall, therefore, pass over some of minor importance, and proceed at once to describe that of Mr. Prince, a native of America, who conceived the idea of dispensing with the the valves entirely. In order to effect this, he removed the lower valve, and opened the bottom of the barrel into a cistern on which it was placed, and which had a free communication with the receiver; for the valve on the upper plate on the top of the barrel, constructed like Mr. Smeaton's, made it unnecessary, that there should be any at the bottom, in order to rarefy the air in the receiver. The cistern was made deep enough to admit the piston descending into it below the bottom of the barrel. If the piston be solid, that is, without a valve, when it enters the barrel and rises to the top plate, which is made air-tight with a collar of leather, like Smeaton's, it forces out all the air above it; and, as the air cannot return into the barrel on account of the valve in the top plate, when the piston descends there will be a vacuum between it and the plate, every thing being supposed perfect. But, in working the pump, the piston is not allowed to descend entirely into the cistern, so far as to leave the barrel open; it descends only below a hole in the side of the barrel near the bottom, which opens a free communication between the barrel, cistern, and receiver. Through this hole the air rushes from the cistern into the exhausted barrel, when the piston has dropped below it; and by the next ascent, this air is forced out as the other was before. If the capacity of the receiver, cistern, pipes, &c. below the bottom of the barrel, taken together, be equal to the capacity of the barrel, half the remaining air will be expelled at every stroke. But in order to save the labour that would attend the working of this pump with a solid piston, the constructor pierced it with three holes, at equal distances from each other, and by a circular piece of bladder tied over the top of the piston, formed a sort of valve over the holes, which opened with sufficient ease to save any labour in working the pump, by allowing the air to pass through the piston in its descent. The escape of the air, however, does not depend upon a passage through the piston into the barrel; for when the air, weakened by rarefaction, cannot open this valve, it will still get into the barrel when the communication is opened with the hole at the bottom. This piston will, therefore, descend as easily as any other, nor will the rarefaction be in any respect impeded by the valves. By this construction the valves, made to open with more ease by Mr. Smeaton, are rendered useless for rarefying the air, and that at the bottom of the barrel is entirely removed; the valve on the top plate being the only one necessary in the rarefaction.

The next object of this mechanist was to expel the air more perfectly out of the barrel than was effected in the machine last described, by making a more complete vacuum between the piston and the top plate, so that more of the air might be allowed to expand itself into the barrel from the receiver. Mr. Prince also contrived to connect the valves on the top plate with the receiver, occasionally, by means of a pipe and cock, by the turning of which the machine might be made to exhaust or condense at pleasure. It still remained to remove the pressure of the atmosphere from the valve on the top plate, so that this might open as easily as the piston-valve; with which view he connected with the duct on the bottom piece, which conveys the air from the valves to the cock, a small pump of the same construction as the large one, having the barrel opening into the cistern; the piston-rod, which is solid, moving through a collar of leathers, and a valve at the top, through which the air is forced into the atmosphere. This is called the valve-pump; its principal use being to rarefy the air above the valves, or to remove the weight of the atmosphere from them. When this valve-pump is used, the passage through the cock is shut up; and, therefore, instead of placing three ducts at equal distances round the cock, after the manner of Mr. Smeaton, the whole is divided into five equal parts, leaving the distance of one-fifth part between the ducts leading from the cistern and the valves to the cock, and two

fifths between each of these and the one leading from the cock to the receiver; therefore, when the communication is open between the receiver and the valves for condensation, the other hole through the cock opens the cistern to the atmosphere; but when the communication is made between the cistern and the receiver, for exhaustion, a solid part of the key comes against the duct leading to the valve, shuts it up, and the air which is forced out of the barrel passes through the atmosphere into the valve-pump. One advantage in this construction is, that the pump with two barrels may be made like the common pump, which cannot be conveniently done where the lower valve is retained. In this pump the pistons do not move the whole length of the barrel, a horizontal section being made in them a little more than half way from the bottom, where the top plates are inserted; on which account it is more convenient and simple, as the head of it is brought down from the top of the barrels, in the same manner as in the common air-pump. The barrels also stand upon the receiver-plate, which is raised high enough to admit the long barometer-gage, of thirty-two or thirty-three inches, to stand under it, without inconvenience in working the pump; as the winch moves through a smaller portion of an arc at each stroke, than it would do if the piston moved through the whole length of the barrels.

A gage is placed between the barrels when the condensation is to be measured, having a free communication with the valves, cock, &c. This is likewise so constructed that it will serve to measure the rarefaction above the valves, when the air is worked off by the valve-pump; and consists of a pedestal, the die of which is made of glass (which forms a cistern for the mercury), a hollow brass pillar, and a glass tube hermetically sealed at one end, which moves up and down in the pillar through a collar of leathers. When the pump is used as a condenser, the degree of condensation is shown by a scale marked on one edge of the pillar, and when as an exhauster, the rarefaction is marked on the other edge. This gage will also show when the valves have done playing, either with the weight of the atmosphere on them, or taken off. For the purposes of great condensation, the inventor has fitted a condenser of a smaller bore than the great pump, to the cistern of a valve-pump, to be screwed on occasionally. Or even without this condenser, the valve pump may be adapted to the purpose, by being made a little larger, and by having a plate made to screw into the bottom of the cylinder, with a valve on it opening into the cistern; a hole must be made to open on the same occasion near the top of the cylinder, to let air in below the piston, when this is drawn up above it. The common gage, which is generally placed under the receiver-plate, is here situated in the front of the pump, so that it may be seen by the person working the machine; and, that the plate itself may be left free for other uses, the plate is also so fixed to the pipe leading to the cock, that it may be taken off at pleasure, and used as a transferrer, or for other purposes.

The head is made whole, except a small piece on the back, where the wheel is let in; the latter being freed from the piston-rods by pushing it into the back part of the head, where it is kept in its place by a button, screwed into the socket in the axis behind. The piston-rods are thus dislodged from the wheel, and let down into the cistern when the pump is not in use, in which cistern they may have the advantage of being covered with oil; the same may also be done with all the principal joints which are sunk into the sockets, that the leathers which close them may be covered with oil, to prevent their leaking after a long disuse. A perspective view of Prince's air-pump, as constructed by Mr Jones, is shown in fig. 25; which will render the above account more intelligible.

CUTHBERTSON'S AIR-PUMP. The last improvement in the construction of air-pumps which it will be necessary for us to mention, is that by Mr. Cuthbertson, a machine so excellent in its structure, and so powerful in its effects, as to claim particular notice and description.

A perspective view of it is given in fig. 26, with its two principal gages screwed into their places, which need not, however, be used together, except in cases where the utmost exactness is required. In common experiments one of them is removed, and a stop-cock put in its place. When the pear-gage is used, a small, round plate, on which the receiver may stand, must be first screwed into the hole at A; but this hole is stopped on other occasions by a screw. When all the three gages are used, and the receiver is exhausted, the stop-screw B, at the bottom of the pump, must be unscrewed, to admit the air into the receiver; but when they are not all used, any of the stop-screws will answer the purpose. Fig. 27 represents a cross-bar for preventing the barrel from being shaken, either by working the pump, or by accident; its place in fig. 26 is represented by the dotted lines; where it is confined and kept down close to the barrels by two slips of wood, N N, which must be drawn out, as well as the screws O O, when the pump is taken asunder. The figures 28, 29, &c. exhibit a section of all the working parts of the pump, except the wheel and rack, in which there is nothing uncommon. Fig. 28 is a section of one of the barrels, with all its internal parts; and figs. 29, 30, 31, and 32, are different parts of the piston, proportioned to the size of the barrel. In fig. 28, C D represents the barrel, F the collar of leathers, G a hollow cylindrical vessel to contain oil, R is also an oil-vessel to receive the oil which is drawn along with the air through the hole *a a*, when the piston is drawn upwards; and when this is full, the oil is carried over with the air, along the tube T, into the oil vessel G; *c c* is a wire, which is driven upwards from the hole *a a* by the passage of the air; and as soon as this has escaped, it falls down again by its own weight, shuts up the hole, and prevents all return of air again into the barrel. At *d d* are fixed two pieces of brass to keep the wire *c c* in a vertical position, in order that it may accurately shut the hole; and H is a cylindrical wire or rod, which carries the piston I, being made hollow to receive a long wire

g g, which opens and shuts the hole L. On the other end of the wire O, is screwed a nut, which, by stopping in the narrowest part of the hole, prevents the wire from being driven up too far; these are seen more distinctly in figs. 29 and 33; they slide in a collar of leather *r r*, fig. 29 and 32, in the middle piece of the piston. Figs. 31 and 32 are the two mean parts which compose the piston, and when the pieces, figs. 30 and 33, are added to it, the whole is represented by fig. 29; and fig. 32 is a piece of brass of conical form, having a shoulder at bottom, in which is cut a long hollow screw, about two-thirds of its length, and the remaining part of the hole, in which there is no screw, is of about the same diameter as the screwed part, except a thin plate at the end, which is of a width exactly equal to the thickness of *g g*.

That part of the inside of the conical brass in which no screw is cut, is filled with oiled leathers, having holes, through which *g g* can slide stiffly. An external screw, with a hole in it, is also fitted to *g g*, and serves to compress the leathers *r r*. In fig. 31, *a a a a* is the outside of the piston, the inside of which is turned so as exactly to fit the outside of fig. 32; *b b* are round leathers about sixty in number; and *c c* is a circular piece of brass of the size of the leathers, while *d d* represent the screw serving to compress them. The screw at the end of fig. 30 is made to fit the screw fig. 32, and if fig. 33 be pushed into fig. 32, this into fig. 31, and fig. 30 be screwed into the end of fig. 32, these will compose the whole piston, as shown in fig. 28. In fig. 28 and 29, H represents the same part, being that to which the rack is fixed; if, therefore, this be drawn upwards, it will cause fig. 32 to shut close into fig. 31, and drive out the air above it; and on the contrary when it is pushed downwards, it will open as far as the shoulder *a a* will permit, and suffer the air to pass through. A A, fig. 34, is the receiver-plate, B B is a long square piece of brass, screwed into the under side of the plate, through which a hole is drilled, corresponding to that in the centre of the receiver-plates, and with three internal screws, *b*, *b*, *c*.

Let us now endeavour to explain the process of rarefaction, which is carried on as follows. Conceive the piston to be at the bottom of the barrel, the inside of which, from *a*, fig. 28, contains common air. Now when the rod is drawn up, the upper part of the piston sticks fast in the barrel, till the conical part connected with the rod shuts the conical hole, and its shoulder applies close to its bottom. The piston being now shut, the whole is drawn up by the rack-work, driving the air before it through the hole *a c* into the oil-vessel at R, and out into the atmosphere by the tube T. The piston will then be at the top of the barrel at *a*, and the wire *g g* will stand nearly as shown in the figure, just raised from the hole L, where it is prevented from rising higher by the nut O. During this motion the air will expand in the receiver, and come along the bent tube *m*, into the barrel. By this means the barrel will be again filled with air, which, as the piston rises, will be rarefied in the proportion of the capacity of the receiver, pipes, and barrel together, to that of the latter alone. When the piston is moved down again by the rack-work, it will force the conical part, fig. 32, out of the hollow part, fig. 31, as far as the shoulders *a a*; fig. 29 will rest on *a a* fig. 31, which will then be so far open as to permit the air to pass freely through it, while at the same time the end of *g g* is forced against the top of the hole, and by shutting prevents any air from returning into the receiver; thus the piston moving downwards, suffers the air to pass out between the sides of figs. 31 and 32; and when it is at the bottom of the barrel, it will have the column of air above it, and, consequently, when drawn up it will shut, and drive out this air, and, by opening the hole at L, will, at the same time, give a free passage to more air from the receiver. This process being continued, the air of the receiver will be rarefied as far as its expansive power will permit; for, in this machine, there are no valves to be forced open by the elasticity of the air in the receiver, which at last it is unable to effect; there is, therefore, nothing to prevent the air from expanding to its utmost degree, which is the peculiar excellency of this construction.

When this machine is used for condensation, at the same time that it rarefies, or separately, the piece containing the bent tube T must be removed, and fig. 35 put in its place, and fixed by its screws. This figure, as drawn in the plate, is intended for a double-barrelled pump; but for a single-barrel, only one piece is used, represented by *b a a*, the double piece being cut off at the dotted line *a a*. In this piece is an internal screw, to receive the end of a long brass tube, to which a bladder (if sufficient for the experiment of condensation), or a glass, properly secured for this purpose, must be screwed: then the air, which is abstracted from the receiver on the pump-plate, will be forced into the bladder, or glass; but, if the pump be double, the apparatus fig. 35, is used, and the long brass tube screwed on at *c*. Figs. 36 and 37 represent two gages, the former of which is screwed into *c b*, or into the screw at the other end of *c*; fig. 34, and fig. 37 into the screw *a b*, fig. 34. When the machine is used as a single pump, either to rarefy or condense, the screw K which fastens the rack to the piston rod H, must be taken out; then turning the winch till H is depressed as low as possible, the machine will be fitted to exhaust as a single pump, and if it be required to condense, the directions above given must be observed with regard to the tube T and fig. 35.

Mr. Cuthbertson, by a variety of experiments with this air-pump, has shown its great power of exhaustion with the double siphon-gage, as also with the long gage, compared with an attached barometer, in which the mercury had been repeatedly boiled; and the difference between the heights of the mercurial columns was found not to exceed one-fortieth of an inch, the barometer standing at thirty inches, which gives a rarefaction of 1200. On some occasions, when the air was in a very dry state, the difference has been observed as low as an hundredth part of an inch, a rarefaction more than double the former.

See *A Description of an Improved Air-Pump, by John Cuthbertson*; and *Nicholson's Philosophical Journal*, vol. 1.

The latter work, in examining the comparative merits of Prince's and Cuthbertson's air-pumps, offers the following observations:

'There is no provision to open the upper fixed valve of Prince's greater barrel, except the difference between the pressures of the elastic fluid on each side of the stripe of bladder: and this may reasonably be inferred to limit the power of his small pump. In Cuthbertson's pump, the same valve is exposed to the action of the atmosphere, together with that of a column of oil in the oil-vessel. The mischief in either instrument is probably trifling; but in both the valve might have been opened mechanically. If this were done, the small pump of Prince might, perhaps, be unnecessary in most states of the atmosphere. With regard to the lower valves, Cuthbertson, by an admirable display of talents as a workman, has insured their action; Prince, on the other hand, has, by the process of reasoning, so far improved the instrument, that no valve is wanted. In this respect he has the advantage of simplicity and cheapness with equal effect. The mechanical combination of Cuthbertson's pump, reduces the operation to one simple act of the handle; but Prince's engine requires some manipulation with regard to the play of the small pump; though this might have been remedied by a more skilful disposition of the first mover.

'The most perfect scheme for an air-pump, taking advantage of the labours of these judicious operators, seems to be that in which two pistons, of the construction of Prince, should work in one barrel, one piston being fixed at the lower end of the rod, and the other at the middle. The lower piston must come clear out of the barrel when down, and work air-tight through a diaphragm at an equal distance from the effective ends of the barrel. In the diaphragm must be a metallic valve of the form of Cuthbertson's lower valve, but with a short tail beneath, that it may be mechanically opened when the piston comes up. Above the diaphragm must work the open piston, similar to the first; but as it cannot quit the barrel when down, a small portion of the barrel must be enlarged just above the diaphragm, so that the leathers may be clear in that position. Lastly, the top of the barrel must be closed, and fitted with a valve and oil-vessel, according to the excellent contrivance of Cuthbertson.'

We shall conclude our sketch with the description of a table, or portable air-pump, which is from its size and figure, very convenient and sufficiently powerful for most common experiments.

AIR-PUMP, TABLE, OR PORTABLE.—This has two brass barrels, which are firmly retained in a perpendicular situation to the square wooden table on which they rest, by a transverse beam, which is pressed upon them by screws at the top of the two pillars. From the hole in the centre of the pump-plate there is a perforation, or canal, in a brass piece to the fore part of the frame of the pump; and from this canal there is a perforation, at right angles to the former, passing to the centre of the base of each barrel. At each of these centres a valve is placed, opening upwards, to admit the air into the barrels; and to each barrel a piston is so fitted that the air cannot pass between it and the sides of the barrel. Both pistons have a valve opening upwards, that the air in the lower part of the barrel may escape through them into the room or atmosphere. They are also connected by a rack, and raised or depressed by a handle, the lower part of which is fixed to the axis of a cog-wheel, whose teeth lay hold of the rack. One piston is raised, and the other is depressed by the same turn of the handle, and the operation of exhaustion is the same as in the common pump first described. The two barrels are advantageous, because they perform the work more speedily, and also because the weight of the atmosphere, pressing upon the rising piston, is counterbalanced by an equal weight pressing upon the other piston descending.—Behind the large receiver on the pump plate, there is sometimes a small plate for sustaining a small receiver; and from the hole, at the centre of this plate, there is a canal communicating with that, which passes from the large receiver to the barrels. Under the receiver is a small bottle containing mercury, and a small tube filled with mercury, freed from air, inverted with the open end in the mercury; which is, in fact, the short barometer-gage described. This pump, without the gage, is shown by fig. 38.

AIR-PUMP, EXPERIMENTS WITH THE.—Having now illustrated its construction under a variety of forms, it may be interesting to many of our readers to be furnished with a few familiar deductions confirmed and established by experiments on this important apparatus.

1. One of the most interesting experiments of this kind, showing the weight and pressure of atmospheric air, is to take a large copper ball, as light as is consistent with the purpose it is intended to answer, having a small neck to it, furnished with a stop-cock; this neck is to be screwed on the receiver-plate, so that it may be exhausted of air after the same manner as the common receiver; this being done, turn the stop-cock, which will prevent any air from entering when the ball is unscrewed. Let now the weight of the ball be taken by a very accurate balance, and when this is well ascertained, turn again the stop-cock, and the air will immediately rush in, and the ball will in consequence preponderate. The weight necessary to bring the balance to an equilibrium will be equal to the weight of the air re-admitted. In this manner, the specific gravity of air has been ascertained to be .00128, that of water being 1. 2. Let a receiver be placed on the plate of the air-pump, having a hole an inch or an inch and a half in diameter at the top; cover this hole with the palm of the hand, while another person works the machine so as to produce the exhaustion; and the pressure which, after two or three strokes of the piston, will be experienced on the hand from the external atmosphere, will be such as to convince the most sceptical of the truth of the proposition. If the exhaustion be carried to any consi-

derable degree, it will be difficult to remove the hand without violence, or without re-admitting the air. 3. Place a small receiver, O fig. 39, over the hole of the pump-plate, and, upon exhausting the air, the receiver will be fixed down to the plate by the pressure on its outside; then, by turning the cock of the pump, and re-admitting the air, the receiver will become loose. In order to prove that the receiver O is held down by the pressure of the air, suspend it on the hook of the wire P P passing through the collar of leathers at the top of the receiver M, by which it is covered, and thus let it down on the plate of the pump; and when the air is exhausted from both receivers, the large receiver M will be fixed to the plate by the pressure of the external air; but the small one will be loose and easily removed; then again, in letting in the air, the lesser one will be fixed to the plate, and the other will be released. 4. The same may be otherwise shown by the glass employed in experiment 2, viz. by tying over the hole at top a piece of bladder; then, as the air is exhausted, the bladder will be pressed into the receiver in a concave hemispherical form, and by carrying the exhaustion to a sufficient extent, the bladder will at length burst with a loud report; or, instead of the bladder, a piece of common window glass may be employed, resting on a rim of leather; when it will be found that the pressure of the external air will break the glass as soon as the air is exhausted. 5. Join together the two hollow brass hemispheres A and B, fig. 40, the edges of which must be made very perfect, or otherwise they must have a circle of wet leather placed between them; screw the end D into the plate of the pump, and open the stop-cock E of the pipe C D communicating with the hemispheres; and having exhausted the air, turn the cock again so as to stop the pipe; remove the ball from the plate, and screw on at the end D the handle F H. Two strong men now, one taking hold of each handle, and pulling straight against each other, will find considerable difficulty, or will be, perhaps, wholly unable to separate the two hemispheres. The degree of strength that will be requisite depends upon the diameter of the sphere and the nature of the exhaustion. If the latter be nearly complete, and the diameter be four inches, the area of the section will be

$$4^2 \times .7854 = 12.5664 \text{ inches};$$

and, assuming the pressure on every square inch to be about 15lbs. we shall have

$$12.5664 \times 15 = 188\text{lbs.}$$

for the force or strength requisite to produce the separation. 6. The pressure of the air may be also shown as follows: Set a square phial of thin glass upon the pump-plate, and, to prevent accidents, cover it with a wire cage, and place both under a close receiver. The phial must be supplied at top with a small valve opening upwards, so as to be exhausted with the receiver, but which shuts and prevents the air from afterwards entering. Let the air be exhausted from the receiver and phial, and it will be found that, upon re-admitting the air into the former, the latter will be crushed into a number of small pieces. Quicksilver may also be forced into the pores of wood, and made to pass through it by the pressure of the atmosphere. 7. Immerse the neck *c d* of the hollow glass ball *e b*, fig. 41, in the water of the vessel *a a*; place it on the plate of the pump, and cover it and the hole of the plate by the receiver A; exhaust this receiver, and the air will escape by its spring, from the ball *e b*, through the neck *c d*, rise in bubbles through the water, and pass off into the external air. When the water has done bubbling, turn the cock of the pump, and the air that is admitted will, by its pressure on the surface of the water, force it up in a jet into the ball *e b*, and nearly fill it; the small quantity of remaining air which occupied the whole ball, and which is now reduced to a small space by condensation, is all that prevents the water from filling the whole cavity of the ball. This experiment may be varied by screwing the end A of the brass pipe A B F, fig. 42, into the hole of the pump-plate, and placing it, by means of a circle of leather, upon the plate *c d*, a tall receiver G H, close at top, exhausting the receiver of air, and stopping the pipe by the cock *e*: when this is done, remove the apparatus from the pump, set its end A in a basin of water, and open the pipe by turning the cock *e*, when it will be found that the pressure of the air on the water will force it up through the pipe, so that it will ascend in a jet to the top of the receiver

Again, place the tall open receiver, A B, fig. 43, on the pump-plate over the jar D, containing quicksilver; the latter being placed near the hole or pipe communicating with the barrels. Into the plate C, placed upon the upper end of this receiver, introduce the open glass tube *g f*, immersed at its lower extremity in the quicksilver of the jar D, and screwed by a brass top annexed to it at *h*, to the syringe H, which is itself screwed to the plate C. By means of the ring I, draw up the piston of the syringe, and thus exhaust the tube of its air; and the quicksilver in the basin, pressed by the undilated air of the receiver A B, will ascend in the tube. That this ascent is owing to the pressure of the air, and not to what is vulgarly called suction, may be shown by exhausting the receiver of its air, which will cause the quicksilver to descend into the jar, and, by re-admitting the air, it will rise again in the tube, although the piston of the syringe be not moved. If the tube be thirty-two or thirty-three inches in length, the quicksilver will rise nearly as high in the tube as it stands at that time in the barometer; and if the syringe have a small hole at *m*, and the piston be drawn up above that hole, the air will pass through it into the syringe and tube, and the quicksilver will immediately fall down into the jar.

Once more: the jar A, fig. 44, being filled with quicksilver, and placed on the pump-plate, cover it with the receiver B, and push the open end of the glass tube *d e* through the collar of leather in the brass neck C, almost down to the quicksilver in the jar; then exhaust the receiver B of its air, and the tube *d e*, which is close to the top *f*, will at the same time be exhausted. When the exhaustion has been carried on to a sufficient extent, push the open end of the tube, into the quicksilver in the jar, and it will be

found, that although the tube is exhausted, the mercury will not rise in it, because there is no pressure on the surface of that in the jar; but upon admitting the air into the receiver, the quicksilver will immediately rise, and stand as high as it did, in consequence of the action of the syringe, in the preceding experiment. These latter experiments not only exhibit the weight and pressure of the atmosphere, but they also show that they are increased or diminished in proportion to the increase or decrease of the density of the air.

The elasticity of the air may be shown in the most satisfactory manner, by placing under the receiver of an air-pump a flaccid bladder, well tied and secured at its neck, so as to prevent the air within it from escaping. Exhaust the air out of the receiver, and the bladder, as the process proceeds, will continue to expand, till at length it will appear like one full-blown, and even burst if the exhaustion be carried on to a sufficient degree; but upon re-admitting the air, it will quickly return to its original flaccid state. In experiment 6, we supposed the glass ball, fig. 41, to be filled with water, with the exception of a small bubble of air; if, in this state, it be placed with its neck downwards into the empty jar *a a*, and covered with a close receiver, and the air of the latter be exhausted, the air-bubble will expand itself, and by its elastic force protrude the water out of the globe into the jar. The same may be shown by screwing the pipe A B, fig. 42, into the pump-plate, and by placing the tall receiver G H upon the plate *c d*; for now, exhausting the receiver, remove the apparatus, and screw it into the copper vessel C C, fig. 45, half filled with water: then turn the cock *e*, fig. 42, and the air confined in this vessel will, by its spring, force the water through the pipe A B, and cause it to form a jet into the exhausted receiver equal to that which was produced by the pressure of the air in the former experiment.

The little amusing experiment called the Cartesian devil, depends upon principles nearly the same as the above. The figure of a man, made of glass, or enamel, is so constructed as to have the same specific gravity as water, and will therefore remain suspended in a mass of that fluid. A bubble, similar to that in the last experiment, communicating with the water, is placed in some part of the figure, sometimes in a small globe, as shown at *m*, fig. 46. At the bottom B of the vessel is a diaphragm of bladder which can be pressed upwards by applying the finger to the extremity *e* of lever *e o*, moving about a centre *o*. The pressure applied to *e* is communicated through the water to the bubble of air which is thus compressed. The specific gravity of the figure is thereby increased, and it consequently sinks to the bottom; but by removing the pressure, the figure again rises, so that it may be made to oscilate or dance in the vessel without any visible cause. Fishes made of glass are sometimes substituted for the human shape, and when a common jar is used for the experiment, the pressure is applied to the upper surface of it at A, which is, in this case, a piece of bladder, instead of being placed at the bottom as shown in the figure. The same effects will be produced by placing the jar under the receiver of an air-pump, and varying the pressure by rarefaction; but, in this case, the specific gravity of the figure ought a little to exceed that of the water in the jar.

Bodies cannot move about in the atmosphere without displacing it, which requires force, and therefore the resistance of the air always diminishes the velocity of moving bodies; but this diminution will be greater or less according to the density of the falling or moving mass; for which reason those bodies which we call light, fall much slower than more dense or heavy substances. To show that this is actually the case, we need only let fall a feather and a piece of metal out of the hands at the same instant, and it will be found that the metal has reached the floor while the feather is yet falling; but place them both under the receiver of an air-pump and exhaust the air, and then let them fall, and they will both be found to reach the bottom in the same time: an apparatus for performing this experiment is shown in fig. 49; the two bodies being laid together on the brass flap *d* or *e*, which may be at any time let down, by simply turning the wire *f*, which passes through a collar of leathers *g*, placed in the head of the receiver A B. Figure 50 represents another apparatus for showing the same thing. It consists of two sets of brass vanes put on separate axles, in the manner of windmill-sails. One set has the edges placed in the direction of their whirling motion, that is, in a plane to which the axis is perpendicular. The planes of the other set pass through the axis, and they are, therefore, trimmed so as exactly to front the air through which they move. The springs act upon pins projecting from the axis, and their strengths or tensions are so adjusted that when they are disengaged in a vacuum, the two sets continue in motion equally long; but when they are disengaged in air, those vanes which oppose the air by their planes will stop sooner before those that cut it edgewise.

In the preceding account of the air-pump we have seen that the most modern of these machines may be made use of either for the purpose of rarefaction or condensation; but in many cases the latter operation is required to be performed when no pump is at hand: and moreover, it does not always require the same delicacy of process as that of rarefaction, and more simple apparatus are, therefore, frequently employed.

Take, for example, a prismatic tube A B, fig. 51, shut at one end, and fit it with a piston or plug C, so that no air can pass by its sides, which, in a cylindrical tube, is best done with a turned stopper, covered with oiled leather, and fitted with a long handle C D. When this is thrust down, the air, which formerly occupied the whole capacity of the tube, is condensed into less room, and the force necessary to produce any degree of condensation, may be concluded from the weight necessary for pushing down the plug to any depth; but it is obvious that the instrument in this form is not sufficiently accurate for us to deduce, from experiments upon it, any very accurate conclusions: the following is, therefore, more commonly the form of the condenser. The end of the tube, instead of

being closed as described above, is perforated with a very small hole *e f*, and being externally turned to a small cylinder, a narrow slip of bladder, or of thin leather, soaked in a mixture of oil and tallow, must be tied over the hole. Now, let us suppose that the piston is forced down to the bottom of the barrel, to which it applies close; then, when it is drawn up to the top, it leaves a void behind, and the weight of the external air presses on the slip of bladder, which, therefore, claps close to the brass, and thus performs the part of a valve, and keeps it close, so that no air can enter. But, the piston having reached the top of the barrel, a hole F in the side of it is just below the piston, and the air rushes through this hole and fills the barrel. Push the piston down again, it immediately passes the hole F, and no air escapes through it, therefore it forces open the valve at *f*, and escapes while the piston moves to the bottom.

Now, let any vessel E, as, for instance, a glass bottle, or brass ball, have its mouth furnished with a brass cap firmly cemented to it, having a hollow screw, which fits a solid screw *p q*, turned on the cylindric nozzle of the syringe, and this vessel may be considered as a receiver. Screw the syringe into this cap, and it is evident that the air forced out of the syringe will be accumulated in this vessel; for upon drawing up the piston, the valve *f* always shuts by the elasticity or expansive force of the air in E; and on pushing it down again, the valve will open as soon as the piston has got so far down that the air in the lower part of the barrel is more powerful than the air already in the vessel. Thus, at every stroke, an additional barrel-full of air will be forced into the vessel E; and it will be found that, after every stroke, the piston must be pushed down further before the valve will open; for, as stated above, it cannot open till the air, condensed in the barrel by the downward motion of the piston, exceeds that in the receiver; and as the latter is increased at every stroke, so also must the stroke be longer every time before the valve will be opened.

A construction somewhat different to the above is now very commonly adopted: this consists in supplying the piston itself with a valve; that is, instead of being, as above described, one solid piece, it is made of two pieces perforated. The upper part, *i k m n*, is connected with the rod or handle, and has its lower part turned down to a small cylinder, which is screwed into the lower part *k l o n;* and has a perforation *g h* going up the axis, and terminating in a hole *h* in one side of the rod, and a piece of oiled leather is stretched across the hole *g*. When the piston is drawn up, and a void left below it, the weight of the external air forces it through the hole *h g*, opens the valve *g*, and fills the barrel. Then, on pushing down the piston, the air being compressed into less space, presses on the valve *g*, shuts it, and none escaping through the piston, it is gradually condensed, as the piston descends, till it opens the valve *f*, and is added to that already accumulated in the vessel, E. We may thus force any quantity of air consistent with the strength of the vessel into it, and it will be ready for any experiments that we may be desirous of making with it. Instead of the glass bottle, or simple hollow globe supposed above, we may use the latter furnished with a neck and stop-cock; in this case, the cock may be turned, the ball unscrewed from the syringe, and be thus in a state to be transferred and applied to any other purpose required.

The condensation thus produced may be measured by a gage fitted to the instrument as follows: a glass tube G H, fig. 51-*a*, of cylindrical bore, and close at the end, is screwed into the side of the cap on the mouth of the vessel E; a small drop of water or mercury is taken into this tube by warming it a little in the hand, which expands the contained air, so that when the open end is dipped into water, and the whole allowed to cool, the water advances a little into the tube. The tube is furnished with a scale, divided into small equal parts, numbered from its close end. Now, since this tube communicates with the vessel, it is evident that the condensation will force the water along the tube, acting like a piston on the air beyond it, and the air in the tube and vessel will always be of one density. Suppose, for example, the number at which the drop stands, before the condensation is made, to be *c*, and that it stands at *d*, when the condensation has attained the required degree; the density of the air at the remote end of the gage, and consequently in the vessel, will be $\frac{c}{d}$. It was by such means that the laws of the condensation and elasticity of common air were originally deduced.

Air-shafts, among miners, denote holes or shafts let down from the open air to meet the adits, and furnish fresh air. The damps, want, and impurity of air, which occur, when adits are wrought thirty or forty fathoms long, make it necessary to let down air shafts, in order to give the air liberty to play through the whole work, and thus discharge bad vapours, and furnish good air for respiration: the expense of which shafts, in regard of their vast depths, hardness of the rocks, drawing of water, &c. sometimes equals, nay exceeds, the ordinary charge of the whole adit. Sir Robert Murray describes a method, used in the coal mines at Liege, of working mines without air-shafts. When the miners at Mendip have sunk a groove, they will not be at the charge of an air-shaft till they come at ore; and for the supply of air have boxes of elm exactly closed of about six inches in the clear, by which they carry it down about twenty fathoms. They cut a trench at a little distance from the top of the groove, covering it with turf and rods disposed to receive the pipe, which they contrive to come in sideways to their groove, four feet from the top; which carries down the air to a great depth. When they come at ore, and need an air-shaft, they sink it four or five fathoms distant, according to the convenience of the breadth, and of the same fashion with the groove, to draw as well ore as air.—*See Phil. Trans.* No. V. and XXXIX.

Air-threads, in natural history, a name given to the long filaments, so frequently seen in autumn floating about in the air. These threads are the work of spiders, especially of that species called

the long legged field spider; which, having mounted to the summit of a bush or tree, darts from its tail, several of these threads, till one is produced capable of supporting the creature in the air: on this it mounts in quest of prey, and frequently rises to a very considerable height. See ARANIA. They are long, downy, and very soft, and though they hold together when untouched, they stick to the fingers in handling, and easily break with a light touch. The general method of these creatures in spinning and weaving the webs, is to let down the thread, then draw it after them, and so dispose it as they think proper; but in the midst of their work of this sort, if they are closely observed, they will sometimes be found to desist, and turning to the contrary way of the wind, will emit a thread with great rapidity, no less than that with which a jet of water is discharged from a cock. In this manner they continue darting forth the thread, which the wind takes, and carrying it forwards, it soon becomes many yards long. Soon after this the creature will throw itself off from the web, and trusting to the air, with this long tail, will ascend swiftly, and to a great height with it. The fragments of these lines, and the spiders attached to them, though unobserved, make these air-threads; and the use nature destines them for, is evidently the wafting of the creature along in the air, and giving it an opportunity of preying on gnats, and many other insects that inhabit the air, out of the reach of these creatures by any other means. When the threads are newly spun, they are always single, and are generally seen ascending higher and higher in the air; but when they are seen coming down, they are found sometimes composed of three or four others, and either without any spider at the ends, or with two or three, or more. It is plain that this happens from the meeting of these threads one with another in the air, and their tangling together; and this incommodes the creatures, and brings them down.

As these soon entangle together, and bring one another down, it is no wonder that they are more frequent in the lower regions of the air, than those with the spiders adhering to them, which usually rise to great heights, and sustain themselves there. And hence the origin of the threads was much perplexed among the enquirers, because they were found without any mark of the animal to which they owed their existence. The business of feeding is not all the use of these threads, but the creatures evidently sport and amuse themselves by means of them, floating about in the air, and changing height and place at pleasure. When a spider has once raised itself from the earth in this manner, it does not descend always on the same thread it arose by, but draws that up at times, and winds it up into a hank with its fore-feet, and darts out another by way of support; and the new thread is made more or less long, as it is intended for a higher or lower flight. *Philos. Trans.* No. L.

AIR-TRUNK, is a contrivance by Dr. Hales to prevent the stagnation of putrid effluvia in jails, and other places where a great number of people are crowded together, in a small space. It consists only of a long square trunk, open at both ends; one of which is inserted into the ceiling of the room, the air of which is required to be kept pure; and the other extends a good way beyond the roof. Through this trunk a continued circulation is carried on: and the reason is, that the putrid effluvia, which do so much mischief when collected, being much lighter than the pure atmosphere, rise to the top of the room; and, if they there find a vent, will continually go out through it. These effluvia arise in a very considerable quantity, being calculated by the late Dr. Keil, at no less than thirty-nine ounces from one man in twenty-four hours. These trunks were first made trial of by Mr. Yeoman, over the House of Commons, where they were nine inches wide within; and over the Court of King's Bench in Westminster hall, where they were six inches wide. They are sometimes made wider, and sometimes narrower; but the wider they are, the longer they ought to be, more effectually to promote the ascent of the vapour. The reason why vapours of this kind ascend more swiftly through a long trunk than a short one, is, that the pressure of fluids is always according to their different depth, without regard to the diameter of their basis, or of the vessel which contains them; and, upon this principle, a gallon of water may be made to split a strong cask. See HYDROSTATICS.

When the column of putrid effluvia is long and narrow, the difference between the column of atmosphere pressing on the upper end of the trunk, and that which presses on the lower end, is much greater than if the column of putrid effluvia were short and wide; and consequently the ascent is much swifter. One pan of a single pair of scales, which was two inches in diameter, being held within one of these trunks over the House of Commons, the force of the ascending air made it rise so as to require four grains to restore the equilibrium, and this when there was no person in the house; but when it was full, no less than twelve grains were requisite to restore the equilibrium; which clearly shows that these trunks must be of real and very great efficacy.

AIR-VESSELS, are spiral ducts in the leaves, &c. of plants, supposed to be analogous to the lungs of animals, in supplying the different parts of a plant with air. See PLANTS.

Dr. Grew, in his enquiry into the motion and cause of the air in vegetables, enters at some length into the structure of these remarkable vessels; and shews that air enters plants in various ways, not only by the trunk, leaves, and other visible parts, but also at the root. The pores designed for the reception and expulsion of air, are so very large in the trunks of some plants, as in the thick walking cane, that they are visible to the naked eye; but with a glass, the cane seems as if it were full of large pin-holes, resembling the pores of the skin in the ends of the fingers, and ball of the hand. In the leaves of the pine, through a glass, they make an elegant appearance, standing almost exactly in rank and file throughout the length of the leaves. The chief admission of air into plants, however, is at the root: much as in animals, some part of the air may continually pass into the body and blood by the pores of the skin; but the chief

draught is at the mouth. If the chief entrance of the air were at the trunk, before it could be mixed with the sap in the root, it must descend; and so move not only contrary to its own nature, but in a contrary course to the sap: whereas by its reception at the root, and its transition from thence, it has a more natural and easy motion of ascent. The same fact is farther evident, from the fineness and smallness of the diametrical apertures in the trunk, in comparison of those in the root; which nature has plainly designed for the separation of the air from the sap, after they are both together received into them. *Grew. Anat. of Root*, chap. iii. p. 127.

Air-vessels are found in the leaves of all plants, and are even discoverable in many without the help of glasses; for upon breaking the stalk or chief fibres of a leaf, the likeness of a fine woolly substance, or rather of curious small cob-webs, may be seen to hang at both the broken ends. This is taken notice of only in some few plants, as in *scabious*, where it is more visible; but may also be seen more or less in most others, if the leaves be very tenderly broken. This wool is really a skein of air-vessels, or rather of the fibres of the air-vessels, loosed from their spiral position, and so drawn out in length. *Id. ibid.* chap. iv. p. 155.

Dr. Hales has proved that air is inspired by vegetables; and has shewn that air, in many instances, freely enters the vessels of trees, and is wrought in great abundance into their substance. But as to particular air-vessels in plants, he asks, may not the use of those spiral wreaths, that are coiled round the insides of those vessels, which are supposed to be air-vessels, and which are manifestly to be seen in several trees, and in the leaves of the vine and scabious, be designed by nature to promote the quicker ascent of air, by being in some measure conformed to its elastic contortions? For such spiral wreaths seem to be altogether useless for promoting the ascent of any liquor, as the sap, which ascends most freely through innumerable other capillary vessels, having no such spiral coils in them: not that we are to suppose the air in its elastic state actually to touch, and thereby to be determined in the course of these spirals, as any liquor would be. But as the rays of light, when they are reflected from a solid body, are found to be reflected, without actually touching the reflecting body in the point of reflection; so it is not unreasonable to suppose, that elastic air may, like light, be diverted from one course, and so be determined to another, by the solid bodies it approaches, without touching them, but rebounding like light from those solid bodies near the point of contact.

This ingenious writer has observed, that these spirals are coiled in a course opposite to those of the sun, that is, from west to east. Vide Static. Ess. vol. i. p. 155, and vol. ii. p. 265, and 266.

Dr. Darwin in his Phytologia, contends that the vessels which Malpighi, Grew, and many others, have denominated bronchia, and erroneously thought to be air-vessels, and to serve the purpose of respiratory organs, are absorbent vessels, destined to imbibe the nutriment of plants, and that they are the genuine lungs of vegetables. 'These absorbent vessels,' he says, 'which resemble the lacteals of animal bodies, are found in the roots of plants for imbibing nourishment from the moist earth, on the external surfaces of the bark and leaves, for absorbing the humidity of the atmosphere, and also in the internal surfaces of the cells and cavities of the vegetable system, where they absorb the secreted fluids, after they have performed the offices to which they are adapted. The existence of the first sort of absorbents is evinced by the growth of plants, whilst moisture is applied to their roots, and by their withering when it is withdrawn. Those of the second sort are manifested by plucking off a leaf and laying it in water, which is found not to wither so soon as if it were left exposed to the dry air. The third class of vessels of this kind will be perceived to perform its office by moistening the alburnum or sap-wood, and the inner surface of the bark of a branch severed from a tree; which are thus preserved, whilst the same parts left unmoistened in the dry air are observed to wither. Besides, if vegetables be inserted in glass-tubes or narrow vessels, filled with water, the surface of the water will be seen to subside much sooner than by evaporation alone in similar circumstances.' Dr. Darwin contrived to exhibit these absorbent vessels to the eye, by dipping twigs of a fig-tree in a decoction of madder and of log-wood, which after some time, upon cutting off about an inch of the stalk near the bottom, exhibited a circle of red points, believed by him to be the coloured ends of the absorbents, that existed in the newly formed alburnum. He expresses his astonishment that any person should have conceived these vessels, that are found in the alburnum, and which consist of a spiral line, to be air vessels or tubes; and farther observes, that the absorbent vessels of trees in passing down their trunks, consist of long, hollow cylinders, of a spiral form, and of such large diameters in some vegetables, e. g. in cane, as to be visible, when dry and empty, to the naked eye. Through these air will pass rapidly upward and downward; and hence Dr. Hales has been led to coincide with Grew and others in opinion, that they are air-vessels or lungs designed for respiration, and receiving atmospherical air in their natural state. But to this Dr. D. objects, that they have no communication with the horizontal air-vessels of plants, and they exist in the root, as well as in the trunk, where, not being exposed to the atmosphere, they cannot serve for the purpose of respiration. Air, however, in its combined state, or dissolved in water, may be absorbed by these vessels; and may appear when the pressure of the atmosphere is removed in the exhausted receiver, or when it is expanded by heat; as is the case in the froth observed at one end of a green stick, when the other is burning in the fire. Dr. Darwin apprehends, that the structure of those large vegetable absorbents, which have been erroneously called air-vessels, consists of a spiral line, and not of a vessel interrupted with valves; and in this respect it differs from that of animal lymphatics. According to this writer,

the proper air-vessels are horizontal vessels of large diameter, which pass through the bark of trees to the alburnum. Malpighi has given a figure of them, and Duhamel mentions fine horizontal perforations through the bark of trees, which he believes to be perspiratory or excretory organs; and besides these, he takes notice of others, that are larger, standing prominent in the birch-tree, and piercing the exterior bark; which probably contain air during the living state of the tree. Dr. Darwin supposes, that the horizontal vessels first mentioned contain air, enclosed in a thin moist membrane, which may serve the purpose of oxygenating the fluid in the extremities of some fine arteries of the embryo buds, in a manner similar to that by which the air at the broad end of the egg is thought to oxygenate the fluids in the termination of the placental vessels of the embryo chick.

AIR, or AYRSHIRE, in geography, an extensive county of Scotland, stretching ninety miles in length, along the western coast, from its southern boundary near Loch Ryan, in Wigtonshire, to Kelly bridge, which separates it from Renfrewshire on the North; and extends in breadth, generally from twenty to twenty-five miles. It is bounded on the north by Renfrew, on the south by Galloway, on the east by Lanarkshire, and on the west by the Frith of Clyde. It comprehends the districts of Carrick, Coil, Kyle, and Cunninghame, which are divided into forty-six parishes, and contains 526,602 Scotch acres, or 662,005 English. From Colonel Fullarton's General View of this county, drawn up for the Board of Agriculture, we learn, that within these forty years, it has rapidly improved in its cultivation, trade, and commerce, as well as in the population, industry, and opulence of its inhabitants; that in 1791, its entire population being 83,892 souls, above 780 were proprietors of land; 1592 farmers; and about 461 paupers; that the annual funds for relief of these last, were upwards of £1262 sterling, that the valued rents amounted to £191,605 0*s.* 7*d.* Scots; and the real rents to between £150,000 and £160,000 sterling; the number of horses were about 4300; of sheep about 135,000; and of black cattle upwards of 34,000. This county exhibits the form of two wings extending to the N.W. and S.W. and forming a vast bay at the mouth of the Frith of Clyde. The principal rivers in it are the Ayr, the Stencher, the Gervan, the Doon, and the Irwin. The roads are excellent, and the plantations and clumps of trees numerous and beautiful. The county abounds in coal, iron, and other minerals. For its improvements in general, it was formerly much indebted to the exertions of the late earl of Eglington and Mr. Fairly, of Fairly, nor has the spirit of improvement relaxed of late years. Its population, according to the last census, was 127,299. Vast quantities of sea-weed are thrown on shore here, from which many tons of kelp are annually made. Most of the lochs have plenty of marl, the principal of which is loch Doon. The rivers abound with salmon, and the coasts are admirably adapted for the white fishing. The county is particularly adapted for the purpose of manufactures, from the abundance of the fuel; and those of cotton, woollen, thread, and muslin, are carried to a very considerable extent. In the hills of Carrick, a few curious fragments of agate, porphyry, jaspar, and calcareous petrifactions have been found; and galena and plumbago in the parishes of Stair and New-Cumnock, together with a species of whet-stone, known by the name of Ayr-stone. This county gave birth to Sir William Wallace, who in the reign of Alexander III. after fighting gloriously for his country, was at length betrayed into the hands of the English.

AIR, or AYR, or as it is spelt in some ancient writings, ARE, a parish of Scotland, situated in the county of that name, of a quadrangular form, about three miles long from north to south, and four miles broad at its eastern extremity, though not two at its western. It contained, according to the return made to Sir John Sinclair, by Drs. Dalrymple and M'Gill, in 1791, about 4100 inhabitants. The climate is moist, notwithstanding which many of the natives live to a great age. Tradition reports, that a battle was fought in this parish, in the valley of Dalrymple, between the Scots and Picts, before the Christian æra, wherein both the sovereigns, Fergus and Coilus, were slain. Here is a strong chalybeate spring, famous in scrofulous and scorbutic complaints; and the parish is distinguished as the birth place of the celebrated Johannes Scotus, and Robert Burns, the poet.

AIR, or AYR, a royal burgh of great antiquity, the county-town of Ayrshire, and the seat of a circuit court. It is seventy-five miles south-west from Edinburgh; contains 944 houses, and 7455 inhabitants within the parish. In 1202, it was made a royal burgh by king William the Lion. It is situated on the southern bank of the river Ayr, near its influx into the Frith of Clyde. In the centre of the town, which is in the shape of a crescent, stand the tol-booth and town-hall, with a spire 135 feet high. Ayr has two churches and several other places of worship. Here are also a theatre, a public academy, a library, and a reading-room, a dispensary, a work-house, and a savings-bank. It is also intended to erect a range of public buildings, including a court house, and a gaol for criminals and debtors, on an improved plan. The harbour formed by the mouth of the Ayr, is subject to the inconvenience of a shifting bar of sand; to remedy which, two reflecting light-houses have been erected. The principal manufactures are tanning, boot and shoe making, soap-boiling, also ship-building to a small extent. The exports are cotton and woollen goods, pig-iron, coals, paint, and whetstones; the imports, grains, spirits, bricks, slates, timber, and lime-stone: the principal trade is with Ireland. Besides the salmon fishery, the sand-banks on the coast abound with all kinds of white fish, and one or two companies are established here for catching and curing them. Sir William Wallace began his exploits, and Edward I. fixed a powerful garrison at this place. Oliver Cromwell converted the church into a garrisoned fortress and armoury, and gave the inhabitants 100 merks English to build another. In the Old Church the parliament met, which confirmed

Robert Bruce's title to the throne. Ayr sends a member to parliament along with Irvine, Rothsay, Inverary, and Campbeltown. Ayr is a fashionable place of resort, has well-attended races, and is sometimes the seat of the Caledonian hunt. It is governed by a provost, two bailies, a dean of guild, a treasurer, and twelve councillors. It has two weekly markets, and four annual fairs.

AIRA, in botany, *αἶρα*, the Greek name for lolium or darnel, has been given by Linnæus to a genus of plants, class 3, triandria; order 2, digynia, called in English aira grass, or hair grass. Its gen. characters are: CAL. glume, two flowered; valves, ovate-lanceolate: COR. bivalve; nectary two-leaved; leaflets acute: STAM. filaments capillary; antheræ oblong: PIST. germ ovate; styles cetaceous; stigmas pubescent: PER. none; seeds, sub-ovate. The species mostly consist of different species of the avena, or gramina of other writers. Fourteen have been enumerated, nine of which are natives of Great Britain.

AIRANI, or AIRANITÆ, in church history, an obscure sect of Arians, in the fourth century, who denied the consubstantiality of the Holy Ghost with the Father and the Son.

AIRDRIE, a market-town of Scotland, in East-Monkland parish, county of Lanark, on the great road to Edinburgh, twelve miles east of Glasgow. It is regularly built, with fine wide streets, extending nearly a mile in length. Here are distilleries, an iron foundry, a cotton manufactory, and a Burgher chapel. It has a weekly market, Fairs, second Tuesday of January, second Tuesday of February, third Thursday of May, O. S. last Tuesday of August, and first Thursday of November, O. S. population 4860.

AIRE, a town of France, formerly the chief town of Gascony Proper, now the head of a canton in the department of the Landes, &c. arrondissement of St. Sever, situated in a fertile and agreeable country, on the slope of a hill on the left bank of the Adour. It is nine leagues N. N. E. of Pau, and twenty-two S. S. E. of Bourdeaux. Population 3000, including the suburb village of Le Mas. Long. 0°. 12′. W. lat. 43°. 42′. N.

AIRE, or ARIEN, a town of France, in the county of Artois; the head of a canton in the department of the Pas de Calais, arrondissement of St. Omer. It is situated on the Lys, thirteen miles from St. Omer, with which it has communication by canal. Long. 2°. 29′. E. lat. 50°. 38′. N.

AIRLY, a parish of Scotland, in the county of Angus; containing 1070 inhabitants. It is situated partly in the vale of Strathmore, and partly on the Grampian hills. AIRLY CASTLE, the residence of the earl of Airly, is a fine modern structure, erected on the ruins of an ancient castle of the same name. The castle of Balrie is another ruin of considerable extent, in the same neighbourhood.

AIRVAUX, or AIRVAULT, a town of France, in the province of Poitou, included in the modern department of the Deux Sévres. It contains 440 houses and 2070 inhabitants; and is fourteen leagues N. E. of Niort.

AISEAU, a marquisate, with a village of the same name, in the kingdom of the Netherlands, three miles E. S. E. of Chatelet.

AISLE′, *n.* Latin, *ala;* Fr. *aile;* a wing; the walks in a church, or wings in the choir of a cathedral.

> The abbey is by no means so magnificent as one would expect from its endowments. The church is one huge nef, with a double *aisle* to it; and at each end is a large quire. *Addison.*
>
> Nor you, ye proud, impute to these the fault,
> If memory o'er their tomb no trophies raise,
> Where through the long drawn *aisle* and fretted vault,
> The pealing anthem swells the note of praise.
> *Gray's Elegy.*

AISLINGEN, formerly a free county of the empire, belonging to the bishopric of Augsburgh, now included in the kingdom of Bavaria, circle of the Upper Danube. A market town of the same name lies about four miles south of Dillingen, has a castle, a bailwick, and 1170 inhabitants.

AISNE, or AINE, a considerable river of France, which, after a course of forty leagues, unites itself with the Oise, a little above Champaigne. It becomes navigable near Chateau-Porcien, in the department of the Ardennes; and attempts have been made to connect it with the Maese by means of canals; but as yet without success.

AISNE, a department of France, consisting of portions of the ancient Compeigne, Isle of France and Picardy. It derives its name from the above river; and is said to contain 432,239 inhabitants. It is a grain district of considerable importance.

AISTULFUS, the last king but one of the Lombards in Italy, succeeded his brother Rachisuis, A. D. 748, had divers unsuccessful wars with Pepin, king of France, and ended a short and inglorious reign, A. D. 753, by breaking his neck at a hunting match.

AJUGA, BUGLE; in botany, a genus of the gymnospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 42d order, asperifoliæ. The characters are: CAL. a one-leaved short perianthium, cut half-way into five clefts, with the segments nearly equal: COR. is monopetalous and ringent; tube cylindric and bent in; the upper lip very small, erect, bifid, obtuse; the lower, large, spreading, trifid, obtuse; middle division, very large and obcordate, side ones small: STAM. subulate, erect filaments, longer than the upper lip, anthers twin: PIST. a four-parted germ, style filiform, and with respect to situation and length as in the stamina; stigmas two, slender, the lowest shorter; no pericarpium; the calyx which is converging, fosters the seeds, which are somewhat oblong. There are six species, viz. first, A. orientalis, or eastern bugle; second, ajuga Geneversis, a native of Switzerland; third, ajuga pyramidalis; fourth, ajuga acpina, or mountain bugle; fifth, ajuga decumbens, the Japanese bugle; sixth, ajuga reptens, or common bugle.

AJURU-CATINGA, in ornithology, the Guiana red-billed parrot, a variety of the psittacus rufirostris, the psittaca aquarum Lupiarum insulæ of Brisson, and the Guiana green parrot of Bancroft, and of Latham; has the bill, legs,

mountain, between Chamberry, Annecy, and Rumilly. There is here a triumphal arch of the ancient Romans, but it is almost entirely ruined. The mineral waters bring a great number of strangers to this place. It was originally called Aquæ Gratianæ, from the hot baths built there by the emperor Gratian. Long. 5°. 48.′ E. Lat. 45°. 40.′ N. Population 1600.

Aix-la-chapelle, a large and handsome city of Germany, once included in the circle of Westphalia and duchy of Juliers, now in the grand duchy of the Lower Rhine. It is situated 17 miles N. of Limburgh, 22 N. E. of Leige, 21 from Spa, and 40 W. of Cologne. It has a castle, built upon a hill, from which may be seen sixty different towns, the ocean, and even England, in a clear day. The town is seated in the valley, and is surrounded with woods and mountains, notwithstanding which the climate is good. It was a free imperial town for ages, and all authors agree about its antiquity; it being mentioned in Cæsar's Commentaries, and the Annals of Tacitus. The Romans had colonies and fortresses in it, when they were at war with the Germans; but the mineral waters and the hot baths so increased its fame, that, in process of time, it was advanced to the privileges of a city, by the name of Aquægranii, that is, the waters of Granius. That of Aix-la-Chapelle, was given it by the French, on account of a chapel built in honour of the Virgin Mary, by Charlemagne; who, having repaired, beautified, and enlarged the city, which had been destroyed by the Huns in 451, made it the usual place of his residence. He lies interred in the church of Notre Dame, where were long kept his sword, his belt, and the four evanglists written in letters of gold, and used at the coronation of the emperors: but the emperor of Austria is said to have transferred the three principal appendages of the chapel to Vienna; i. e. the gospels, Charlemagne's sword, and the shrine above mentioned, as indispensably necessary to the future coronation of the emperors. The last crowned here was Ferdinand I. in 1531, since which time the ceremony has taken place at Frankfort on the Maine. Aix-la-Chapelle, however, retains the greater number of the privileges conferred on it by Charlemagne.

The town may be divided into the inward and outward city. The inward is about three quarters of a league in circumference; and the outward wall, in which there were eleven gates, is about a league and a half in circumference. There are rivulets which run through the town and keep it very clean, besides various public fountains, and many private ones. They have stone quarries in the neighbourhood, which furnish the inhabitants with proper materials for their magnificent buildings, of which the stadt-house, and the cathedral are the chief. There are likewise thirty parochial churches, and numerous convents; but the greater part have been suppressed. The market place is very spacious, and the houses round it stately. Aix-la-Chapelle contained, in 1807, 3080 houses, and 27,164 inhabitants. Its manufactures of broad-cloth from Spanish wool are still famous, and occupy thirty-four flourishing establishments. Here are also copper and brass works of some celebrity. Its revenues, including, among other things, the tax or licence paid by lottery agents, may amount to 70,000 rix-dollars, or £12,000 sterling. Part of this arises from the adjacent lands, which are productive of iron and coal.

This place is famous for several councils and treaties of peace concluded in it; particularly those between France and Spain in 1668, and between Great Britain and France in 17[illegible]. In the year 1792, it was taken by the revolutionary forces of France; was retaken in 1793, and finally again seized by the French, under the command of general Jourdan, in 1794, who defeated Clairfait, near Juliers, and made the French masters of Cologne and Bona. Until the fall of Napoleon it continued to form a part of the French empire, being the capital of the department of the Roër, and head of the arrondissement. It was ceded to Prussia by the treaty of Vienna. During this period, the bishop and clergy of Aix-la-Chapelle, testified their gratitude to the ci-devant emperor, (then first consul) as the restorer of the Gallican church, by an elegant column in the area to the principal entrance of the cathedral, bearing in the inscription, Heroi Bonaparte Reipublicæ Gallicæ Primo Consuli, Episcopus Clerusque Aquisgranus Posuerunt, and recording the triumphs of France. The Cossacks, when here, overturned it to get at the coins which were deposited beneath; but the king of Prussia restored it, only altering some parts of the inscription dishonourable to his country.

The hot sulphureous waters, for which this place has so long been celebrated, arise from several sources, which supply baths constructed in different parts of the town. The waters near the sources are clear and pellucid; and have a strong sulphureous smell, resembling the washing of a foul gun; but they lose this smell by exposure to air. Their taste is saline, bitter, and urinous. They do not contain iron. They are also neutral near the fountain; but afterwards are manifestly and pretty strongly alkaline, insomuch that clothes are washed with them without soap. The heat of the water of the hottest spring, by Dr. Lucas's account, raises the quick-silver of Fahrenheit's thermometer to 136°, by Mons. Monet's account, to 146°; and the heat of the fountain, where they commonly drink, by Dr. Lucas's account, to 112°. Dr. Simmons has given the following account of their several temperatures, as repeatedly observed by himself, with a thermometer constructed by Nairne.

The spring which supplies what is called the Emperor's Bath, the New Bath, and the Queen of Hungary's Bath, ...	127°.
St. Quirin's Bath, ...	112°.
The Rose Bath, and the Poor's Bath, both supplied by the same spring, . . .	112°.
Charles's Bath, and St. Corneille's Bath,	112°.
The spring used for drinking is in the High Street, opposite to Charles's Bath; the heat of it at the pump is .	108°.

Dr. Lucas evaporated the water of the hottest spring, the Emperor's Bath, and obtained 208 grains of solid matter from a gallon, composed of fifteen grains of calcareous earth, ten grains of

selenites, and 243 grains of a saline matter made up of natron and sea salt. They are at first nauseous and harsh, but by habit become familiar and agreeable. At first drinking, also, they generally affect the head. A chemical analysis of this water discovers its gaseous contents to be a small portion of carbonic acid, and much sulphurated hydrogen gas, highly supersaturated, and of great volatility and pungency. The sulphur is sublimed, in a cistern, in a solid form, adhering to the upper stone, in the form of a fine powder; which is gathered, as it accumulates from time to time, and sold in the shops as Aix sulphur. That which is still retained in the water, becomes volatilized by evaporation; for when the water is exhausted by boiling, no particles remain in the residuum. A quantity of uncombined soda, is among the most important articles of its solid contents. There is also a minute portion of common salt and carbonated lime; but it does not appear that there are any purely metallic properties belonging to these waters. According to Bergman's analysis, an English pint, wine measure, is found to contain four grains and three quarters of carbonated lime, five grains of common salt, and twelve of carbonated soda. The quantity to be drank, as an alterative, is to be varied according to the constitution and other circumstances of the patient. In general, it is best to begin with a quarter or half a pint in the morning, and increase the dose afterwards to pints, as may be found convenient. The water is best drank at the fountain. When it is required to purge, it should be drank in large and often repeated draughts. In regard to bathing, this also must be determined by the age, sex, strength, &c. of the patient, and by the season. The degree of heat of the bath should likewise be considered. The tepid ones are in general the best, though there are some cases in which the hotter ones are most proper. But even in these, it is best to begin with the temperate baths, and increase the heat gradually. These waters are efficacious in diseases proceeding from indigestion, and from foulness of the stomach and bowels. In rheumatisms; in the scurvy, scrofula, and diseases of the skin; in hysteric and hypochondriacal disorders; in nervous complaints, and melancholy; in the stone and gravel; in paralytic complaints; in those evils which follow an injudicious use of mercury; and in many other cases. They ought not, however, to be given in hectic cases where there is heat and fever, in putrid disorders, or where the blood is dissolved, or the constitution much broken down. The time of drinking, in the first season, is from the beginning of May to the middle of June; and in the latter season, from the middle of August to the latter end of September. There are galleries or piazzas, under which the company walk during the time of drinking, in order to promote the operation of the waters.—The Poor's Bath, (Campus-bud) is free for every body, and is frequented by crowds of poor people. It is scarcely necessary to add, that there are all kinds of amusements common to other places of public resort; but the sharpers appear more splendid here than elsewhere, assuming titles, equipages, &c.

AIZET-LE-DUC, a town and barony of France, in Burgundy, department of Cote d'Or, nine leagues N. W. of Dijon.

AIZOON, in botany, called by Mr. Miller sempervive, though the name Aizoon has been by some writers applied to the house-leek, and also to the aloes: a genus of the pentagynia order, belonging to the icosandria class of plants; and in the natural method ranking under the thirteenth order, succulentæ. The characters are: CAL. a single leaved perianthium, divided into five segments, and persistent: there is no corolla: STAM. very numerous capillary filaments; the antheræ simple: PIST. a five-cornered germen above, with five simple styli; and the stigmata simple: The pericarpium is a bellied, retuse, five-cornered capsule, having five cells and five valves: The seeds are many and globular. Linnæus mentions three species, viz. 1. Aizoon Canariense, a native of the Canary islands. 2. Aizoon Hispanicum, a native of Spain; and, 3. Aizoon Paniculatum, a native of the Cape of Good Hope. They may all be raised in this country in hot beds; but are not remarkable for their beauty.

AKANIMINA, a town on the coast of Guinea, near cape Apollonia, about three-fourths of a league from the shore. The anchorage is good; and gold dust and ivory are procured here.

AKASAKA, a town on the south coast of the island of Niphon, belonging to Japan, the houses of which were remarked by Kæmpfer to be larger than those of any other place, even Jeddo the capital. It also contains some elegant inns, and is 100 miles E. of Meaco, 140 W. S. W. of Jeddo.

AKASI, an open town on the south coast of the above island, intersected by a broad and deep river, having a fortress where the governor resides.

AKBAH, a celebrated Saracen conqueror, who overran the whole of Africa, from Cairo to the Atlantic Ocean. At the head of ten thousand of the bravest Arabs, he marched from Damascus, and gradually increased his army by numbers of the barbarians, whom he had conquered and converted. Amid the fictions of oriental writers, it is not easy to follow Akbah through the line of his victories. We know merely that he penetrated with dauntless intrepidity the very heart of the country; and after traversing the wilderness, where his successors erected the capitals of Fez and Morocco, carried his arms to the Western Ocean. Distressed at this limitation which nature had set to his brilliant career, he is said to have spurred his horse into the ocean, and exclaimed, 'Great God! if my course were not terminated by this sea, I would still advance to the unknown regions of the West, preaching the unity of thy holy name, and putting to the sword the rebellious nations that worship any other God than thee.' A general revolt among the Greeks and Africans recalled him from the West, and proved the means of his destruction. The insurgents trusted to the revenge of an ambitious chief, who had disputed the command, and having failed in his designs was led about as a prisoner in the camp of Akbah. He revealed their de-

sign, however, to the Arabian general, who, under the impulse of gratitude, loosened his fetters, and gave him leave to retire. The generous chief chose rather to die with his benefactor, and having embraced each other as fellow martyrs, and broken to pieces their scabbards, they fell by each other's side, after a glorious conflict with the insurgents. Akbah, proposed to establish an Arabian colony in the interior of Africa, in order to check the barbarians and secure a place of refuge to the families of the Saracens. He accordingly founded Cairoan, under the title of a Caravan Station, in the fiftieth year of the Hegira. He encompassed an area 12,000 paces in diameter with a brick wall, and in five years the palace of the governor was encircled with a number of private dwellings; and a splendid mosch was erected upon five hundred columns of granite, porphyry, and Numidian marble. See *Ockley's Hist. of the Saracens*, vol. ii. *Leo Africanus*, fol. 75. *Shaw's Travels. Marmol. Description de l' Afrique*, tom. iii. &c.

AKBAR, or AKBER, sultan, in biography and history, the sixth of the descendants of Timur Bek or Tamerlane, who reigned in Hindostan under the appellation of Moguls, was born in 1542, and succeeded his father Hemaiun in 1556. He was proclaimed emperor at Calanor, in the province of Lahor, and assumed the title of Jilal D'din, q. d. the aggrandizer of religion. Having overthrown the Patans and taken possession of Delhi, he was inaugurated in the city, and assumed the government which had at first been administered by his tutor, Beyram Khan. He then made himself master of the strong fortress of Chitor, after a severe engagement with a rebel chief, and quelled other insurrections; and having obtained an interval of tranquillity, he made a pilgrimage, barefoot to Azmir, at the distance of 200 miles; for the purpose of visiting the tomb of Haji Mondi, and of obtaining children by the intercession of this saint. During his abode at Fettipur, on his return, he was informed of a rebellion at Guzerat, which hastened his march to this province; and having subdued the rebels, reduced the castle of Surat, and secured the province by fortifying Ahmed-abad, he returned to Hindostan. In this year he finished the castle of Agra, at an expense of two millions, five hundred thousand rupees, laid out a million and a half on the walls and palace of Fettipur, and began to erect sumptuous sepulchres of his family at Schander, five miles from Agra. At this time he directed his views to the conquest of Bengal, and having, after a long siege, taken possession of Patan, he became master of the whole country. His next acquisitions were Kabul, Kandahar, Kashmir and Sindi. Having united these countries to his empire, he employed a powerful army in the invasion of Dekan, which, notwithstanding vigorous resistance on the part of the queen of this country, subdued several provinces and annexed them to the Mogul empire. Whilst Akbar was engaged in the prosecution of the Dekan war, his prosperity was interrupted by a concurrence of domestic misfortunes. He was deprived of two of his sons, viz. Sultan Morad, in 1598, and Sultan Danul, in 1604, by intemperance; and his son Selim took the advantage of his absence, in seizing his treasures and marching a numerous army towards Agra, in order to take possession of his father's throne. Akbar, as soon as he received intelligence of his son's rebellion, hastened back to Agra, and having made ineffectual overtures of accommodation, in enforcing which his vizir Abul Fazl lost his life, he resolved to turn his arms against Selim. But as he had lost all other sons, he once more attempted to persuade his son into submission. With this view he employed the tutor of Selim to convey letters to him, in which he reproached him for his rebellion, but at the same time declared, that, as he was his only son and heir, he was ready to restore him to favour. The father's letters and the tutor's arguments produced effect; Selim returned to Agra and submitted. Akbar at first treated him with austerity, but at length pardoned him, though he still retained suspicions of his real fidelity. The emperor did not long survive the reconciliation. Being incensed against a minister, who governed one of his provinces, he resolved to remove him by poison; and for this purpose ordered two pills of opium, in one of which there was poison. Having held these in his hand for some time, he gave one to Mirza, and by mistake took the poisoned one himself. The consequence, notwithstanding the use of remedies as soon as the mistake was discovered, was fatal. When Selim paid his dying father a visit, he put his own turban on this prince's head, and girt him with his father Hemaiun's sword; but on the twelfth day after he had taken the poison, Akbar died, A. D. 1605, at the age of sixty-three years, and was buried in the family sepulchre near Agra. Akbar was distinguished by his conquests, and by his success in reducing almost the whole of India to obedience. He was also one of the few sovereigns entitled to the appellation both of great and good, and the only one of the Mahommedan race, whose mind was so far divested of the illiberal prejudices of the fanatical religion in which he was educated as to be capable of forming a plan worthy of a monarch who loved his people, and was solicitous to render them happy. Although he was not attached by profession to any form of religion himself, he was not a persecutor of any. In 1582 he wrote a letter to the king of Portugal preserved by Fraser, and containing an avowal of sentiments, liberal and enlightened; in which he desires that a translation of the Christian scriptures into Arabic or Persian might be sent to him, and at the same time a learned person to explain the Christian religion. One Geronimo Xavier was deputed, and with this view learned the Persian language; but the Gospels, which were translated into this language, and presented to the mogul, 1602, were so intermixed with popish legends, that they were not likely to be very intelligible, or to produce any very good effect. As in every province of his extensive dominions, the Hindoos formed the great body of his subjects, Akbar endeavoured to acquire a perfect knowledge of their religion, their sciences, their laws and their institutions; in order that he might conduct every part of his government, particularly the administration of justice, in a

ıer as much accommodated as possible to own ideas. In these generous views he seconded by Abul Fazl, a minister whose rstanding was not less enlightened than that s master. By their assiduous researches, he consultations of learned men, such infor-ɔn was obtained as enabled this vizir to ish a brief compendium of Hindoo juris-ence in the Ayeen Akbery, which may be idered as the first genuine communication principles to persons of a different religion. hat estimation the mild government of Ak-was held by the Hindoos we may learn a beautiful letter of Jesswant Sing, Rajah oudpore, to Aurengzebe, his fanatical and ecuting successor. 'Your royal ancestor, ar, whose throne is now in heaven, con-ed the affairs of this empire in equity and security for the space of fifty-two years, erving every tribe of men in ease and piness. Whether they were followers of is, or of Moses, of David, or of Mahomet; e they Brahmins, were they of the sect of rians, which denies the eternity of matter, f that which ascribes the existence of the ld to chance; they all equally enjoyed his ntenance and favour; insomuch that his ple, in gratitude for the indiscriminate pro-ion which he afforded them, distinguished him the appellation of Juggot Grow, guardian of nkind. If your majesty places any faith in se books, by distinction called divine, you l there be instructed, that God is the God of mankind, not the God of Mahommedans ne. The Pagan and the Mussulman are ually in his presence. Distinctions of colours of his ordination. It is he who gives existence. your temples, to His name the voice is raised prayer; in a house of images, where the bell shaken, still He is the object of adoration. vilify the religion and customs of other men, to set at naught the pleasure of the Almighty. hen we deface a picture, we naturally incur the sentment of the painter; and justly has the poet id, 'presume not to arraign or to scrutinize e various works of Power divine.' For this luable communication, we are indebted to Mr. rme. *Fragment*, notes, p. 97. *Fraser's Hist. Nadir Shah.* p. 11—12. *Mod. Un. Hist.* vol. p. 365—375. *Robertson's Hist. Disquisition oncerning India.* p. 424.

AKENSIDE, (Dr. Mark,) was born 9th of November, 1721, at Newcastle. His father, a butcher, of the same name, belonging to the Pres-byterian denomination, had his son Mark taught he rudiments of education in his native town; after which he was sent to the university of Edin-burgh, preparatory to his filling the office of dis-senting minister, assisted by a fund generally provided to encourage young men of that de-scription. While at the university he altered his views and applied himself to the study of medicine, replacing the money which he had received from the fund. In 1741, he went to the university of Leyden, and three years afterwards took his degree. Here he pro-duced his treatise on the growth of the human fœtus, in which he is said to have departed with great judgment from the opinion then entertained, and to have adopted that which has been since established.

As a poet, he was one of those who displayed great precocity of invention, and felt very early the motions of genius; he, therefore, had his memory well stored with sentiments and images. His chief work, The Pleasures of Imagination, appeared in 1774; on which occasion, Dodsley, by whom it was published, relates, that when the copy was offered him for £120, he felt re-luctant to make the purchase; but resolved to take the opinion of Pope, who very much ad-mired the composition, and advised him to give the money, assuring him that this was no ordinary writer. Akenside having in this poem adopted the sentiment of Shaftsbury, that ridicule is effica-cious for the discovery of truth, Warburton made an attack upon it. The poet nevertheless rose into popularity, and the objectionable passage was expunged. In 1745, he published a collection of odes, which displayed considerable poetic genius, though not equal to his former publication. As a physician, he practised first at Northampton, then at Hampstead, and after-wards in London.

He was enchanted to enthusiasm with the sound of liberty, a great lover of contradiction, and no friend to any thing established. This disposition proved very detrimental to his suc-cess. Mr. Dyson, his fellow student, with whom he had contracted a friendship at Leyden, bought a house at North End, near Hampstead, where he supported him, introduced him to the long-room, and to all the clubs and assemblies of the inhabitants. Here, however, his litigious disposition engaged him in so many disputes, that little could be done at Hampstead. Mr. Dyson afterwards thought of introducing him to London; and parting with his villa at North End, took a house in Bloomsbury-square, and allowed Akenside £300 per annum. Here, as at Hampstead, he manifested a very high opinion of himself, and haughtiness towards men of inferior endowments. He engaged in political controversy, censured the public councils, and professed the most bigotted notions respecting government.

In the winter evenings he frequented Tom's coffee-house, in Devereux-court, the resort of the most eminent scholars of the day. With many of these he shortly became entangled in disputes, and altercations, that fixed on his cha-racter the stamp of haughtiness and self-conceit; so that persons who admired him for his genius and parts preserved a respectful distance. His abilities at last began to recommend him: he became fellow of the Royal Society, obtained a degree at Cambridge, entered the college of phy-sicians, became physician to St. Thomas's hos-pital, and afterwards physician to the queen. He published several medical treatises, which were highly approved, especially one on dysen-teries; read the Gultonian lectures on anatomy; and might have reached a greater elevation than he ever anticipated, had not death put an end to all his designs and hopes, on the 23d of June, 1770, in the 49th year of his age. He was buried with

great solemnity, in the church of St. James's, Westminster.

With respect to the character of Akenside, he was a man of religion and virtue; a philosopher, a scholar, and a poet. His conversation was of the most delightful kind, learned, instructive, cheerful, and entertaining. He possessed great powers of mind, and his work on the imagination was published before he was 23 years old. He afterwards attempted its revision and correction; but despairing of being able to effect it to his own satisfaction, he resolved to write it anew; finished two books, and part of the two succeeding ones. The original was nevertheless thought so excellent, that it has generally been retained with the corrections. His odes have their dark and light parts; and abound with flights of thought, almost superhuman. His Latin discourse on dysenteries, entitles him to the same place among scholars, as his imaginary works among poets.

AKERMAN, an ancient town of Turkey, in Europe, situated at the mouth of the Dneister, where it falls into the Black Sea.

AKERSTAFF, an instrument for cleansing the plough-coulter.

AKHISAR, or WHITE CASTLE, a town of Asiatic Turkey; so called from its quarries of white marble. It stands on, or very near to, the site of the ancient Thyatira. It is about 40 miles S. E. of Pergamos, in a plain, about 18 miles in extent, on the banks of the Hermus, and abounding in grain and cotton. The inhabitants, who are about 5000 in number, carry on some trade in opium and Turkey carpets. Lon. 27°. 49′. E. Lat. 38°. 15. N.

AKIBA, a famous rabbi, flourished a little after the destruction of Jerusalem by Titus. He kept the flocks of a rich citizen of Jerusalem till the fortieth year of his age, then applied himself to study in the academies for twenty-four years; and was afterwards one of the greatest masters in Israel, having 24,000 scholars. He declared for the impostor Barcochebas, whom he owned for the Messiah; and not only anointed him king, but took upon himself the office of his master of the horse. The troops which the emperor Adrian sent against the Jews, who under the conduct of this false Messiah had committed horrid massacres, exterminated this faction. Akiba was taken, and put to death with great cruelty. He had lived 120 years; and was buried with his wife in a cave upon a mountain not far from Tiberias: his 24,000 scholars being said to be buried round about him upon the same mountain. It is imagined he invented the suppositious work under the name of the patriarch Abraham.

AKILA, or ST. COLM'S one of the Hebrides, and lying in W. Lon. 6°. 19′. N. Lat. 57°. 53′.

AKIN′. Of kin. See KIN.

I do not envy thee, Pamela; only I wish, that being thy sister in nature, I were not so far off *akin* in fortune. *Sidney.*

The cankered passion of envy is nothing *akin* to the silly envy of the ass. *L'Estrange's Fables.*

Some limbs again, in bulk or stature
Unlike, and not *akin* by nature,
In concert act, like modern friends;
Because one serves the other's ends.

He separates it from questions, with which it may have been complicated; and distinguishes it from questions which may be *akin* to it.
Watts's Improvement of the Mind.

Their idle sport,
Who pant with application misapplied
To trivial toys, and pushing iv'ry balls
Across a velvet level, feel a joy
Akin to rapture, when the bauble finds
Its destined goal. *Cowper's Task.*

AKISKA, GHALZIG, or TAIK, a fertile and populous province of Asiatic Turkey, is bounded by Georgia on the north-east. It contains in the mountainous parts the richest mineral ores; and the decayed towns scattered throughout the province, indicate that under a more propitious government it has flourished still more than at present. The aborigines are distinguished by uncommonly fine and thick beards. They practise a rude husbandry, and rear bees and the silk-worm. Its capital is

AKISKA, or AGHALZIGHE, a town on the banks of the Kur, or Cyrus, containing about 400 houses, and defended by a strong and lofty castle. It is a considerable trading place, especially with Battum, a port on the Black sea. The inhabitants are of all countries and religions. It is distant 90 miles N. N.W. of Erivan; 100 miles S.W. of Teflis.

AKKA, a station of Lower Suse, on the frontier of the Great Sahara, south of Morocco. It forms the rendezvous of the caravans from all parts of Morocco, whence they proceed across the desert of Tombuctoo. Mr. Jackson estimated it to contain, with the neighbourhood, 10,000 inhabitants.

AKLOOSS, a town of the Maharatta territory, in the province of Bejapoor, near Assodnagur. It has a fort and well-supplied bazaar; is nearly a mile in length, and contains several handsome wells and buildings. The Nera river is a little to the north of the town, and is 100 yards broad in the wet season.

AKKER, a city of Syria, upon mount Barzylus, about twenty-seven miles from Tortosa. Shaw supposes that this is the Kir of the Scriptures, (Amos, chap. i. 5, and chap. ix. 7,) and intimates that it must formerly have been as celebrated for its strength and beauty, as it is now for its various kinds of fruits, as apricots, peaches, nectarines, &c.

AKOND, in Persian polity, a judge of the civil courts, whose especial duty it is to preside over the causes of widows and orphans. He possesses deputies in all parts of the Persian empire, and gives directions, or as some say, lectures to all inferior officers.

AKOUSCHY, in zoology, and cavia acouschy, the olive cavy of Pennant, has a short tail; the upper parts of the body of an olive colour, and the under part whitish. It differs from the agouti in having a tail, which the other wants, or rather in having a longer tail than that of the other; in being smaller, and in having its hair of an olive, and not a red colour; differences, says Buffon, sufficient to constitute two distinct species. It is about the size of a half-grown rabbit; is hunted with dogs, easily tamed, and reckoned the

finest game in South America. It inhabits the woods, and lives on fruits; has such a dread of water, that it will submit to be seized by the dogs rather than go into it; and it will sometimes, though rarely, cry like the restless cavy. *Buffon*, by *Smellie*, vol. v. p. 61, &c.

AKSCHINSK, a fortress and village of Russian Tartary, in Dauria, on the right bank of the Onon. It was built by the Russians in the year 1756, and forms one of a series, or chain of military posts, on this portion of the Russian frontier. E. Lon. 132°. N. Lat. 50°.

AKSHEHR, a town of Natolia, in Asiatic Turkey, at the foot of a mountain of the same name, from whence copious streams of water constantly descend, forming a rivulet through most of the streets. The neighbourhood abounds in beautiful gardens, rich in almost all the fruits of Europe and Asia. Fine carpets, wool, wax, gum, galls, and tragacanth, are exported hence, particularly to Smyrna. This place was taken by Tamerlane in 1402, and is distant 60 miles S.S.E. from Karahissar.

AKTUBA, a river of Asiatic Russia, branching from the Volga, about twelve miles above Tzaritzin, and rejoining it again before it falls into the Caspian. The abundance of mulberry trees on its banks has induced the Russian government to establish colonies here, to promote the culture of silk.

AL, an Arabian particle, answering to the English the, and employed in the same manner to mark any thing distinctly, as Alcoran, from coran, to read; the reading, or book, in distinction from all others. Second, Al, or ald, from the Saxon Aelꝺ, old, is affixed to the name of old towns, as Aldborough, Aldford, &c.

ALA, or Alæ, in ancient military affairs, the wings of an army, or the horse on each side flanking the foot; and so called because they stood on the right and left, as the wings on the body of a bird. They were also according to Vegetius called vexilationes. *Aul. Gell.* l. 16, c. 4; *Veget. de Re Mil.* l. 2. c. 1.

Ala, Alæ, or Axilla, in botany, a wing or membrane on the sides of a petiole or footstalk, or attached to a seed or seed-vessel; which last is distinguished by the names of monopterygia or alatæ, dipterygia or bialatæ, tripterygia or trialatæ, &c. according as there is one, two, three, or more wings. Second, the two side petals of a papilionaceous flower. *Linn. Phil. Botan.*

Ala, or Alæ, in anatomy, μασχάλη the armpit. Hippocrat. de Art.; Gorr. Defin. Med.—Alæ aurium, πτερυγώματα τῶν ὦ των, the superior parts of the external ear. Gal. Introd. c. 10, &c.—Ala, or Alæ Nasi, πτερυγία ῥινὸς, the cartilages which are joined to the extremities of the bones of the nose, and form the moveable part. Gal. de Usu. Part. l. 11.—Alæ ossis Sphenoides, the two apophyses of the os sphenoides. —Ala, or Alæ Pudendi, the same as Nymphæ.

ALABA, a small district of Biscay, in Spain, fertile in rye, barley, and fruits. There are in it very good mines of iron, and it had formerly the title of a kingdom.

ALABAHA, a river of East Florida, North America, also the name of a branch of St. Mary's river.

ALABAMA, an Indian village of North America, on the banks of the Mississippi, where reside the remains of the Alabama nation, who, before they were conquered by the Creeks, inhabited the east side of the great Mobile river.

Alabama, a river of North America, formed by the junction of the two rivers of Georgia, the Coosa, and Tallapoosse. It is a beautiful stream abounding with fish, and having a current running about two miles an hour. It takes a south-westerly direction, until it meets the Tombighee from the north-west. The Alabama forms a quick and pleasant conveyance by boats from Little Tallasee to Mobile bay, a distance of about 350 miles, and finally empties itself into the Gulf of Mexico: its banks abound with trees and vegetables. It is eighty roods wide at its head, and from fifteen to eighteen feet deep at the driest season. An American writer says, that 'to go from Mobile to Fort Jackson, a distance of about 420 miles, will take from a month to six weeks, according to the state of the river.' 'A barge, with five hands, and carrying 125, barrels,' has gone this distance in thirty days; 'but it was reckoned a remarkably good trip.' Settlements on the banks of this river are rapidly increasing, especially in the country lying between it and the Tombighee.

Alabama territory, or state, a newly settled state or territory of the great northern republic of America—the United States, is situated between thirty and thirty-five degrees of north latitude. Its boundaries, as established by law on the 3d of March, 1817, are as follows: beginning at the point where the line of the thirty-first degree of north latitude intersects the Perdido river, thence east to the western boundary line of the state of Georgia, thence along the said line to the southern boundary line to the state of Tennessee, thence west along the said boundary line to the Tennessee river, thence up the same to the mouth of Bear creek, thence by a direct line to the north-west corner of Washington county, thence due south to the Gulf of Mexico, thence eastwardly, including all the islands within six leagues of the shore, to the Perdido river, thence up the same to the beginning.' It has the new state, formed from the western part of the Mississippi territory, on the west; Tennessee north; Georgia and the remnant of West Florida east, and the Gulf of Mexico and West Florida south. These boundaries comprise about one half of the late Mississippi territory, which contained about 93,480 square miles, or 59,827,200 acres.

The main rivers of this territory run south, and fall into the Gulf of Mexico. The Alabama described above, is the most considerable.

The Coosa, under the names of Connesangah, Estenaury, Hightour, &c. runs probably above 150 miles, estimating the distance by land, through the Cherokee territory, in the north-west corner of the state of Georgia.

The country between the Mobile and the Catahouchy, is about 180 miles wide, and watered by the Perdido river, which forms the boundary between the Alabama territory and the remnant of West Florida; it runs parallel to the Mobile, and falls into Perdido Bay. The streams are the

Conecah and Escambia, whose waters unite and flow into Pensacola Bay; the Conecah is navigable upwards of 100 miles, and is lined by forests of valuable timber. Beyond the Escambia is Yellow-water river, which falls into the Bay of Pensacola. Choctaw and Pea rivers, still further east, fall into the Bay of St. Roses. These streams are all navigable from fifty to 100 miles; the country which they drain is mostly of a sandy soil, and pine timber.

The Catahouchee is a noble river, affording a navigation of 400 miles; heads in the south-east corner of Georgia, pursues a south-west course 300 miles until it strikes the boundary line between Georgia and the Alabama territory, when itself becomes the division line to the limits of West Florida, a distance of 120 miles.

The northern parts of this territory are broken; near the Tennessee line, towards the south-east corner, it may be said to be mountainous. The middle is hilly, with here and there tracts of level prairie land. Along the Florida line is a strip of country fifty or sixty miles wide, covered with the short and long leaved pine, cypress, and loblolly, so closely resembling the country between Pearl river and the Mobile, as to render a description of the one applicable to the other. Such are its general aspects. The soil between the Mobile and the Catahouchee, bordering West Florida, is better than that on the east side of Flint river; between the Conecah and the Catahouchee the land is broken and waving; the ridge dividing their waters has high flats of light sandy land, well set with willow-leafed hickory, and iron ore in places; all the streams have cane on their margins, and are frequently ornamented with the sour orange tree; the country healthy, and affording a fine range for cattle, hogs, and horses. The pine flats have the wire grass and saw palmetto: the soil of the waving land, stiff and red loam, with stone on the ridges; the pine land pretty good for corn. Between the Mobile and the Perdido, the soil is thin, timber pine, loblolly bay, cypress. The head waters of Escambia and Conecah embrace large quantities of fine cotton and sugar lands, and orange groves. Along the Tensaw, pine and cypress forests, of a heavy growth; canebrakes, along the river; and sometimes cypress swamps. The Alabama is margined with cane swamps; these at intervals, with pine flats of good soil, suitable for sugar, cotton, and corn. The swamps at the confluence with the Tombighee, and for some distance below, are subject to periodical inundations, for which reason the inhabitants never fence their improvements. Above they are very wide, intersected with slashes and crooked drains, and much infested with musquitoes. The land bordering on the swamps is a poor stiff clay, for one mile back; the growth pine and underbrush; back of this, broken pine barren; cypress ponds and canebrakes on the branches. Fifty miles from the union of the Alabama with Tombigbee, the high broken lands commence, extending for sixty miles upwards; timber, oak, hickory, poplar, and very large cedars.

The best part of the territory is to be found between the Alabama and Tombigbee; the Black Warrior, and Bear creek, have some fine bottoms, and those of the Tallapoosa from Tookabatchee to its confluence with the Coosa, about forty miles, are excellent; the broken land terminates on its right bank, the good land spreads on the left. Proceeding towards the dividing ridge between the Alabama waters and those of the Conecah, we pass over an extensive tract of fine land, the timber large, and cane abounding, liberally watered by creeks; this tract is thirty miles long including the plains, and twenty wide. The plains are waving, hill and dale, and appear divided into fields, interspersed or bounded with clumps of woodland; soil lead-coloured dark clay, very rich and covered with weeds and tall grass. Below the plains, soil stiff, very rich in some places, and gravelly; surface broken for thirty miles, then pine barren. At the source of Limestone creek, there is an excellent body of land called the Dog wood; the growth oak, chesnut, poplar, pine, and dogwood. This tract of land is twenty miles in length, and eight broad, the dogwood is very thick set, and tall, the whole finely watered. Sixty miles above the confluence of Coosa and Tallapoosa, there is a high waving country, settled by the Creek Indians, who live generally on rich flats of oak, hickory, poplar, walnut, and mulberry: the springs are fine, cane on the creeks, and reed on the branches, the surrounding country broken and gravelly. Most kinds of game are scarce throughout the territory. Stone coal abounds on the Cahaba, Black Warrior, &c. The late colonel Hawkins, long resident in the Creek nation, pourtrays the surface and soil of this country in these words:

The country between Coosa, Tallapoosa, and Chatahouchee, above their falls, is broken; the soil stiff, with coarse gravel, and in some places stone. The trees post oak, white and black oak, pine, hickory, and chesnut; all of them small; the whole well watered, and the rivers and creeks have rocky beds, clad in many places with moss, greatly relished by cattle, horses and deer, and are margined with cane and reeds and narrow strips or coves of rich flats. On the Coosa, sixty miles above its junction with Tallapoosa, there is limestone, and it is to be found in several places from thence to E-tow-wah, and its western branches.

Above the falls of Ocmulgee and Flint rivers the country is low and broken, as that of the other rivers. These have their sources above each other; on the left side of Chatahouchee, in open flat land, the soils stiff, the trees post and black oak, and small. The land is generally rich, well watered, and lies well, as a waving country, for cultivation; the growth of timber, oak, hickory, and the short leaf pine, pea vine on the hill sides and in the bottoms, and a late (or autumnal) broad leaf grass on the richest land. Below the falls of these two rivers, the land is broken or waving, the streams are some of them margined with oak woods; and all of them with cane or reed. The uplands of Ocmulgee are pine forests; the swamp wide and rich; the whole fine for stock. On its right bank, below the old Uchee path, there is some light pine barren, with some light palmetto grass.

Flint river has also, below its falls, some rich

swamp for not more than twenty miles; its left bank is then poor, with pine flats and ponds, down within fifteen miles of its confluence with Chatahouchee. These fifteen miles are waving, with some good oak land in small veins. On its right bank there are several large creeks which rise out of the ridge, dividing the waters of Flint and Chatahouchee. Some of them margined with oak woods, and cane; and all the branches for seventy miles below the falls have reeds: from thence down, there are bay-galls, dwarf evergreens, and cypress ponds, with some live oak. Between these rivers there is a good post, and black oak land, strewed over with iron ore, and the ridge dividing their waters has a vein extending itself in the direction of the ridge. Within twenty-five miles of the confluence of the rivers, the live oak is to be seen near all the ponds; here are limestone sinks; the land is good in veins, in the flats, and on the margins of the rivers. The trees of every description small; the range a fine one for cattle.

The extensive body of land between Flint river and Oke-fau-no-cau, Altamaha and the eastern boundary of the Creek claims, is pine land, with cypress ponds and bay-galls. The small streams are margined with dwarf evergreens; the uplands have yellow pine, with dwarf, saw palmetto and wire grass; the bluffs on St. Illas are some part of them sandy pine barren; the remainder a compact, stiff, yellowish sand or clay, with large swamps; the growth loblolly, bay, gum, and small evergreens; the whole of these swamps are bogs. In the rainy season, which commences after midsummer, the ponds fill, and then the country is, a greater part of it, covered with water; and in the dry season it is difficult to obtain water in any direction for many miles.

Bees abound in the Okefaunocau and other swamps eastward of Flint river; the whortleberry is to be found in swamps and on the poorest land bordering on the cypress ponds, when the woods are not burnt for a year or more; the latter are on dwarf bushes, grow large, and in great abundance. The dwarf saw-palmetto, when the woods are not burnt, in like manner, bears a cluster of berries on a single stone, which are eaten by bears, deer, turkies, and Indians. The berries, half an inch thick, are covered with a black skin, and have a hard seed: they are agreeable to the taste, sweet accompanied with bitter, and when fully ripe they burst, and the bees extract much honey from them. The China briar is in the flat, rich, sandy margin of streams. The Indians dig the roots, pound them in a mortar, and suspend them in coarse cloth, pour water on them, and wash them; the sediment which passes through with the water is left to subside; the water is then poured off, and the sediment is baked into cakes, or made into gruel sweetened with honey. This briar is called Coonte, and the bread of it Coontetucaliga, and is an important article of food among the hunters. In the old beaver ponds, and in thick boggy places, they have the bog potatoe, a small root used as food in years of scarcity.

The Okefaunocau is the source of St. Mary's and Little St. Johns, called by the Indians Sauwau-he. It is sometimes pronounced Ecunfinocau, from Ecunau earth, and finocau quivering; the first is the most common among the Creeks —it is from Ocka, a Choctaw word for fire and water; Ocau, quivering. This is a very extensive swamp, and much of it a bog; so much so, that a little motion will make the mud and water quiver to a great distance; hence the name is given.

The settlements already made extend from Mobile point to Fort Jackson on the Coosa. On the Alabama the country is pretty well settled near the river, twenty-five miles above Fort Jackson. There are also settlements on the Conecah, Cahaba, and Black Warrior. Below St. Stephens the country is very thinly settled; but it is now rapidly settling between the Alabama and Tombigbee.

There are several new towns; the village of Blakely is situated at the mouth of Tensaw, on the east side of the Mobile bay. Its site is high, commanding, and pleasant. Its fountains of fresh spring water, are pure, cool, numerous and copious. A good road can be found along the dividing ridge separating the branches of Conecah and Escambia from those of the Alabama; and the distance from Mobile to Fort Claiborne, by this route, is thirty miles shorter than by that of St. Stevens. The main road from Georgia to New Orleans will probably strike Mobile bay at this point. The borders of the Conecah are fast settling, especially by the poorer class of people, and Stock owners; it being better calculated for men of small capital than the Alabama The rapidity of the settlement of Madison county is probably without a parallel in the history of the union. We subjoin the census of 1816.

Counties.	Whites.	Slaves.	Total.
Wayne,	1,566	517	2,083
Baldwin,	411	752	1,163
Clarke,	2,763	1,338	4,196
Greene,	992	729	1,721
Monroe,	3,593	1,603	5,296
Jackson,	714	255	969
Washington,	1,888	671	2,559
Madison,	10,000	4,200	14,200
Mobile,	867	433	1,300
Total,	22,794	10,493	33,287

This territory is rapidly augmenting its inhabitants, by emigrants from Georgia, the Carolinas, Kentucky and Tennessee.

The Creeks or Muscogees, are the only Indians inhabiting the territory, and reside chiefly on the waters of Alabama and Catahouchy, in about thirty towns; they are brave, raise stock, and cultivate the soil; and although greatly reduced by war and famine, in 1813 and 1814, their number at this moment exceeds 20,000 souls.

In 1819 the population of this territory rising above 60,000 souls, it was admitted 14th of December of that year, into the confederacy or general Union, as a distinct State: in 1821 its population, according to the census, was 85,451 whites; 41,879 slaves; and 415 free blacks.

ALABANDA, in ancient geography, a town of Caria, near the Meander, situated between Amyzo to the west, and Stratonice to the east.

The place abounded in scorpions, and the inhabitants were remarkable for their voluptuousness. Under the Romans it was the head of a jurisdiction, and it still retains some relics of its former splendour.

ALABANDI, ALABANDENI, or ALABANDENSES, the inhabitants of Alabanda. Under the Romans they had assizes, or a convention of jurisdiction.

ALABANDUS, the founder of Alabanda, and worshipped as a god by the natives.

ALABARCHA, in antiquity, a kind of magistrate among the Jews of Alexandria, whom the emperors allowed them to elect, for the superintendency of their police, and to decide differences and disputes which arose among them.

ALABARDA, the name of a spear anciently used by the Helvetians and Germans.

AL'ABASTER, *n.* Αλαβαστρον, a kind of soft marble, generally white. Used by the ancients to make boxes for perfumes.

A womman cam that hadde a boxe of *alabastre* of preciouse oynement spikenard, and whanne the boxe of *alabastre* was brokun sche helde it on his heed.
Wiclif. Mark xiv.

Why should a man, whose blood is warm within,
Sit like his grandsire cut in *alabaster*?
Sleep when he wakes? and creep into the laundies
With being peeuish. *Shaksp. Merchant of Venice.*

Yet I'll not shed her blood;
Nor scar that whiter skin of hers, than snow;
And smooth as monumental *alabaster*.
Shakspeare.

It was a rock
Of *alabaster* piled up to the clouds
Conspicuous far. *Milton's Par. Lost*, b. iv.

ALABASTER, albâtre, Fr. alabastrites of Pliny, in mineralogy a species of that genus of stones whose base is calcareous earth. It differs from marble in being combined, not with the aerial, but with the sulphuric acid. Hence no effervescence appears when it is mixed with any acid. Some derive the word from albus, on account of the whiteness of this stone. Others from *αλαβαστρον* formed of the privat. *α* and *λαμβανω*, capio, to take, this stone being too smooth and slippery for the hand to take fast hold of it. Under this name are confounded two minerals wholly distinct from each other when pure, but occasionally mixed in some of the varieties.

The compact gypsum of Kirwan, (Alabastrite, *La Meth*, albâtre gypseux *de Lisle* Dichter Gypstein, *Werner*) when of a white yellowish or greenish colour, semi-transparent, and capable of receiving a polish, is called among statuaries alabaster, and is characterized by Pliny under the word alabastrites, as a stone resembling gypsum. When its colours are disposed in bands or clouds, it is called in the first case onyx alabaster, and in the second agate alabaster. Considerable confusion, however, often arises between the distinctions of statuaries, and those of chemists, amongst the stones known by the name of marble, and distinguished by a variety of denominations. Alabasters, according to statuaries, are those which have a degree of imperfect transparency, a granular texture, are softer, take a duller polish than marble, and are usually of a whiter colour. Some stones of a veined and coloured appearance have nevertheless been called alabasters from their possessing a [illegible] transparency; and other yellow sparry [illegible] have been thus denominated for the same reason. Alabasters among chemists, are only such opaque, consistent, and semi-transparent stones as are composed of lime, united with the sulphuric acid, and hence are often confounded with the selenites and gypsums, or plaster of Paris. The [illegible] opaque appearance and granular texture, are the effects either of a disturbed or a successive crystallization, which would else have formed true parent spars. The calcareous stalactites, or drop stones, formed by the transition of water through the roofs of caverns, differ nothing in appearance from alabaster, most of which are formed after the same manner. It is, however, necessary to observe, that the calcareous stalactites consist of calcareous earth and carbonic acid; while the alabaster of the chemists is composed of the same earth and sulphuric acid.

What some writers have distinguished as the gypseous alabaster is very easily worked, and susceptible of considerable polish. It is made into vases, columns, tables, &c. Some of the slabs of it have been used in one of the churches of Florence, instead of window-glass. The most esteemed among the ancients came from Caramania, Syria and Upper Egypt. The boxes for holding perfumes, mentioned both in sacred and profane history, were formed of the variety called onyx, hence in Horace, 'Nardi parvus onyx.' The calcareous alabaster exhibits a considerable variety of colours, such as white, yellowish, greenish, reddish, and bluish-grey. Its hardness is inferior to marble, its [illegible] considerable, and its fracture striated or fibrous, the striæ sometimes parallel, and at others divergent. Its transparency is nearly equal to that of white wax, and its gravity from 2.4 to 2.8. Two sorts of alabaster have been distinguished by statuaries, the common and oriental, the latter including the hardest, finest, and best coloured pieces; numerous sub-varieties are produced by the colours being in veins, or dendritic, or in concentric undulating zones. The most beautiful specimens are brought from Italy and Spain; others of an inferior description are found in Germany and France. That of Montaiout near Rome, is remarkable for the whiteness and the bigness of its blocks, some of which are so large, that statues as big as the life may be easily cut out of them. F. Labat, in his journey to Italy, observes, that there are quarries of alabaster in the neighbourhood of the village called de la Tossa, near Civita Vecchia: there is also alabaster to be found in some places of Lorrain; but it is not much esteemed. The most common species of alabaster are,

1. ALABASTER, the snow white shining, or lygdinum of the ancients, it is found in Tuscany in pieces large enough to make dishes, or the like. It cuts freely, and is capable of a fine polish.

2. ALABASTER, the variegated, yellow and reddish. This species is the common alabaster of the ancients, and is so soft that it may be cut with a knife: It is remarkably bright, and almost transparent; admits of a fine polish, and consists of large angular sparry concretions. It is not proof against water; it ferments violently

with aquafortis, and burns to a pale yellow. The colour of this species is a clear pale yellow, resembling amber, and variegated with undulated veins; some of which are pale red, others whitish, and others of a pale brown. It was formerly brought from Egypt, but is now to be met with in several parts of England.

3. ALABASTER, the yellowish, or phengites of Pliny, is found in Greece; and is of a soft, loose, open texture, pretty heavy, and nearly of the colour of honey. This species has likewise been found in Germany, France, and in Derbyshire in England. The alabasters are frequently used by statuaries for small statues, vases, and columns. After being calcined and mixed with water, they may be cast in any mould like plaster of Paris. See GYPSUM.

In many places hot sulphureous waters rise out of the ground, of a turbid wheyish colour, occasioned by a quantity of gypsum or chalk, which they hold suspended in a state of half solution. In proportion as these grow cool and lose their carbonic acid, the earthy particles are deposited, leaving the channels through which they flow covered with a compact alabaster, or a thick crust of stalactite of a dazzling white, especially when the sun shines upon it. The most remarkable spring of this description in Europe, is situated on a mountain near Radicofani. It supplies the baths of St. Philip in Tuscany, and forms the source of the little river Paglia. Advantage has been occasionally taken of this circumstance, to obtain very beautiful impressions of bas reliefs, by exposing the moulds to a current of such water, till they have become filled with the earthy deposit. The hardness of the alabaster depends upon the degree of obliquity at which the mould is placed to receive the dashing of the water. The more vertical the position, the harder the alabaster. The hardest models not being so white as the softer, the water is frequently caused to make a circuitous course before it reaches the mould, that all the grosser particles may be previously deposited. Even the softer ones, however, are as hard as Carrara marble, and surpass it in whiteness. The time required for these productions varies, according to the thickness, from one month to four. When the mould is sufficiently filled, and the ground of the model has acquired a thickness capable of supporting the figures, the whole is removed from the water; the wooden supports are broken by gentle strokes of the hammer, and the incrustation on the outside of the mould is chipped off by repeated strokes. Then the tub is struck with a smart blow of a hammer, which separates the model from the mould; generally, however, cracking the latter. The brilliancy of the models is completed by brushing them with a stiff hair-brush, and rubbing with the palm of the hand, when they become semi-transparent and very beautiful.

The composition of this alabaster is gypsum, mixed with a small proportion of carbonated lime. Dr. de Vegni has, after many attempts, succeeded in giving a fine black, or flesh colour to the figures thus formed, by putting a vessel half full of colouring matter into the water, before it arrives at the mould. The colouring may also be varied by protecting particular parts of the mould, while the water continues charged with colouring matter.

Mr. Boyle observes, that alabaster being finely powdered, and thus set in a basin over the fire, will, when hot, assume the appearance of a fluid, by rolling in waves, yielding to the smallest touch, and emitting vapour; all which properties it loses again on the departure of the heat, and discovers itself a mere incoherent powder.

ALABASTER, in antiquity, from the frequent use of the stone so called for that purpose, frequently denotes a vase or vessel wherein odoriferous liquors were preserved. Pliny says expressly (*Nat. Hist.* lib. 33. c. 8.) that of the alabaster stone (albastritem) they make vessels to hold ointments, which it is said to preserve free from corruption. It is found about Thebes in Egypt, and Damascus in Syria. The latter is the whiter of the two. Kypke, in Matt. xiv. 3. cites from Plutarch, in Alexandro, p. 676, a variety of vessels, *και αλαβαστρους, παντα χρυσα ησκημενα περιττως*, and *alabasters*, all curiously wrought with gold. In Theocritus we read of *Συριῳ δε μυρῳ χρυσει αλαβαστρα*, golden alabasters, full of Syrian ointments. Herodotus has a similar expression, lib. iii. c. 20, respecting the presents of Cambyses to the king of Ethiopia.

The expression, *συντριψασα το αλαβαστρον*, Mark, xiv. 3. which our translators have rendered 'she brake the box,' has occasioned some difficulty to critics: bishop Pearce referring the *συντριψασα* to the ointment, and not to the box; renders the words, 'breaking she poured the box;' i. e. breaking the parts of the ointment, and liquifying them by shaking it, she poured some of the ointment out of the box upon his head; others with Mr. Wakefield, write; 'after shaking the box together, she poured it out upon his head,' and to justify this translation, it has been observed, that Luke, ix. 39, uses *συντριβων* for bruising. Blackwall, Sacred Classics, vol. ii. p. 166. has remarked that the shaking of liquids of this nature breaks and separates their parts, and thereby makes them more liquid and fragrant; and that the word *συντριψασα* is an excellent one for that purpose; quoting Plato in Phædone, *Διατριψας το φαρμακον*: Martial's Epigrams, iii. 45. ed. Delphin.—'Et fluere excusso cinnama fusa vitro,' and Lucretius, iv. 700.

——'Fracta magis redolere videntur
Omnia quod contrita.'

See *Pearce's Com.* vol. 1. p.276. *Wakefield's Silva Critica.* Pars. 1, ma. p. 156.

Sir Edward Knatchbull and Dr. Hammond have suggested the same interpretation of this passage. But Dr. Campbell insists from the syntax of the passage that the *συντριψασα* must refer to the vessel, and seems best to meet all objections by translating the phrase 'she broke open the box,' &c. We apply such a phrase as this, constantly to the opening of a letter, and it is not improbable that the ointment might be sealed up in the vessel in the manner that otto of roses is still imported from the east. ALABASTER is also said to have been used for an ancient

liquid measure, containing ten ounces of wine, or nine of oil, and in this sense was equal to half the sextary.

ALABASTER, or ELEUTHERA Island, in geography, one of the Bahama or Lucayo islands, on the great Bahama bank. Its climate is said to be healthy, and the soil, which is chiefly at the north end, better than that of Providence Island. Pine-apples are exported from Alabaster Island in considerable quantities. There is a small fort and garrison on the island. Lon. 76°. 22′. to 76°. 56′. W. Lat. 24°. 40′. to 26°. 30′. N.

ALABASTER, (William,) an English divine, was born at Hadley in the county of Suffolk; and attended the earl of Essex, as chaplain in the expedition to Cadiz, in the reign of queen Elizabeth. He was one of the controversial writers of the period; but, with other warm disputants, of little personal steadiness: not having been long on the continent before he joined himself to the Romish communion, and publicly abjured protestantism. He, however, could not reconcile himself to the discipline of that church, which paid no regard to his previous degrees, or heretical ecclesiastical character. He soon returned to England, and resumed his former religion, when he obtained a prebend in the cathedral of St. Paul, and the rectory of Therfield in Hertfordshire. He was well skilled in the Hebrew tongue; but studied the Cabala, until he well merited Festus's reproach of St. Paul: he preached a mystical sermon, upon taking his degree of D. D. at Cambridge, from 1 Chron. i. ch. 1. v. Adam, Seth, Enos! His verses were greatly esteemed. He wrote a Latin tragedy, entitled Roxana, which, when acted in a college at Cambridge, was attended with a very remarkable accident; a lady being so terrified at the last word, Sequar, Sequar, pronounced with a vehement tone, that she lost her senses for life: he also wrote, Apparatus in Revelationem Jesu Christi, printed at Antwerp in 1607. But the only work of his worth notice, is a Lexicon Pentaglotton, which he published in folio. He died in 1640.

ALABASTRA, in plants, are those little herbaceous leaves which encompass the bottoms of flowers, particularly the rose. See CALYX, &c. Some, with Jungius, explain alabastra, by the globe or roundish bud of the rose just peeping out.

ALACANANDA RIVER, a river of Hindostan, which springing from the Himalaya mountains, in Serinagur, joins the Bhagirāthi, at Devaprayaga, the junction of the two forming the celebrated river Ganges. The superstitions connected with this stream, will justify our giving a few particulars of its rise. A short distance north of Bhadrinath, the breadth of the Alacananda does not exceed twenty feet, the stream being shallow, and moderately rapid. Further up it is concealed under immense heaps of snow, which have not been disturbed for ages, although the shastras mention a city nearer its source, called Alacapura, the fabulous abode of Cuvera, the plutus of Hindoo mythology. At their juncture, the Alacananda is larger than the Bhagirathi, being 142 feet in breadth, and in the rainy season forty-six and forty-seven feet above the low water level. At Ranibaugh, the breadth of the Alacnanda is from seventy to eighty yards, with a current of seven to eight miles an hour. Many fish of the roher species, cyprinus denticinus, four or five feet in length, haunt this stream, and are fed daily by the Brahmins, from whose hands they will take bread. There is also a beautiful, and remarkably delicate, species about seven feet long.

ALACHUA, an ancient town on the borders of the Savannah of that name in East Florida, and about seventy-five miles west of St. Augustine. The Indians removed to Cuscowilla, two miles distant, on account of the unhealthiness of this spot: but the soil around is very fertile, on the Savannah, surrounded with high sloping hills, covered with waving forests, and fragrant orange groves, is about fifteen miles over, and fifty in circumference.

ALACRANES, an extensive range of hidden rocks, shoals, and banks, opposite the coast of Yucatan. They lie east from Stone Bank, and west from Cape St. Antonio, on the south side of the gulf of Mexico, within the twenty-third degree of north latitude, and between the eighty-ninth and ninty-first degree of west longitude. Those who navigate these parts pass round, as a place of venturing among them, although there are some good channels and soundings.

ALAC'RITY, *n.* } Lat. *Alacris*; merry,
ALAC'RIOUSLY, } cheerful, brisk, cheerful
ALAC'RIOUSNESS. } activity; the effect of a willing mind.

For as the holy doctor saint Chrisostome saith, thoughe pain be grieuous for the nature of ye affliction, yet it is pleasaunte by the *alacritie* and ioyful mind of them that willyngly suffer it.

Sir Thomas More's Works, p. 75. col. 1.

These orders were, on all sides, yielded unto with no less *alacrity* of mind; than cities, unable to hold out any longer, are wont to shew; when they take conditions, such as it liketh him to offer them, which hath them in the narrow straits of advantage. *Hooker.*

Give me a bowl of wine:
I have not that *alacrity* of spirit,
Nor cheer of mind, that I was wont to have.
Shakspeare.

He glad, that now his sea should find a shore,
With fresh *alacrity* and force renew'd,
Springs upward. *Milton's Par. Lost.*

Never did men more joyfully obey,
Or sooner understood the sign to fly:
With such *alacrity* they bore away,
As if, to praise them, all the states stood by.
Dryden.

Epaminondas *alacriously* expired, in confidence that he left behind him a perpetual memory of the victory he had achieved for his country.

Government of the Tongue.

ALACUOTH, among Arabian physicians, an infirmity of the nerves, attended with distortion in some peculiar circumstances.

ALADINE ISLANDS, are a cluster of small islands in the bay of Bengal, near the coast of Siam, and in the south of what is sometimes called the Mergui Archipelago. They run from 9°. 5′. to 9°. 40′. N. Lat. and are in 97°. 30′. Lon. The chief islands are Alexander's Pass, Auriol's, Bruer's, Christie's, Davis's Dundas, Graham's and Watson's.

ALADINISTS, a sect among the Arabs, answering to freethinkers among us. They multiplied greatly under the kings Almonsor and Miramolinus.

ALADULIA, a province of Turkey, in Asia, in Natolia, between the mountains of Antitaurus, which separate it from Amasia on the north, and from Caramania on the west. It has the Mediterranean sea on the south, and the Euphrates on the east, which divides it from Diarbeker. It comprehends the Lesser Armenia of the ancients, and the east part of Cilicia. Formerly it had kings of its own; but the last king was beheaded by Selim I. emperor of the Turks, who had conquered the country. It is now divided into two parts: the north, comprehended between Taurus, Antitaurus, and the Euphrates, is a beglerbeglic, which bears the name of Marasch, the capital town; and the south, seated between mount Taurus and the Mediterranean, is united to the beglerbeglic of Aleppo. The country is rough, ragged, and mountainous; yet there are good pastures, and plenty of horses and camels. The people are hardy and thievish. The capital is Malatigah; Adana and Marisch are also considerable places.

ALÆ, in botany, the plural of ALA, which see.

ALAGNON, a principal river of Auvergne, in France, which rises at Cantal, through the department of which it has part of its course, is very rapid, and runs into the Allier, between Issoire and Brioude.

ALAGOA, a town in the island of St. Michael, one of the Azores, which has two parish churches. It is eight miles east of Point Delgada.

ALAGON, a town of Spain, in the kingdom of Arragon, seated on a peninsula, formed by the rivers Ebro and Xiloca, twelve miles northwest of Saragossa.

ALAIA, PHTHISIS, in Med. *αλαϊα φθίσις*, from *ἀλαὸς*, blind; a consumption caused by a fluxion of humours in the head.

ALAID, a volcanic peak in the Okhotsk sea, near the first of the Kurile islands. It began to emit volumes of smoke in the year 1790; and about three years afterwards flamed with great fury; but no mischief appears to have been done by this eruption.

ALAIN, a river, in the province of Quito, South America, which, after running in a northeast direction, enters the Pucuré.

ALAIN, (Chartier,) secretary to Charles VII. king of France, was born in the year 1386. He was the author of various pieces; but his Chronicle of King Charles VII. is his only work of importance. Giles Coroxet states, that Margaret, daughter to the king of Scotland, and wife to the dauphin, passing once through a hall where Alain lay asleep, she stooped and saluted him in the presence of her retinue: some of whom telling her, that it was strange she should kiss a man who had so few charms in his person, she replied, 'I did not kiss the man, but the mouth from whence proceeds such excellent sayings, and so many wise discourses.' Fontenelle has constructed one of his Dialogues of the Dead, upon this incident. Pasquier compares Alain to Seneca, on account of the elegance of his writings.

ALAINS, a babarous northern race, who, in the fourth and fifth centuries, joined the Goths and Vandals, and overspread a great part of the south of Europe, and the north of France, carrying terror and desolation wherever they went.

ALAIS, ALETS, or ALAS, a town of France, in the department of Gard, seated on the Gardon, near a beautiful plain, at the foot of the Cevennes. It is the head of an arrondissement, and contains 9000 inhabitants. The annual export of raw silk from it is considerable, and the town carries on a good trade in grain, olives, oil, wine, and several manufactures of the district. A hot medicinal spring issues from the adjacent mountains, and many openings in the rocks show that mines have formerly been wrought in them. A fort was built in it, in 1689. It is situated fourteen leagues north of Montpelier, and 140 south by east from Paris.

ALAISEE, in heraldry, the same with humetty or raccourcy.

ALAKTUGAL LAKE, a lake of Chinese Tartary, in Mongolia, a short distance east from the Balkash lake. It has a large island in its centre, and has on its east, Kiurgha Lake. N. Lat. 45°. E. Lon. 74°. 15′.

ALALCOMENÆ, in ancient geography, a city of Bœotia, where Minerva is said to have been born. Hence Homer applies the epithet *αλαλκομενηις Αθηνη* to the goddess. She had a famous temple here.

ALALCOMENIUS, in ancient chronology, the Bœotian name for the Athenian month Mæmacterion, which was the fourth of their year, and answers to the latter part of our September and beginning of October.

ALALIA, in ancient geography, *αλαλίη*, a town of Corsica built by the Phocæans, and destroyed by Scipio 526 A. C. but rebuilt by Sylla. *Herod.* l. i. c. 165

ALAM, EB AL ALAM, in biography, a great mathematician, who lived in the reign of the sultan Adhdaedoulat.

ALAMAGAN, or Conception Island, one of the Ladrones, about eighteen miles in circuit. It lies between the Guguan and Pagon, eleven miles from the former, and thirty from the latter. Lat. 18°. 10′. N.

ALAMANDUS, (Lewis,) Fr. ALEMAN, archbishop of Arles, and cardinal of St. Cecilia, was one of the greatest men of the fifteenth century. He presided in the council of Basil, which deposed Eugenius IV. and elected the antipope, Felix V. and is much commended by Æneas Sylvius, for his firm and vigorous conduct on that occasion. One day he so eloquently harangued against the superiority of the pope over the council, that several persons pressed to kiss him; and even to embrace his robe. Though deprived of his dignities by pope Eugenius, Alamandus died in the odour of sanctity, and performed so many miracles after his death that, at the request of the canons and Celestine monks of Avignon, he was beatified by Clement VII.

ALAMANNI, (Lewis,) was born at Florence, of a noble family, on the 28th of October, 1495. He was obliged to fly his country for a conspiracy against Julius de Medicis, who was soon after chosen pope under the name of Clement VII. During this voluntary banishment, he went into France; where Francis I. from a regard to his

genius and merit, became his patron. This prince employed him in several important affairs and honoured him with the collar of the order of St. Michael. About the year 1540, he was admitted a member of the Inflammati, an academy newly erected at Padua, chiefly by Daniel Barbaro and Ugolin Martelli. After the death of Francis, Henry duke of Orleans, who succeeded him in 1537, shewed no less favour to Alamanni; and in the year 1551, sent him as his ambassador to Genoa: this was his last journey to Italy; and being returned to France, he died at Amboise, A. D. 1556, in the sixty-first year of his age. He left many beautiful poems, and other valuable performances, in the Italian language; as well as some notes upon Homer's Iliad and Odyssey. Those upon the Iliad were printed in the Cambridge edition of Homer in 1689, and Joshua Barnes also inserted them in his fine edition of Homer in 1711.

ALAMANNICUM, in antiquity, a tribute imposed on the people by the emperor Alexius Angelius, for raising the sum of sixteen talents of gold, to be paid the Alamanni, on the condition of a peace stipulated with them. The ecclesiastics themselves were not exempted from this tax.

A LA MESURE, in Italian à tempo, in music, in strict time.

A LA MI RE, in music, an Italian method to determine the key of A, by its dominant, and subdominant, A E D. In the Guidonian scale of music a-la-mi-re is the octave above a-re, or A in the first space in the base.

ALAMMELECH, in Scripture geography, a city in the tribe of Asher.

ALAMODALITY OF WRITING, alamodalitas scribendi, are modern Gallicisms by which some writers would express the endeavours of learned men to adapt the productions of their minds, to the genius or taste of the times, in order to render them more acceptable to the readers. A German writer, Geamoenus, has a dissertation on alamodality in writing,

ALAMODE, in commerce, a thin glossy black silk, chiefly used for women's hoods and men's mourning scarfs.

ALAMOS, (Balthasar,) a Spanish writer, born at Medina del Campo in Castile. After having studied the law at Salamanca, he entered into the service of Anthony Perez, secretary of state under Philip II. He was in high esteem and confidence with his master, upon which account he was imprisoned after the disgrace of this minister and kept in confinement eleven years, until Philip III. coming to the throne, set him at liberty. Alamos continued in a private capacity, till the duke of Olivarez, the favourite of Philip IV. called him to public employments. He was a man of wit as well as judgment; and his Spanish translation of Tacitus gained him great reputation. This work was published at Madrid in 1614; and was to have been followed with a Commentary, which, however, never appeared. The author composed the whole during his imprisonment. He died in the eighty-eighth year of his age.

ALAMOTH, in ancient Hebrew music, a word used in the superscription to the forty-sixth Psalm, and supposed to have been the name of some Hebrew melody, according to which the Psalm was intended to be sung. As it purely signifies a sheaf of corn, the air might be one used in harvest.

ALAN, a river of Cornwall, sometimes called Camel and Camlan, a corruption of Camb-lan, 'the crooked river.' Leland calls it Dunmere, i. e. the water of the Hills. It rises about ten miles north of the borough of Camelford, where its banks are famous for two battles; in one of which king Arthur, it is said, was slain, having slain his antagonist; the other in which many thousands fell, was fought between the Cornish Britons and the west Saxons of Devonshire, in 824. After a course of about twelve miles in a winding southern direction, the Alan at Padbrook becomes navigable for barges, and receives the river Lane, or Lynder. It afterwards becomes increased by several smaller rivers; and pursuing its course, empties its united streams into Padstow harbour, in the Bristol channel. At Padstow it is nearly a mile broad. This river produces some very fine trout.

ALAN, or ALLEN, (Cardinal William,) was born at Rassal in Lancashire, in the year 1532, and went to Oxford at the age of fifteen. In 1550, he was elected fellow of Oriel college.—In 1556, being then only twenty-three years old, he was chosen principal of St. Mary's-hall, and one of the proctors of the university. In 1561, he was made canon of York; but upon queen Elizabeth's accession to the throne, he left England, and settled at Louvain in an English college, of which he became the chief support and ornament. He visited his native country in 1565; but on account of his extreme activity in the propagation of the Roman Catholic religion, was obliged to quit it finally in 1568.—He went first to Mechlin, and then to Douay, where he received his diploma. Soon after he was appointed canon of Cambray and then canon of Rheims. He was created cardinal in July 1587, and obtained from the king of Spain a rich abbey in the kingdom of Naples, and afterwards the bishopric of Mechlin. It is supposed to have been by the advice and instigation of cardinal Alan that Philip II. attempted to invade England. The cardinal furnished him, we are told, with numerous copies of a polemical treatise, (A declaration of the sentence of Sextus V. &c.) to prove queen Elizabeth a heretic and schismatic, whom her subjects were bound to depose. He died on the 20th of October, 1594, aged sixty-three: and was buried in the English college at Rome. Allan was a man of considerable learning, and an elegant writer.—His works, in defence of the Romish religion, were perhaps the most powerful of the Romish treatises in his day. The most remarkable are, 1. A Defence of the Twelve Martyrs in one year, (which Thomas Alfield was hanged for bringing into England, in the year 1584.) 2. Of the Worship due to Saints and their Relics, 1583.—3. A True and Modest Defence of Christian Catholics. The learned Edmund Bolton calls it 'a princely, grave, and flourishing piece of natural and exquisite English.' This treatise was answered

by lord Burleigh, who esteemed it the most elegant of the cardinal's writings. Dr. Southey says, that cardinal Alan 'was the person of all others whom the English Catholics,' at the period of the threatened Spanish invasion, 'regarded with most respect:' that he solicited Philip of Spain to employ an English Catholic regiment, as well as to confide the management of his fleet to English sailors, on that memorable occasion; and that when 'he spoke of this in after years he used to weep with bitterness, remembering how fatally for the Romish cause his advice had been rejected.' Book of the Church, vol. ii. 293-4. Mr. Butler, in his defence of the Catholics of this period, does not attempt to repel this statement. It appears certain that Alan was amongst the sincerest and most bitter, as well as one of the most learned bigots, that ever lived; but much of his conduct is to be attributed to the unhappy and illiberal spirit of his age. It is said that in later life he expressed regret at having taken so active a part against his country; and that letters of his are extant, advising a reconciliation of catholics with the protestant government, on the ground of a simple toleration.

ALANA-GIEBA, in botany, the yellowish white tripoli.

ALANA-TERRA, English oker: it is esteemed drying and astringent; its principal use is to mix with salts in distillation, in order to keep them from melting. It is thought that this stone is what the ancients called the Samian stone, 'Samius lapis.'

ALANBY, an agreeable watering place in Cumberland, situated about twenty miles north of Whitehaven, as far south of Carlisle, and 308 from London. There is a good anchorage in the bay, and an extensive herring fishery is carried on here.

ALANCHE, or ALLANCHES, a town of France, in Auvergne, formerly in the intendancy of Riom, and election of St. Flour, now the head of a canton, in the department of the Cantal, arrondissement of Murat. It contains 2500 inhabitants. Fine lace is manufactured here, and there are good tanneries. It is four leagues W. S. W. of Mercoeur.

ALAND'. On Land. See LAND.

Her ost was cypher in ys syde *alonde* byleued by poute.
R. Gloucester, p. 307.

Thei sailen, till thei come *a londe*
At Tharse nygh to the citee.
Gower. Con. A. b. viii.

Dep seith he wol for do. and a down brynge
All pat lyvep opr lokep, *a londe* and a watere.
The Vision of Piers Plouhman, p. 340.

He only, with the prince his cousin, were cast *a land*, far off from the place whither their desires would have guided them. *Sidney.*

ALAND, or AELAND, a considerable island of the Baltic, in N. lat. 60°. 18'. E. lon. 19°. 40'. It is about forty miles in length, and thirty in breadth, and being deeply indented by the sea, is composed of several peninsulas. It contains eight parishes, and a population of 11,300 persons. The soil is very fertile, producing corn, and abundance of forest woods, from which the natives manufacture excellent wooden utensils. There are nearly 4000 acres of land, in a high state of cultivation here; and 2500 barrels of wheat are said to be produced annually. It is an island remarkable for the longevity of the inhabitants, and yielded the king of Sweden, some years since, a revenue of 19,980 rix dollars. The chief town is Castleholm: and the island itself gives name to a cluster of inferior islets. The inhabitants generally speak the Swedish language. In 1634 it was included in the government of Finland; but has recently been ceded to Russia. The channel between Aland and the Swedish coast, is that which is reckoned most safe in making for the gulf of Bothnia.

ALAND'S BAY, on the south coast of Ireland, between Waterford harbour and Tramore bay.—N. lat. 52°. 8'. W. lon. 7°. 5'.

ALAND, (Sir John Fortescue,) lord Fortescue of Ireland, was the son of Edmund Fortescue, esquire, of London, by Sarah, daughter of Henry Aland, esquire, of Waterford, whose name he assumed. He was born in 1670, and received his education at Oxford, from whence he removed to the Inner Temple, where he was chosen reader, and called to the bar. In 1714, he became solicitor-general to the Prince of Wales, and next year to the king. In the following year he was made one of the barons of the exchequer. In 1717, he removed to the court of king's bench, and in 1728, to the common pleas, which situation he resigned in 1746, on being created a peer, shortly after which he died. He published, in 1714, 8vo., Sir John Fortescue's Treatise on Absolute and Limited Monarchy; and was himself a sound lawyer, and a proficient in the Saxon literature. After his death, his Reports were printed in folio. This judge was remarkable for a flat nose; and a serjeant who had lost an arm, one day arguing a case in an awkward manner, the judge told him, that 'he appeared to handle the matter rather *lamely*;' to which the other replied, 'with submission, I trust to be able to make the case as plain as the *nose* in your lordship's face.' Lord Fortescue was very intimate with Pope, and furnished him with the legal burlesque of Stradling versus Styles.

ALANGI, SANTIAGO DE, a small but rich city of South America, in the province of Terra Firma. It supplies Panama with cattle and fruit.

ALANGUERA, a town of Portugal, in Estremadura, near the Tagus, and between Lisbon and Leiria. It is supposed to have been built by the Alani; its present name intends, (Alen-kir-kana) the temple of the Alans.

ALANI, in ancient geography, a mountain of Scythia, on one side of Irraus, and east of the Hyperborean mountains.

ALANI, or ALANS, a people of Tartar origin, who first settled on the banks of the Jaick, near the districts of Solemskoi and Cufa. They afterwards migrated into the plains northward of Circassia, but in A. D. 130, advanced to the Danube, and in A. D. 406, to the Rhine. Here they united themselves with the Vandals, and traversing Gaul, attacked the Goths and Franks in Spain, but were repulsed, and settled among the Pyrenees. Ammianus says, they had no other houses than their military waggons, though they were followed by large flocks and herds, and derived their principal subsistence from their

produce. A natural death was thought disgraceful to their men; their horses were caparisoned with the scalps of their enemies; and they worshipped a naked scimeter placed upright in the ground.

On the banks of the Tanais, says Mr. Gibbon, the military power of the Huns and the Alani encountered each other with equal valour, but with unequal success. The Huns prevailed; the king of the Alani was killed; and the remains of the vanquished nation were dispersed by the ordinary alternative of flight or submission. A colony of exiles found a secure refuge in the mountains of Caucasus, between the Euxine and the Caspian, where they long preserved their name and independence. Another colony advanced with intrepid courage, towards the shores of the Baltic; associated themselves with the northern tribes of Germany, and shared the spoil of the Roman provinces of Gaul and Spain. But the greatest part of the nation of the Alani embraced the offers of an honourable and advantageous union; and the Huns, who esteemed the valour of their less fortunate enemies, proceeded with an increase of numbers and confidence, to invade the limits of the Gothic empire. The name of the Alani was finally lost in that of the Goths and Huns.—*Ammianus*, xxxi. 2. *De Guignes Hist. des Huns*, tom. ii. *Gibbon's Decline and Fall of the Roman Empire*, vol. iv. p. 373.

ALANIEH, a town of Asiatic Turkey, occupying the site of the ancient Coracesium, a city of Cilicia, near the mouth of a river flowing into the Mediterranean. In this port pirates were shut up by Pompey and compelled to surrender. It is 110 miles S. S. W. of Konieh. Lon. 21°. 29′. E. lat. 36°. 34′. N.

ALANORAVIUS, from the Gothic, *alan*, a greyhound, in our ancient customs, a keeper of or manager of spaniels, or setting dogs, for hunting, hawking, &c.

ALAPI, in ornithology, a species of the turdus, and the white-backed thrush of Latham. Its specific characters are, the colour above olive-brown, the throat and breast black, the abdomen cinerous, and the tail wedge-shaped and blackish Its legs are yellowish, the wings above cinerous brown, and superior coverts spotted with white; the male has a white spot on the middle of the back; the female none, but its chin is white, the rest of the under-part of the body and the points of the coverts of the wings rusty. Its length is six inches; it feeds on ants; seldom flies for any time, though very agile, and is found in the thick woods of Guiana.

ALAPOULI, in natural history, the name of an East Indian tree, a species of the bilimbi, which is used in medicine, as a purge and vomit, mixed with the seeds of mustard.

ALAQUECA, in mineralogy, a medicinal stone brought from the Indies, in small glossy fragments; much praised by some for its efficacy in hæmorrhages.

ALARAF, in the Mahommedan theology, the partition wall that separates heaven from hell. The word is plural, and properly written al araf; in the singular it is al arf, derived from the Arabic verb arafa, to distinguish. Al araf gives the denomination to the seventh chapter of the Koran, wherein mention is made of this wall. Mahomet seems to have copied his al araf either from the great gulf of separation mentioned in the New Testament, or from those Jewish writers who speak of a thin wall dividing heaven from hell. Mahommedan writers differ extremely as to the persons who are to be found on al araf. Some take it for a sort of limbus for the patriarchs, prophets, &c. others place here such whose good and evil works so exactly balance each other that they deserve neither reward nor punishment; while a third opinion is, that this intermediate space is possessed by those who, going to war without their parents' leave, and suffering martyrdom, are excluded paradise for their disobedience, yet escape hell because they are martyrs. See *Sale's Koran*, preface, &c.

ALARBES, an Arabian name for those who live in tents, as distinguished from others who live in towns.

ALARCON, a small town of Spain, in New Castile, near the Xucar, founded in 1178, and afterwards entirely destroyed by the Moors, and rebuilt by Alphonso IX.

ALARES, in antiquity are supposed by some authors to have been a kind of militia, or soldiery among the Romans; so called from ala, a wing, because of their lightness and swiftness in the combat. Others make them a people of Pannonia; but others with more probability, take alares for an adjective or epithet, and apply it to the Roman cavalry; because placed in the wings, or alæ, of the army; for which reason the body of horse was called ala.

ALARES MUSCULI, in anatomy. See PTERYGOIDEUS.

ALARGED′. See ENLARGE.

A ghe corynthis, oure mouth is open to ghou, our herte is *alargid* ghe ben not angwischid in us, but ghe ben angwischid in ghoure ynwardness and [illegible] as to sones, ghe that han the same reward, be ye *alargid*. *Wiclif.* 2 *Corinth.* vi.

ALARIC, a famous general of the Goths, was descended from a noble family, and for some years served in the Roman armies; but having refused preferment, he revolted, and committed great ravages in the Grecian provinces. He entered Thrace at the head of 200,000 men, and laid waste all the country through which he passed. He marched next into Macedonia and Thessaly, A. D. 396; where the Thessalians met him near the mouth of the river Peneus, and killed about 3000 of his army; nevertheless he advanced into Greece, and having ravaged the whole country, returned to Epirus, loaded with immense spoils. After staying here two years, he resolved to turn his arms to the west. He marched through Pannonia; and meeting little resistance, entered Italy, under the consulship of Stillicho and Aurelinus, A. D. 400. After various battles and treaties, he at last took Rome by treachery, and permitted his soldiers to plunder it, A. D. 409. Alaric having laid waste a great part of Italy, intended to pass into Sicily; but a storm obliging him to land again, he besieged the city of Consentia; and having taken it, died there in 411, eleven years after he first entered Italy. He was buried in the bed of

the small river Busentinus, which washed the walls of Consentia, and which for this purpose was diverted from its course and then restored; the place of his interment was further concealed by the massacre of the prisoners who had been employed in the work. Alaric, whatever may be alleged respecting the conduct of his followers, was himself not devoid of humanity, and exhibited more moderation and fidelity to his engagements than many of the modern class of conquerors. 'He was,' says Dr Lardner, 'a Goth, and therefore was called a barbarian; but he was a man of a great and generous mind, and a Christian of the Arian denomination. When Rome was sacked and plundered, the calamity was attended with some favourable circumstances, resulting from the generosity of Alaric, and his profession as a Christian. By ordering the lives of men to be spared as much as possible, and the churches to be respected, many Christians and Pagans were preserved. Although, 'adds this candid writer,' the taking of Rome by Alaric was the occasion of many reflections upon the Christians, from which they have been vindicated both by Augustine and Orosius, the event was very prejudicial to the interests of Gentilism, and consequently conducive to the progress of the Christian religion.' See *Lardner's Works*, vol. ix. 180.

ALARIS VENA, in anatomy, the inmost of the three veins in the bend of the arm.

ALARM', *v.* & *n.*
ALARM'ING,
ALARM'INGLY,
ALARM'IST,
ALAR'UM, *v.* & *n.*

From the Italian, *all' armé*. To the arms; to arms; to sound to arms; to announce danger; to disquiet. Alarum, a corruption of alarm.

Turnus sluggish sloth doth stay, but force with speed he bends,
Gainst Troians all his power, and on the shore afront them tends.
They blow *alarme*, *Æneidos*, b. x. *by Thos. Phaer.*

When the congregation is to be gathered together, you shall blow; but you shall not sound an *alarm*. *Numbers.*

God himself is with us, for our captain; and his priests with sounding trumpets, to cry *alarm* against you. *Chron.* xiii. 12.

Withered murder
(*Alarum'd* by his sentinel the wolf,
Whose howl's his watch) thus, with his stealthy pace,
Moves like a ghost. *Shakspeare.*

That Almatro might better hear,
She sets a drum at either ear;
And loud and gentle, harsh or sweet,
Are but th' *alarums*, which they beat. *Prior.*

Crowds of rivals, for thy mother's charms,
Thy palace fill with insults and *alarms*.
Pope's Odyssey.

The trumpet's loud clangour,
Excites us to arms,
With shrill notes of anger,
And mortal *alarms*. *Dryden.*

Taught by this stroke, renounce the war's *alarms*,
And learn to tremble, at the name of arms.
Pope's Iliad.

When rage misguides me, or when fear *alarms*,
When pain distresses, or when pleasure charms.
Tickell.

Man sleeps, and man alone, and man whose fate,
Fate irreversible, entire, extreme,
Endless, hair hung, breeze shaken, o'er the gulf
A moment trembles; drops! and man for whom
All else is in *alarm*; man, the sole cause
Of this surrounding storm! and yet he sleeps
As the storm rocked to rest. *Young.*

It is not without reason that the Apostle represents our passage through this stage of our existence, by images drawn from the *alarms* and solicitude of a military life; for we are placed in such a state that almost every thing about us conspires against our chief interests. *Rambler.*

ALARM, in fencing, denotes a step, or stamp, made on the ground with the advancing foot.—It is otherwise called an appel, or challenge.

ALARM, or rather ALARUM, is also used for an instrument to awaken persons at a certain hour; one very simple contrivance of this kind, is that used by weavers. See WEAVER'S ALARM.

ALARM, in military affairs, any notice given either by the beat of the drum or the firing of cannon, &c. which shall cause the men to run to their arms.—ALARM POST, in the field, is the spot fixed upon by the quarter-master-general for each regiment to march to in case of an alarm: in the garrison, a similar place is marked out by the governor.—ALARM-BELL, a bell which is used for the purpose of ringing an alarm, as in case of fire, mutiny, &c.; called by the French a tocsin.—FALSE ALARMS, are stratagems of war, which are employed either by an enemy for the purpose of harassing, or by commanders for the purpose of trying the vigilance of the men.

ALAS', *inter.*
ALLACE'.
ALLAKE',
ALACK'.

French, *helas*. Ital. *ahilasso*; an exclamation expressing sorrow, lamentation, woe.

He loked on her vgly leper's face,
The whiche before was white as lely flour,
Wringing his hands, oft times saied *alace*
That he had lued to see that wofull hour.
Chaucer. Complaint of Creseide, fol. 196.

Allace, allace!
I leis my fader, al comfort and solace
And al supple of our trauel and pane,
Thare, thare *allake*. *Douglas*, b. iii. p 93.

Alas, my father there, my only ioy in care and wo,
Anchises I do lose (*alas*) he there departs me fro.
Æneidos, b. iii. *by Thos. Phaer.*

Alacke, the olde prouerbes bee to true: an ape although she be clothed in purple, will be but an ape, *Hall.* p, 119.

But yet, *alas!* O but yet, *alas!* our haps be but hard haps. *Sidney.*

Alas, how little from the grave we claim!
Thou but preserv'st a form, and I a name.
Pope.

ISAB. *Alas, alas!*
Why all the souls that were, were forfeit once,
And he that might the vantage best have took,
Found out the remedy.
Shakspeare's Measure for Measure.

YORK. Yet looks he like a king: behold his eye,
As bright as is the eagle's, lightens forth
Controlling majesty, *alack*, for woe,
That any harm should stain so fair a show.
Shakspeare's K. Richard II.

Alack, when once our grace we have forgot,
Nothing goes right; we would, and we would not.
Shaksp. Measure for Measure.

At thunder now no more I start,
Than at the rumbling of a cart:

Nay (what's incredible) *alack*,
I hardly hear a woman's clack. *Swift.*

Alas! for pity of this bloody field;
Piteous indeed must be: when I, a spirit,
Can have so soft a sense of human woes.
Dryden.

ALASCANI, in church history, a name that has been sometimes given to the friends of John Alasco. See next Article.

ALASCO, (John,) a Polish prince of the sixteenth century, who, imbibing the reformed opinions, was expelled his country. He was the uncle of king Sigismund of Poland; was born in 1499, and having received an education suited to his birth, travelled into foreign countries; when being at Basil in 1525, he contracted a friendship with Erasmus, which lasted to the death of that great man. In Switzerland, he also formed an acquaintance with Zuinglius, which occasioned his conversion to the protestant faith. In 1526, he returned to Poland, and was nominated to the bishopric of Vesprim in Hungary, but his new principles obliged him to decline that station. In 1540, he quitted that country, and two years afterwards undertook the pastoral office at Embden; but foreseeing persecution there, came to England about the year 1551, while the reformation was carrying on under Edward VI. The publication of the Interim driving the protestants to such places as afforded them toleration, a considerable congregation arrived at the same time with Alasco, who through the liberal patronage of Archbishop Cranmer, were naturalized here, and obtained a charter of incorporation, independent of the church of England. The Augustine friars church was granted them, with revenues for the maintenance of Alasco as superintendant, and four assistant ministers, who were to be approved by the king. This congregation lived undisturbed until the accession of Queen Mary, when they were all sent away. They were kindly received and permitted to settle at Embden; and Alasco at last, after an absence of twenty years, by the favour of Sigismund, returned to his own country, where he died in 1560. He was much esteemed by Erasmus, who says of him, 'that which the young ought to learn of the aged, I, an old man, have learned of this youth;' he was also the intimate friend of Melancthon. The historians of his time speak greatly in his praise: we have of his writings, De Cœna Domini Liber; Epistola continens summam Controversiæ de Cœna Domini, &c. He had some particular tenets respecting the presence of Christ in the Lord's Supper.

ALASTROB, among alchemists, denotes lead; though some suppose it to signify calx,

ALATAMAHA, a noble river of Georgia, North America, which rises in the Cherokee mountains, and in its descent receives several auxiliary streams. After winding with considerable rapidity through a hilly country 250 miles, it throws itself upon the open plains, by the name of Oakmulgee, for 150 miles, and is joined by the Oconee, which likewise has its source in these mountains. After this junction, it assumes the name of Alatamaha, and becomes a majestic river, flowing with a gentle current through forests and plains 100 miles, until it discharges itself into the Atlantic by several mouths. A northern channel glides by the heights of Darien, about ten miles above the bar, and after many turnings enters the ocean between Sapelo and Wolf islands. The south channel, which is the largest and deepest, after its separation from the north, descends gently between M'Intosh and Broughton islands; and at last, by the west side of St. Simon's Sound, between the south end of the island of that name and the north end of Jekyl island, accomplishes its confluence with the Atlantic, where it is 500 yards across.

ALATE'. See Late.

I saw standying the goodly portress,
Whyche axed me from whence I came *alate*.
Hawes. Tower of Doctrine, c. 4.

Where chilling frost *alate* did nip,
There flasheth now a fire;
Where deep disdain bred noisome hate,
There kindleth now desire.
Greene. Ditties of Delight.

ALATED Leaves, among botanists, those made up of several pinnated ones, as the orobus. See Leaf.

ALATERNOIDES, a name given by botanists to the cassine.

ALATERNUS, in botany, the trivial name of a species of the rhamnus. See Rhamnus.

ALATRI, an old town of Italy, seated on a hill, in the Campagna di Roma, forty miles south-east of Rome, and six miles north-west of Veroli. It has a bishop's see. Lon. 13°. 9'. Lat. 41. 32' N.

ALATUNGA, in ichthyology, a species of the scomber, having the first pectoral fins very long, and seven small fins on each side of the tail. It is found periodically gregarious in the Mediterranean.

ALATYR, a provincial town and district of Asiatic Russia, seated on the river Suru, in the circle of Alatyrskoi, and nine miles west of Simbirsk, from the capital of which it is distant about 180 miles. The houses of the town are all of wood, but here are five churches, besides a convent.

ALAVA, a district of Spain, twenty miles in length and seventeen in breadth, called also Alaba, which see: Victoria is the capital.

ALAUDA, in entomology, a species of Curculio; cinereous, sub-globose thorax, back marked with a transverse band and black spots, and brown legs: found in Pomerania.

Alauda, in ichthyology. See Blennius.

Alauda, or Lark, in ornithology, a genus of birds of the order of passeres; the characters of which are these: the beak is cylindrical, subulated, straight; and the two mandibles or sides are of equal size. The tongue is bifid, and the hinder claw is straight, and longer than the toe. There are twenty-eight species of the alauda, of which the following are the most remarkable.

1. Alauda Alpestris, the chief wing-feathers are half white, the throat yellow, and it has a black streak under the eyes and on the breast. It inhabits North America, where it is a native of that country. It visits Albany the beginning of May, but goes farther north to breed. In winter it comes in vast flocks into Virginia and Carolina. It feeds during its stay in the more southern parts on oats and other grain; and while at Albany, on the grass and sprig-birch. It runs

into holes; whence the natives of these last parts have given it the name of chi-chup-pi-sue. The English call it the ortolan, and reckon it delicious eating. By some it is called snow-bird, as being very plentiful in that season. It is always seen on the ground and has little or no song. This bird we hear of in Germany also; and it abounds throughout Russia and Siberia.

2. Alauda Arborea, or wood-lark, a native of Europe, and distinguished by an annular white fillet about the head. It is inferior in size to the sky-lark, and is of a shorter, thicker form; the colours are paler, and its notes less sonorous and varied, though not less sweet. It perches on trees, and whistles like the black-bird. It will sing in the night; and, like the common lark, sings as it flies. It builds on the ground, and makes its nest on the outside with moss, within of dried bents lined with a few hairs. The males of this and of the pratensis are known from the females by their superior size. But this species is not numerous.

3. Alauda Arvensis, or common sky-lark. This and the wood-lark are the only birds that are known to sing as they fly; this raising its note as it soars, and lowering it till it quite dies away as it descends. It will often soar to such a height, that we are charmed with the music when we lose sight of the songster; it also begins its song before the earliest dawn. Milton, in his Allegro, most beautifully calls upon us

> 'To hear the lark begin his flight,
> And singing startle the dull night,
> From his watch-tower in the skies,
> Till the dapple dawn doth rise.'

And bishop Newton observes, that the scene of rural cheerfulness thus exhibited, not only gives us a fine picture of the poet's regularity of life, but of the innocency of his mind. It continues its harmony several months, beginning early in the spring, on pairing. In the winter they assemble in vast flocks, grow very fat, and are taken in great numbers. They build their nest on the ground, beneath some clod, forming it of hay, dry fibres, &c. and lay four or five eggs. They are taken in great quantity, in the neighbourhood of Dunstable; the season begins about the twelfth of September, and ends the twenty-fifth of February. Vastly greater numbers, however, are at times caught in different parts of Germany, where there is an excise upon them. Keyster says, that the excise in his time produced 6000 dollars (about £1400 sterling) every year to the city of Leipsic. They are also taken in great numbers in the country about Naumburg, Merseburg, and Halle.

4. Alauda Campestris, has one half of its chief feathers of the wing brown, except two in the middle which are white, and the throat and breast are yellowish.

5. Alauda Cristata, the chief tail-feathers are black, but the two outermost are edged with white, and the head is crested. It is a native of Europe. It sings well, like the sky-lark: lays four or five eggs; and is said to hatch twice in a year.

6. Alauda Magna, the great lark, is yellow on the belly, with a crooked black streak on the breast, and the three side-feathers of the tail white. It is a native of Africa and America.

7. Alauda Pratensis, or tit-lark, has the two outward feathers of the wing edged with white, and frequents the meadows. It is found frequently in low marshy grounds: like other larks, it builds its nest among the grass, and lays five or six eggs. Like the wood-lark, it sits on trees; and has a most remarkably fine note, singing in all situations, on trees, on the ground, while it is sporting in the air, and particularly in its descent. This bird, with many others, such as the thrush, black-bird, willow-wren, &c. become silent about midsummer, and resume their notes in September: hence the interval is the most mute of the year's three vocal seasons, spring, summer, and autumn. Perhaps the birds are induced to sing again as the autumnal temperament resembles the vernal.

8. Alauda Spinoletta, the chief tail-feathers are black, only the outermost two are obliquely half white. It is a native of Italy.

9. Alauda Trivialis, whose chief feathers on the tail are brown, only half of the outermost is white at the end, in the shape of a wedge; there is likewise a double whitish line on the wings. It is a native of Sweden, and perches on the tops of trees.

10. Alauda Zeelandiæ, the New Zealand lark, is seven and a half inches in length: the bill is half an inch, of a pale ash-colour, with the upper part black: the upper parts of the body are dusky, edged with pale ash-colour: the breast and belly are white; the legs reddish ash-colour, and the claws black. It inhabits Charlotte Sound, and is called kogoo aroure.

ALAUNA, the ancient name of Alnwick in Northumberland. See Alnwick.

ALAUSI, a district of the kingdom of Quito, South America, bounded on the north by the province of Riobamba, north-west by Chimbo, south by Cuença, west by the district of Yaguache, and east by that of Macas. It is mountainous, but the country is pleasant, and yields every kind of American fruit and grain. The capital has flourishing manufactures of cloths, baizes, and cotton garments, a good parish church, and a convent of the order of St. Francis. It stands in Lon. 78°. 39′. W. Lat. 2°. 12′. N.

Alausi, a river of South America, which has its rise in the desert of Assuay, in the kingdom of Quito, and flowing down the western side of the Cordilleras, discharges itself into the bay of Guayaquil.

ALAY, in Turkish customs, a kind of military triumph at the opening of a war. It is an exhibition of the most insipid buffoonery, and barbarity. That which took place upon occasion of a late war between the Porte and Russia is described by Baron Tott in his Memoirs as follows: 'It consists in a kind of masquerade, in which each trade successively presents to the spectators the mechanical exercise of its respective art. The labourer draws his plough, the weaver handles his shuttle, the joiner his plane; and these different characters, seated in cars richly ornamented, commence the procession, and precede the standard of Mahomet, when it is brought out of the seraglio to be carried to the army, in order to ensure victory to the Ottoman troops. This banner of the Turks, which

they name Sandjack Cheriff, or the Standard of the Prophet, is so revered among them, that, notwithstanding its reputation has been so often tarnished, it still retains their implicit confidence, and is the sacred signal to which they rally. Every thing proclaims its sanctity. None but the emirs are allowed to touch it; they are its guards, and it is carried by their chief. The Mussulmen alone are permitted to look upon it. If touched by other hands, it would be defiled; if seen by other eyes, profaned. In short, it is encompassed by the most barbarous fanaticism. A long peace had unfortunately caused the ridiculousness, and especially the danger, of this ceremony to be forgotten. The Christians imprudently crowded to see it; and the Turks, who, by the situation of the houses, could make money of their windows, began to profit by the advantage; when an emir, who preceded the banner, proclaimed with a loud voice, 'Let no infidel dare to profane with his presence the holy standard of the prophet; and let every Mussulman who perceives an unbeliever make it known under pain of reprobation. From that moment no asylum was to be found; even those became informers, who, by letting out their houses, had rendered themselves accomplices in the crime. A religious fury seized on every mind and put arms in every hand; the more atrocious the cruelty, the more was it meritorious. No regard was paid to sex or age; pregnant women, dragged by the hair, and trodden under feet by the multitude, perished in the most deplorable manner. Nothing was respected by these monsters; and under such auspices the Turks commenced the war.'

ALAY, among sportsmen, a term borrowed perhaps from the above ceremony, to express fresh dogs sent into the cry.

ALB, or } Lat. *albus*, white. The priest's
ALBE, *n.* } vestment in the Catholic church, answering to the surplice of the English church, excepting that the alb is made close at the wrists.

> Of preste pow has no merke, *albe* ne now amite
> Bot laced in a hauberke, pai is no clerk is abite.
> *R. Brunne*, p. 319.

> And Moses brought Aaron and hys sonnes, and wasshed them with water, and put upon him an *albe*, and girded him wt a girdle. *Bible*, 1539. *Lev.* viii.

> Each priest adorned was in a surplice white;
> The bishops donn'd their *albs* and copes of state.
> *Fairfax. Tasso.* ii. 4.

ALB, from albus, white, in ecclesiastical history, a white vestment usually worn for eight days, in the ancient churches, by the newly baptized. The Sunday after Easter was called Dominica in albis, on account of the albs worn by the Neophites, who were baptized on Easter-day. It is also a name for the surplice of the Romish priests.

ALB is also a name of a Turkish coin, otherwise called asper. See ASPER.

ALBA, an ancient town of the Marsi in Italy, on the north side of the Lacus Fucinus, which still retains its original name. It stands upon an eminence, and is noted in Roman history for being the state prison to which captive princes were committed, after being dragged through the streets of Rome at the chariot wheels of a triumphant consul. Perses king of Macedon terminated his wretched career in this confinement, with his son, the last hope of an illustrious race of kings. Syphax the Numidian, and Bituitus king of the Averni were also condemned to this gaol by the particular clemency of the senate, which sometimes indulged its savage disposition by putting its captives to death. Alba being situated in the centre of Italy, amidst rugged mountainous passes, and far from all means of escape, was considered a proper place for the custody of prisoners of importance. Art added strength was added to its natural security, and traces of its solid fortifications remain to this day. For the entertainment of the garrison, an amphitheatre was erected, and Lucius Verus, brother to the emperor of that name, had a villa in the neighbourhood, famous for the variety and excellence of its fruit-trees. His gardens were the nurseries where several of the most delicious stone-fruits, that are now so common in Europe, were first cultivated and multiplied.

ALBA, a fortified town of Upper Italy, in Piedmont, situated on the river Tanaro, eighteen miles south-east of Turin. Anciently it was a principal city of Old Liguria. It is now the see of a bishop, and contains, besides the cathedral, three parish churches, and seven convents. Population about 9000.

ALBA LONGA, in ancient geography, a city of Latium, in Italy, built by Ascanius, after Lavinium had stood thirty years, on the Mons Albanus (afterwards so called from the city), and on the spot where a white sow was found, as foretold to Æneas. *Virg. Æn.* l. viii. v. 43, and 83. *Aurel. Vict.* c. 19. *Livy*, l. i. c. 3. Livy says, that the population of Lavinium becoming too great for it, Ascanius founded Alba Longa, and removed the people thither. The city continued to be the capital of the kingdom for three centuries, but Rome eclipsed its glory, and Tullus Hostilius destroyed it entirely, B. C. 666, and transferred its inhabitants to Rome. *Liv.* l. i. c. 29. But the temple, which was in a grove on the mountain, and in which Jupiter was worshipped, was spared. *Strabo*, l. v. *Cicero, Orat. pro Milone*, c. 31. The Mons Albanus, in later ages, became celebrated for the palaces and villas erected on it; among which was a very magnificent one belonging to Pompey. *Cicero, Ibid.* See ALBANUS.

ALBA POMPEIA, in ancient geography, a town of Liguria, on a small river called the Ceba. From the evidence of some inscriptions, it is supposed to have been a colony planted by Pompey, or to have been settled by Scipio, and restored by him. The Roman emperor, Pertinax, is said to have been born there; but Julius Capitolinus (in vita) assigns him a different birth-place. The town is now called ALBA, as above. *Plin.* l. iii. c. 7. *Ptolemy*, l. iii. c. 1.

ALBA JULIA, now WEISSENBURG, a town of Transylvania, on the river Marisius, or Mersch, to the west of Hermanstat, supposed to have been named after Julia Domna, the mother of Caracalla. There are, however, several inscriptions found at or near Weissenburg, which bear Col. Apul. that is, Colonia Apulensis, without

the least mention of Alba Julia, though inscribed after Caracalla's time. And Ulpian, reciting the colonies of Dacia, calls this colony Apulensis, but neither Alba nor Julia. From all which there is a suspicion that Alba Julia is a corruption of Apulum. It was also called Apulum Augustum. Long. 25°. 0′. E. Lat. 46°. 46′. N.

ALBACETE, anciently called Cetide, a small but busy town of Spain, in the province of Murcia, about eighty miles from Valencia. There is a good trade here in wine, saffron, corn, and oil. Its fair, or market, held in September, has long been famous for cattle.

ALBAN, ST. a celebrated saint and martyr of the third century, who is said to have been the first person who suffered martyrdom for Christianity in Britain; and is therefore usually styled the proto-martyr of this island. He was born at Verulam, and in his youth took a journey to Rome, in company with Amphibalus a monk of Caerleon, and served seven years as a soldier under the emperor Dioclesian. At his return he settled in Verulam; and, through the example and instructions of Amphibalus, renounced the errors of paganism, in which he had been educated, and became a convert to the Christian religion. It is generally agreed that Alban suffered martyrdom during the great persecution under Dioclesian; but authors differ as to the year when it happened: Bede and others fix it in 286; some refer it to the year 296; but Usher places it in 303. His martyrdom, according to Bede, happened thus:—Being as yet not known to be a Christian, he entertained Amphibalus in his house; of which the Roman governor being informed, sent a party to apprehend Amphibalus; but Alban, putting on the habit of his guest, presented himself in his stead, and was carried before that magistrate. The governor having asked him of what family he was? Alban replied, 'To what purpose do you enquire of my family? if you would know my religion, I am a Christian.' Then being asked his name, he answered, 'My name is Alban; and I worship the only true and living God, who created all things.' The magistrate replied, 'If you would enjoy the happiness of eternal life, delay not to sacrifice to the great gods.' Alban answered, 'The sacrifices you offer are made to devils; neither can they help the needy, or grant the petitions of their votaries.' His behaviour so enraged the governor, that he ordered him immediately to be beheaded. In his way to execution, he was stopped by a river, over which was a bridge so thronged with spectators that it was impossible to cross it; the saint, as we are told, lifted up his eyes to heaven, when the stream was miraculously divided, and afforded a passage for himself and 1000 more persons. Bede does not indeed give us the name of this river; but the omission, we suppose, will not cause the miracle to be *less* believed. This wonderful event converted the executioner upon the spot, who threw away his drawn sword, and, falling at St. Alban's feet, desired he might have the honour to die with him; which circumstance occasioned a delay in the execution till another person could be got to perform the office; St. Alban therefore walked up to a neighbouring hill, where he prayed for water to quench his thirst, and a fountain sprang up under his feet! Here he was beheaded on the twenty-third of June. The executioner is said to have been a signal example of divine vengeance; for as soon as he gave the fatal stroke his eyes dropt out of his head. We conclude with the words and feelings of Milton in regard to this narrative; who, speaking of St. Alban, says, 'The story of whose martyrdom, foiled and worse martyred with the fabling zeal of some idle fancies, more fond of miracles than apprehensive of the truth, deserves no longer digression.'—See ST. ALBAN'S.

Dr. Southey says, 'Monkish writers have disfigured this story with many fictions in their wonted manner; but there is no room to question that the main facts are historical truths.' *Book of the Church*, vol. i. p. 13.

ALBAN, ST. a considerable town of France, in the district of Gevaudan, in Languedoc, arrondissement of Marvejols. The inhabitants, who amount to 2100, are chiefly employed in the manufacture of woollen stuffs. It is twenty-one miles west of Mende.

ALBANA, in ancient geography, a sea-port town of Albania, on the Caspian Sea, between the rivers Cæsius and Albanus; now called Bachu, or Bachy, giving name to the Caspian Sea, viz. Mar de Bahu.

ALBANENSES, in church history, another name for the Albigenses, according to some writers. Those, who would distinguish them, attribute the same opinions to both; only making the Albanenses to have been prior in respect of time, being known to exist towards the close of the eighth century; whereas the Albigenses did not appear till the twelfth. See ALBIGENSES.

ALBANI, or ALBANO, (Francis) a celebrated painter, born at Bologna, in 1578. His father was a silk-mercer, and intended to bring up his son to that business; but Albani having a strong inclination to painting, when his father died, devoted himself entirely to that art, though then but twelve years of age. He first studied under Denys Calvert; and Guido Rheni being at the same time under this master, the pupils contracted a warm friendship. Calvert drew but one profile for Albani, and afterwards left him entirely to the care of Rheni; whom he followed to the school of the Caraches: but envy poisoned the intercourse of the young artists; when Rheni had set up a beautiful altar-piece, Albani would oppose to it some fine picture of his: and yet they spake of each other with the highest respect. Albani having greatly improved himself under the Caraches, went to Rome, where he continued many years, and married; but his wife dying, he returned, at the request of his relations, to Bologna. His second wife, Doralice, was well descended, though possessed of little fortune; and so beautiful, that Albani sought no other model for his finest representations of the sex. She brought him several fine children, who were also the originals of some of his best compositions. From them too, the famous sculptors, Flamand and Argaldi, modelled their Cupids. Alban's paintings, says Malvasia, breathe nothing but content and joy. He died in 1660. King

Charles I. invited him to England by a letter signed with his own hand.

ALBANI, in antiquity, a college of Salii, or priests of Mars, instituted by Tarquin, and denominated from mount Albanus, the place of their residence.

ALBANI, in writers of the middle age, denotes strangers or foreigners; answering to what we call aliens.

ALBANI, (Alexander,) a cardinal and virtuoso, was born at Urbino in 1692, being raised to the rank of cardinal by Innocent XIII. He died much esteemed in 1779. The villa Albani was famous for beautiful statues, paintings, &c. His late majesty in 1762, purchased for 14,000 crowns the collection of drawings, amounting to three hundred volumes, one-third of which were originals of the first masters, and the remainder most excellent engravings. This prelate was librarian to the Vatican, and author of some celebrated literary and political works.

ALBANI, (John Francis,) cardinal, nephew, and heir of the above, was also a patron of the fine arts. He increased the library of his uncle from twenty-five to thirty thousand volumes. In the year 1793 it was computed that the villa Albani contained nearly two hundred thousand works of art and specimens of antiquity, all of which were dispersed or carried away when the French entered Rome. They are accused of a great want of generosity in this instance. On the election of Pius VII. cardinal Albani returned to Rome, but could never muster sufficient fortitude to visit his dilapidated villa. He died in 1803, with the character of being one of the most affable, and accomplished persons of the age. *Athenæum*, vol. iii.

ALBANI, (Aloisia de Stolberg, countess of,) wife of prince Charles Edward Lewis Sobieski, commonly known by the name of the Pretender, is celebrated as the 'mia donna' of the Italian poet Alfieri. The life of this lady was throughout an unhappy one: in the possession of great beauty and accomplishments, she was united to a coarse, licentious, and intemperate husband early in life. His disgusting habits are confirmed by the accounts of his most devoted friends, and were in fact, the final cause of the extinction of his party in England. She was compelled at length to take refuge from his brutality in a convent, where she remained till his death in 1788. Her own took place at Florence, January 29, 1824, in her seventy-second year. *Gent. Mag.*

ALBANO, or ALBANI, (Giovanni Battista,) the brother and disciple of Francesco, was principally devoted to landscape painting, which he designed in exquisite taste; touching the trees with spirit, and giving them a great sweetness of colour. His general style, both in manner and colouring, resembled that of his brother. He died in 1668.

ALBANIA.

ALBANIA, in ancient geography, a province of Asia, bounded by the Caucasian mountains on the north, the Caspian sea on the east, Armenia on the south, and Iberia on the west.—According to several ancient writers, its chief cities were Teleba, Thalbis, Gelda, Thiauna, Thabilaca, Albana, Chadaca, Misia, Boziata, and Cabalica, which last Pliny calls the metropolis. Its rivers were Cyrus or Cyrnus, now Kur, Albanus, Cæsius, Gerrhus, Soana, Cambyses, and Alazon; which discharge themselves into the Caspian sea. This country is that now known by the names of Shirwan and East Georgia, and is extremely fertile and pleasant. The inhabitants have been represented as tall, robust, graceful, and comely in their persons; and simple in their manners.—Strabo, tom. 2. p. 767. Pliny says, they were of a white complexion, and could see as well by night as by day. *H. N.* tom. i. p. 371. They worshipped as gods the sun, Jupiter, and the moon. Tacitus, lib. 5, and Pliny, tom. i. p. 311. trace their origin to the Thessalians, who attended Jason in his expedition to Colchis, and settled in this part of the isthmus, between the Euxine and Caspian seas. Justin, lib. xiii. describes them as being descended from the inhabitants of Alba in Italy.—Ammianus Marcellinus derives them from the Massagetæ. Strabo says, this country included no fewer than twenty-six kingdoms or principalities, speaking as many languages; but the Albani overcoming the other tribes, became masters of the whole, and established a regular succession of kings, of whom we read occasionally in history, from the time of Alexander the Great. At the invasion of Pompey, they brought into the field 60,000 foot and 12,000 horse; and though Pompey was victorious, he was obliged to return.

We have no account of any of their kings till the time of Alexander the Great, when the king of Albania is said to have presented that monarch with a dog of extraordinary size and swiftness. Pliny, tom. i. p. 465. Orœses the next king, was defeated by Pompey, and obliged to retire to Mount Caucasus. Pharasmenes, another king of Albania, committed great devastations in Armenia, Media, and Cappadocia, and was summoned by the emperor Adrian. This summons he refused to obey, but in lieu thereof sent a number of such great coats as were then worn, made of cloth of gold, in which the emperor, as an insult to the king, ordered 100 criminals to be clothed, and in that attire to fight the wild beasts in the public theatre. After the death of Adrian, he attended the summons of Antoninus Pius, on which occasion he was received with respect and courtesy. Two other kings of Albania are mentioned in history, one of whom was cotemporary with Valerian, and the other with Constantius, the son of Constantine the Great. The race of Albanian kings were continued down to the time of Justinian II. who is said by Zonaras and other writers, Anc. Univ. Hist. vol. ix. p. 122—126, to have subdued the country by his general Leontius.

ALBANIA, a city of Asia, in Assyria, occupying a site east of the river Titana.

ALBANIA, in modern geography, called by

the Turks, Arnaut, is a province which, though in fact nearly independent, nominally forms one of the provinces of the Turkish empire. It extends from the thirty-ninth to the forty-third degree of latitude, for the space of about 250 miles along the east of the Adriatic and Ionian seas.—The breadth inland no where exceeds one hundred miles, and in the southern part not more than thirty. It is bounded on the north by Dalmatia and Servia, and on the south by Livadia. Its eastern boundaries are not distinctly ascertained. The chain of Pindus, now the mountains of Sagori, Metzovo, and of Suli, separate it by an ill-defined line, from Macedonia and Thessaly. To use the language of a late publication, 'Were a line drawn in the Suli mountains, from about the narrowest breadth from the sea above cited, and extended to the country of the Montenegrins, a distance of about 250 miles, where this province has its greatest breadth, it would complete as correct an outline of Albania, as in the present imperfect state of its geography our latest travellers will enable us to describe.'—Ioannina, the capital of a district of that name, eastward, would be about twenty miles to the south-east of this line, and here resided the enterprizing Albanian chief, Ali Pasha, who lately commanded the entire resources of this interesting country.' Albania thus comprehends in its widest sense the ancient Illyricum and Epirus, and is included by the Turks in the government of Romania.

The natural features and beauties of this country, together with its most striking topography are exhibited in the following beautiful lines from Lord Byron's Childe Harold:—

Land of Albania! where Iskander rose,
Theme of the young, and beacon of the wise,
And he his name-sake* whose oft baffled foes
Shrunk from his deeds of chivalrous empriza:
Land of Albania! let me bend mine eyes
On thee, thou rugged nurse of savage men!
The cross descends, thy minarets arise,
And the pale crescent sparkles in the glen,
Through many a cypress grove within each city's ken.

Morn dawns, and with it stern Albania's hills,
Dark Sulis' rocks, and Pindus' inland peak,
Rob'd half in mist, bedewed with snowy rills,
Arrayed in many a dun and purple streak,
Arise; and, as the clouds along them break,
Disclose the dwelling of the mountaineer;
Here roams the wolf, the eagle wets his beak,
Birds, beasts of prey, and wilder men appear,
And gathering storms around convulse the closing year.

Ambracia's gulf behold, where once was lost!
A world for woman, lovely, harmless thing
In yonder ripling bay, their naval host
Did many a Roman chief and Asian king—
Look where the second Cæsar's trophies rose!
To doubtful conflict, certain slaughter bring:
Now like the hands that rear'd them withering:
Imperial anarchs doubling human woes! [lose?
God! was thy globe ordained for such to win and
From the dark barriers of that rugged clime,
Ev'n to the centre of Illyria's vales,
Childe Harold passed o'er many a mount sublime,
Through lands scarce noticed in historic tales;
Yet famed in Attica, such lovely dales
Are rarely seen; nor can fair Tempe boast,
A charm they know not; loved Parnassus fails,
Though classic ground, and consecrated most
To match some spots that lurk within this lowering coast.

* Iskander is the Turkish word for Alexander, the Christian name for Scanderberg; whose countryman Mr. Gibbon makes Alexander the Great.

The capital of Albania was formerly Albanopoli; but it is now Durazzo. The other principal towns are Scutari, Dulcigno, Antivari, Croya, Alesso, Velona, Dataro, Dibra, &c. Amongst the lakes we may reckon Scutari. The most remarkable river is the Delichi, formerly called Acheron; and, to the class of mountains, we may refer the Acroceraunian, or mountains of Chimæra. The soil of this province is extremely fertile, producing excellent wine. Its manufactures are chiefly carpets.

The climate of Albania is mild and healthy. In the spring there is seldom much rain, or a long continued drought. The autumnal rains last about a month. In the close of the season, the country is truly delightful; the sky presents the most perfect clearness, and the middle of the day is as warm as our June. The winter lasts but two months in the year, and in summer the heat is oppressive.

Though Albania has frequently changed its name, its masters, and its boundaries, a people have been embosomed in its mountains from time immemorial. The Greek Illyricum, and the Roman Epirus, of which Albania nearly occupies the site, were, however, described as barbarous, because unexplored and unconquered regions. The natives called by the Turks Arnauts, are descended from the ancient Illyrians, whose language and habits are still preserved amongst the mountaineers, and have been called, from their simple and primitive mode of life, the Scythians of the Turkish empire.

Thucydides denominated the Albanians by the general term barbarous, and applies it to a people on the coast of Epirus, opposite the island of Sybota; and Strabo expressly states, that the Epirotic tribes were mixed with the Illyrian, and spoke two languages, probably their own vernacular tongue, and the Greek language, as the Albanians do to this day. The people have been commonly represented as extremely uncivilized. Polybius calls the Illyrians the enemies of all nations; and Livy attributes the ferocity of one of the four Roman divisions of Macedonia, to the fact of its lying contiguous to these people. Epirus, and that part of Illyricum, subsequently distinguished by the term New Epirus, neither the Greeks nor the Romans were able properly to civilize. Ptolemy, the earliest geographer, who mentions the Albani of this district, represents them as a small tribe of Illyrians, possessing the small town of Albanopolis, of which we hear no more for several centuries. It is then described as Albanon, Arbanon, and Elbanon, a town commanding the passes 'leading from the country about Lychnidus, to the maritime plains.' Anna Comment. l. xiii.—Accropolita, c. 14, 25. A tradition exists in the country, that the name of this town was derived from some obscure connexion with Alba in Italy. The situation of the country induced the Greeks of the lower empire,

to apply the name of Albanoi, to all the nations of these, and the contiguous mountains; and to the country itself, that of Αλβανια, Αλβανητια, and Αρβανητια. But the inhabitants call the country Skiperi, and an Albanian, they call Skipetar.

The great divisions of modern Albania, according to Major Leake, who is allowed to be the best informed traveller on this head, are those formed by the varieties of the native tribes. Those which are principally recognized, are the Ngege, the Toske, the Liape, and the Tzami. The Ngege, or Ghegides, possess the northern district, as far as the ancient Genusus, and Kavaia. Their principal towns are Dulcigno, Scutari, and Durazzo. The Toske inhabit the great plains of Mizakie and Malakastra, extending from the hills of Dyrrhachium to Berat and Avlowa, also the mountains bordering on the south side of these plains as far as Lopesi, Tepelini, and Klisara, which are situated on the ancient Aous, the modern Viosa, and the mountains which stretch into Macedonia as far as the district of Koretza. Their chief towns are Berat and Elbasan, the latter of which is the ancient Albanopolis; and the former, next to Skodre, the most important place in the Albanian territory. The Liape, a poor predatory race, inhabit the wild mountains and the sea coast, extending from Toskeri, south as far as the plain of Delvino. The Tzami inhabit all the regions south of the river Kalama, anciently called Thyamis, of which the present name of the tribe is supposed to be a corruption. It extends inland towards Ioannina, and is called Dai by the Albanians, Tzamouria by the Greeks. The chief places are Suli (the Selli of Strabo), Paramithia, Parga, Liuarati, Aghia, and Margarita. The inferior districts, which, it is presumed, have been detached from the above by the different masters of Albania, comprehend the maritime region opposite Corfu, called Parakalamo, the plain of Delvino, near the ancient Phœnice, Deropul, Zagonia, and the mountains east of Deropul, Reze, Kara-Murata, Kolonia, Premedi, and Khimara. The districts of Konitza, Paleo-Pogoniana and Ioannina, are considered rather as conquests of the Albanians than proper divisions of the country.

Although Albania from time immemorial has been distinguished by the rude valour of its inhabitants, its remote situation, and want of union among its tribes, generally prevented it from acting any conspicuous part in Grecian politics. The only remarkable exception occurs in the reign of Pyrrhus II. who has been justly celebrated as one of the greatest captains of antiquity. After the death of this illustrious commander, the country was again divided into a number of petty states, which fell under the power of the kingdom of Macedon.

The Romans gladly availed themselves of the many fine harbours of the coast; and the traces of the Ignatian road which communicated from Apollonia to Thessalonica, a distance of 262 Roman miles, are still visible. After the decay of the Roman power, Alaric and the Goths took possession of the country. Some of their descendants are afterwards mentioned as having retained possession of the northern districts Sidismund is particularized for his alliance with Theodoric the Great. It was afterwards the prey of the Sclavonian tribes during the eighth, ninth, and tenth centuries. Of these, the Bulgarians were the most prominent. In 870, Achris, or Ocreda, the ancient Lychnidus, was the residence of the Bulgarian kings, and the see of an archbishop; the ancient Nicopolis, and ultimately the whole region, fell under the power of the same race, as is evident from the united testimony of many celebrated historians. 'It was in these ages of the Bulgarian prowess,' says Major Leake, in his *Researches in Greece*, 4to. p. 240, 241,—'that the remains of the Illyrian and Epirotic nations became finally included within the boundaries which they have ever since held

It was during the decline of the Greek empire that the Albanians gradually rose to distinction; and at last, to independence. Such was their valour, that they were able to maintain their ground against the Bulgarians, who had occupied all the neighbouring districts of Greece. In the year 1079, historians particularly distinguish them. They formed one of the four divisions of the army of Nicephorus Basilaces, and were found to be very important auxiliaries. The Roman kings of Sicily obtained settlements on this coast, as did the Franks and other nations, in their alliance, during the period of the crusades. On the dismemberment of the Oriental empire, by the conquest of Constantinople in 1204, Michael Angelus, illegitimately related to the imperial family, established a despotate in this district, embracing Acarnania, Ætolia, and Epirus, together with the towns of Ioannina, Arta, and Naupactus. This, with some trifling interruption, continued an independent kingdom until 1431, when it fell under the Turkish yoke. The despots of Epirus during this period were counted as allies, not only by the surrounding states, but even the imperial family; and exercised a powerful influence on the neighbouring politics. In 1383 they were defeated by the Turks; but under the command of their celebrated leader, George Castriot, commonly called Scanderberg, they survived and baffled all the efforts of Mahomet II. the conqueror of Constantinople, who, after his entrance into Albania, experienced a succession of defeats and mortifications, till he was ultimately obliged to acknowledge its independence by a formal treaty. The porte had undisputed dominion over the rest of northern Greece. On the death of Scanderberg the Turks redoubled their efforts, and at length reduced Albania to nominal subjection. The siege of Scutari, or *Scodra*, in 1478, which is perpetuated by Marinus Barletius, a contemporary biographer and eye-witness, formed the termination of this memorable struggle. The subjection, however, was always imperfect; revolts were frequent; and the Venetians who, after aiding them in the siege, obtained some towns, and established themselves in the contiguous Ionian islands, co-operated in preserving their independence, and preventing their complete subjection to the Ottoman faith. Islamism has therefore been far from common; and the Porte has rarely been able to enforce a more absolute submission to its orders than of late years, when

every provincial governor first establishes his influence over the country; and afterwards applies to the Constantinopolitan government for a sanction to his authority. Motives of pay and plunder appear to have had more weight in Albania than any other species of influence; and this was the ruling motive which prevailed upon the Albanian soldiers to unite themselves with the Turkish army. In proportion, however, as the Ottoman empire declined in vigour, its hold of this celebrated kingdom became less firm, till at length the enterprizing genius of Ali Pasha, again converted this dependency into what may almost be called a separate kingdom. From the vigorous influence of the above-mentioned chief upon the history and politics of Albania, we shall here present the reader with a brief narration of his history, referring the detail of his memoirs to a separate article.

Until the middle of the last century the kingdom of Albania was divided into several independent pashaliks; of which those of Ioannina, Delvino, and Berat, possessed considerable military force. In 1751, the chief in question was born at Tepelini, a small town in the interior, where his father, a pasha of two tails, exercised a limited jurisdiction. When he was of the age of fifteen years his father deceased, and left the young chief in a very critical situation. He used to boast that he began his fortunate career with sixty paras and a musket; and an Albanian who attended Mr. Hobhouse said, he remembered to have seen the pasha with his jacket out at elbows. Ali shortly after his inauguration was driven from Tepelini, and abandoned by almost all his followers. The inhabitants of Gardiki, a neighbouring town, next formed a plan for his destruction; and for this purpose, surrounded him in a village in the night time, where, although he effected his escape, they seized his mother and his sister, and treated them with every indignity, —injuries for which he took a dreadful vengeance. After his escape, he first entered into the service of Coul, the neighbouring pasha at Berat, and the most important of the chiefs of Albania; where, by his address and activity, he so far insinuated himself as to marry the pasha's daughter. Shortly afterwards he overthrew the pashalik of Ioannina, which (under the sanction of the Porte) he made the centre of his future fortunes; and whence, by money, artifice, force, and treachery, he extended his authority. The pashalik of Arta now submitted to his arms; and the Porte appointed him derveni-pasha of Romelia, guardian of all the passes of the country. In 1798 he was appointed vizier, or a pasha of three tails (a title of honour derived from the number of horses' tails carried before great officers in procession.) His father-in-law being dead, he attacked and defeated the pashas of Berat and Delvino in 1811 and 1812; by which means, he gained the finest parts of Albania, and a population of between 200,000 and 300,000 souls. He was induced for some time to preserve pasha Ibrahim in authority at Berat, and contracted with the family, marriages for his sons. The reduction of Prevesa, Vonitza, and Karlili, or Acarnania, conferred new lustre on his enterprizes; and Tepelini (with its inhabitants) now fell into his power. His series of good fortune had not obliterated the remembrance of the wrongs he formerly received from these people, and he resolved upon taking a signal revenge: he pretended, with his usual duplicity, an oblivion of all grounds of resentment, until he had completely enclosed the city with his troops, when he ordered all the inhabitants who were supposed to have been involved in the guilt, to the number of 700, to be dragged into a large khan near the city, where they were bound together with cords, and on a signal given by Ali, the soldiery stationed on the walls with their musquetry, commenced a most unmerciful fire, which they continued till they were all destroyed. The Suliotes, a people inhabiting the Suli, an almost inaccessible range of mountains, proved the most formidable adversaries with whom Ali had to contend. The Suli are placed in the southern extremity of the Albanian territory; and beneath them winds a river, conjectured by Dr. Holland and others, to be the Acheron of the ancients; the strength of these native bulwarks, the warlike habits of the people, and their contempt of death, rendered them the terror of the Albanians, whom they frequently invaded, while no foreign power ventured to scale the tremendous barriers by which they were guarded. Ali, however, accomplished the difficult project, and entered their retreat; where, after a furious resistance, till the natives were partly extirpated, he acquired permanent possession.

The extent of this chief's dominions are difficult to define, or the degree of authority which he possessed. Even within Albania, Scutari was independent. They are supposed to have been bounded on the north by an irregular line, from Durazzo to the Gulf of Salonica, and to have included the mountainous district of Macedonia, nearly the whole of Thessaly, and part of Livadia. On the east they were bounded by those of Ismael Bey, who rules over the plains of Macedonia. The power of this great man was almost absolute; and while little attention was paid to the imperial firman, a letter with the signature commanded implicit obedience. The Albanians are said to have been enthusiastically attached to him, and to have admired the energy of his character; so that when they heard of any other chief, they used to cry, 'he has not a head like Ali.' It was this, in all probability, which, if it did not invite, at least accelerated, the hand of rivalry

The terms on which the Albanian vizier held his government, in relation to Constantinople, may be understood from the preceding account of his character and progress. The Porte acknowleged his titles as conferred by the sultan, and the vizier made a formal acknowledgment of the imperial authority by the respectful reception of an annual firman from Constantinople, to which he remitted considerable sums in the shape of a karach or capitation-tax, rents, impost, &c. But in the internal government of Albania the Turks had no interference whatever; nor in Ali Pasha's alliances with foreign states, from which he received and sent agents regularly in his own name. England, France, and Russia, generally kept a consul here; and the political information of the court of Ioannina was said to

be superior to that of Constantinople. The progress of this enterprizing chief was long viewed with jealousy and alarm, but a mutual fear prevented hostilities between him and the Porte; the latter not being in a condition to hazard driving him into an open rebellion. Prudential reasons therefore suggested the propriety of their investing him, by means of their firman, with the sovereignty of all the provinces he won by his sword. Similar motives, perhaps, induced him to pay an outward deference to the Porte, and aid them against foreign enemies. He marched against Paswan Oglou, and was present at the siege of Widden. His son Mouctar Pasha, also distinguished himself greatly in the late war against the Russians. The Porte most ardently wished him to repair to Constantinople; and even offered him, in that case, the dignity of grand vizier; but Ali uniformly refused their kindness, knowing that his arrival at that metropolis would be the immediate signal for striking off his head. The late emperor, Napoleon, courted his favour, and is said to have offered him the dignity of king of Albania; but Ali viewed the designs of that ambitious despot with too much alarm to admit him as an auxiliary. To England, therefore, he invariably attached himself, with whose interests and politics Dr. Holland thought him well acquainted.

The military force of Ali was calculated at 100,000 men; his disposable force in the field, however, seldom exceeded 15,000, or his standing army 10,000, of which 5000 were generally stationed round his capital. His treasures arose, first, from a land-tax, amounting to about ten per cent. of the produce; secondly, a tax levied on cities and towns in the shape of a requisition; thirdly, customs which he raised, to about six per cent.; and fourthly, the inheritance of all who die without male heirs, together with other sources too numerous to particularize. His residence was in an immense building near Ioannina, the outer courts of which were crowded with soldiers, and persons of all descriptions who might have petitions to present to him. The mysterious awe which he commanded, was, to Dr. Holland, astonishing. He exercised in person the whole judicial capacity, in which his decisions were equitable; and all petitioners, on their approach, used to kneel and kiss his garments. He rose at six in the morning, and, with the exception of an hour at dinner and an hour at supper, spent the whole day in business. He is said to have been extremely temperate at table; and in his haram, seldom retaining more than 300 females. According to the most accurate information we have been able to obtain, the following description of his character, from a late publication, is just and impartial; and although written in Ali's lifetime, we transcribe entire. 'Ali is now (1815) sixty or sixty-one years of age; his figure is corpulent and unwieldy, his neck short, his stature about five feet nine inches. The expression of his countenance is striking and majestic; and his features give no indications of those terrible qualities by which he is characterized. His abilities are certainly of no mean order. He displays that union of deep thought and contrivance with prompt and decisive action, which indicates a mind equally formed for politics and for war. He is remarkable for his address, both in gaining friends, and in lulling asleep the suspicions of his bitterest enemies. But if his abilities are of a superior order, his dispositions are of a kind which render him an object of fear and detestation. His cruelty rather resembles that of an Indian savage, than of even the least civilized European. Impaling and roasting alive are among the common punishments reserved for those who have unhappily offended him. The fierceness of his cruelty is only exceeded by the depth of his dissimulation. It is impossible for the most skilful observer to conjecture, from his outward deportment, the real sentiments with which he regards any individual. The only observable difference consists in a peculiar kindness of manner towards those unfortunates, whose doom he has silently and unrelentingly sealed. 'It is nevertheless pleasant,' says Dr. Holland, 'to be able to allege, as one proof of his superior understanding, a degree of freedom from national and religious prejudices rarely to be found among Turkish rulers. He has studiously adopted into his territory several of the improvements of the more cultivated nations; he has destroyed the numerous bands of robbers who infested the peaceful inhabitants of the country, by his direction roads have been made, bridges constructed, and agricultural improvements attempted. This laudable spirit has added respect to the terror inspired by his government: and even those who, out of the immediate reach of his power, can venture to express hatred of his tyranny, are obliged to allow, that Albania is more happy and prosperous under his severe and stern dominion, than when divided among numerous chieftains, and harassed by incessant wars. From this opinion, no deference to the principles of despotism can be inferred. The experience of history has proved that a single tyrant is less injurious to the happiness of a people, than tyranny divided among several; and the vizier of Albania has himself become a despot, only by the annihilation of the many chiefs who preyed on that heretofore distracted and divided country.'

Lord Byron describes his visit to the Pasha's court, in the following beautiful lines:

To greet Albania's chief, whose dread command
Is lawless law; for with a bloody hand
He sways a nation, turbulent and bold:
Yet here and there some daring mountain-band
Disdain his power, and from their rocky hold
Hurl their defiance far, nor yield, unless to gold.

In marble-paved pavilion, where a spring
Of living water from the centre rose,
Whose bubbling did a genial freshness fling,
And soft voluptuous couches breathed repose,
ALI reclined, a man of war and woes;
Yet in his lineaments we cannot trace,
While gentleness her milder radiance throws
Along that aged venerable face,
The deeds that lurk beneath, and stain him with disgrace.

It is not that yon hoary lengthening beard,
Ill suits the passions which belong to youth,
Love conquers age—so Hafiz hath averred,

So sings the Teian, and he sings in sooth—
But crimes that scorn the tender voice of truth,
Beseeming all men ill, but most the man
In years, have marked him with a tyger's tooth;
Blood follows blood, and, through their mortal span,
In bloodier acts conclude those who with blood began.

This despot was finally defeated by the Turks, and died in a manner suited to his desperate life, being cut down by Turkish officers in 1822. See ALI PASHA.

The physicians of Albania, in the considerable towns, are Greeks, and are for the most part well informed men. The surgeons are Albanians, and very ignorant. Some of their methods are very curious. Mr. Hobhouse describes the practice of kneading the shoulders, and pulling the limbs for a cold; and another practice in case of fevers, equally curious.—The patient stretches out his arm, and the doctor rubs his thumb along the principal artery, from the wrist up to the shoulder: having by a repetition of this operation thrown the man into a perspiration, he covers him up warm, and leaves him in a fair way of recovery.

The Albanians are of a middle stature; small round the loins, the chests full and broad, the eyes quick and lively. They wear a tight girdle round the waist, and puncture and stain their skin. The women bear many marks of misery, and are rather masculine in their appearance. Their common dress is a coarse cotton, with the head covered by a shawl, clasped under the ears. Some of them have a white woollen dress; and the young women have frequently a scull-cap, under which the hair is braided, and flows down, strung with all their smaller pieces of money. The women in general have a fantastic taste in their dress, and are not very cleanly in their habits. The common attire of the men is a shirt of cotton, drawers of the same materials, a white woollen mantle, and a large great coat or capote with loose open sleeves, and a white woollen or horse-hair band, which often hangs in a small piece behind, but when used upon the head, is pinned into form by a long needle or a pistol ramrod. Their girdle is a coarse shawl, drawn very tight by a belt, containing their pistols; when they rest, they loosen them, and draw their capote about them, and seldom have any other covering. In the summer they throw off the capote and mantle. The poorest Albanian has his pistols in his belt, and also a case knife ornamented, and the handle strung with amulets, and the calamaro, a sort of portable ink-stand and pen, of which they are very proud. Their dress is the most elegant of any used in the Turkish empire, and the agas who can afford it, have it made of rich velvet, embroidered and worked with gold and silver; superadding another, which is a kind of jacket without sleeves. Lord Byron says, the resemblance between the Albanians and the Highlanders struck him forcibly. The inhabitants are very dextrous at the long gun, one of which is to be found in every cottage.

The cottages are neat, consisting for the most part of one floor, divided into two rooms, in one of which they keep their maize in the stalk or their grapes, which they sprinkle with salt to preserve them. Each person has a small garden, and each village a green for holiday sports, and a circular piece of paved ground attached to it, on which their corn is trodden out by eight or nine horses driven abreast from a stake fixed in the centre. Their food is chiefly vegetables; all classes drink wine, and also an ardent spirit called *rackee*, extracted from grapes, husks, and barley; they also drink water in large draughts during the most violent exercise without inconvenience. The inhabitants are generally temperate and avaricious, but withal are idle and ignorant. They think it honourable to rob, but disgraceful to steal.

Their forms of salutation are curious: from the rising of the sun to three hours afterwards, they say, '*mire nestrascia*,' or '*nestrascia emire*,' good morning. From the third hour to noon, '*mire minghiessi*,' a good cheese-making to you, this being cheese-making time. Good day, good evening, and good night, are much the same as with us. To a man in his own house, they say, '*mire mbe sctepij*,' well at home. To a person at work, they say, '*mire mbe pune*,' well at your work; and to those who are reclining in the sun, '*mire mbe dieli*,' well in the sun. They are fond of music and dancing; but their execution in both these exercises is extremely imperfect. Notwithstanding these deficiencies, as soon as the daily occupation is over, they begin to sing and play; and each Albanian is his own composer and poet. In their dances there is only one variety: either the hands of the party are locked in each other behind their backs; or every man has a handkerchief in his hand, which is held by the next to him, and so on through a long string of them. The first is a slow dance; the party stand in a semicircle, and their musicians in the middle, continually walking from side to side, accompanying the movements with their music, which are nothing but the bending and unbending the two ends of the semicircle, with some slow footing, and now and then a hop. In the handkerchief dance, which is accompanied with a song from themselves, they are often violent. It is upon the leader of the string that all the principal movements devolve; and all the party take this place by turns. He begins with the song, footing quietly from side to side; then he hops forward, dragging the whole string after him in a circle; and then twirls about, dropping frequently on his knee; and rebounding from the ground with a shout, continues hopping, twirling, rebounding, &c., and then gives his place to the next man, and so on all round the company, each endeavouring to exceed his predecessor in the quickness of his evolutions and movements. Two or three old men often sit in the middle to set the songs, &c. The same dance can be executed by one performer. Mr. Hobhouse saw a boy of about fifteen, who, by the ease with which he performed the *pirenette*, and other difficult movements, made a very agreeable spectacle. Their chief instruments are the lute, three-stringed guitar, with a very long neck, and a small round base, played with a plectrum formed of a piece of quill half an inch in length.

Their trade is considerable. The exports conducted through the gulf of Arta, are grain, timber, oil, tobacco, cotton, wool, &c. Fifty cargoes of grain are annually sent to the Ionian isles, Italy, and Malta. The timber is grown almost on the shores; and during the revolutionary war, a French agent resided at Arta for the purpose of contracting for supplies of it. Tobacco is cultivated in Upper Albania; cotton is received through Thessaly, and exported to the German and Italian ports of the Adriatic. The only manufactured article exported is the capote, which produces 150,000 piastres annually. The imports are sugar, coffee, cloths, linen, fire-arms, ironmongery, gunpowder, &c. The Albanians are connected with the Greek houses at Trieste, and Maltese houses, through which they receive the manufactures of Great Britain. The people have, from remote antiquity, been distinguished for their contempt of death; and can endure, beyond most men, the extremes of heat and cold. A soldier being condemned to death, was on his way to the place of execution, which was situated without the walls of Prevesa, and being arrived about half way, he said to his conductors, 'why do you wish me to travel half a league farther, in the hottest part of the day, can't you hang me here?' The favour was granted, and he put the rope round his own neck. The same contempt of death is common. They delight in the title of Palikari, which signifies brave. Their discipline is very imperfect; they have so little knowledge of rank and file, that 6000 men would straggle over five or six leagues in marching. They begin their battles with loud shrieks and reproaches, which they renew at every pause. Their fire commences at their own will; and, in battle, each troop collects round its chief, and fights separately from the neighbouring one. Their usual arms are, two pistols in the girdle, an atagar, or cutlass, slightly bent forward, somewhat resembling the harpion of the Greeks, a sabre bent backward, hung horizontally to a belt, and a musket. In fight, they are impatient to come to close quarters with their side arms, with which they mostly succeed. The professions of the Albanians, are shepherd, warrior, and agriculturist; and although they have a university in Ioanniana, superintended by eminent Greek professors, the fine arts are unknown, and the mechanical arts are also practised by foreign residents.

Ali Pasha established a complete system of religious toleration. The Mussulman and the Greek church are, however, the two most prominent religions. The Mahommedan makes no difficulty in observing Easter, and the Greeks assist at Mussulman ceremonies. Rhamazan reminds us of the old fable of beauty and the beast; and after an obsequious courting, who knows if the nuptials may be completed, and they may not be identified in one despotism of moral error. The general morals are indifferent. The remains of a feudal independence keep the clans in constant anarchy; and though under the general jurisdiction of a rigid government, the ruins and tombs, scattered every where, evince the frequency of desperate quarrels and seditions. The gypsies, called by the Turks Tchinguenes, are numerous in this country. The rights of hospitality are as much respected here, as in Greece during the early ages. Should a mountain traveller enter the house of even a robber chief, he may rely on protection and kindness. Homer's descriptions are still realized here. When a stranger arrives at a village, he is surrounded by the chiefs, invited to the public square, where the old men interrogate him respecting his travels, his country, &c., and relate their chief affairs. He is presented with wine and fruits. At the time of repast, he is invited to one of the houses, a sheep roasted whole is placed before him, and he is admitted to eat with the principal inhabitants.

The Albanian, or Skipetaric, is not a written language. Sometimes the Greek characters have been used to represent Albanian words; but the Greek being familiar to the higher classes of society, is commonly the language used in writing. Major Leake has formed a vocabulary and a grammar of the vernacular tongue; and Mr. Hobhouse, in the appendix to his travels in this country, gives an abridgment of an Albanian grammar, formed in 1716, by an Italian missionary. The chief peculiarity of utterance is the predominance of the nasal sounds. *Leake's Researches in Greece. Holland's Travels. Pouqueville's Memoirs of the Ionian Islands. Hobhouse's Albania.*

ALBANO, a lake of Italy, in the Campagno di Roma, of an oval figure, and about seven miles in circumference, surrounded on every side with hills. It abounds with excellent fish, and in one place is said to be unfathomable. An aqueduct, constructed by the Romans, B. C. 398, is still in good preservation here.

Albano, a town of Italy, seated on the lake of that name. See last article. Some suppose this to have been the ancient Albanum Pompeii, built out of the ruins of Alba Longa. It stands twelve miles south-east of Rome, and for the pleasantness of its situation is the summer retirement of a great many Roman families. It is likewise the see of a bishop, who is one of the six senior cardinals. The town is famous for its excellent wine, and the ruins of a mausoleum, which, according to the tradition of the inhabitants, was made for Ascanius. The prospect from the garden of the Capuchins is extremely pleasant, taking in the Campania of Rome, and terminating in a full view of the Tuscan sea. Close by the town lies the Albano, which, by reason of the high mountains round it, looks like the area of a great amphitheatre. The mountain of Albano is called Monte Cavo, on the top of which was a celebrated temple, dedicated to Jupiter and Juno. Near the Capuchins there is another convent of Franciscans; and not far from thence the palace of cardinal Barberini, remarkable for very pleasant gardens, with the ruins of ancient baths, and several old fragments of Mosaic work. Lon. 12°. 50′. E. Lat. 41. 43′. N.

ALBANO, a town of Naples, remarkable for the fertility of the surrounding territory.

ALBANOIS. See ALBANENSES, and ALBIGENSES.

ALBAN'S HEAD, or HIGHLAND, ST. a cape, or point of land lying in the county of Dorset, a little east of the town of Weymouth. W. Lon. 2°. 10. N. Lat. 50°. 4′.

ALBAN'S, St. a town of Hertfordshire, in the hundred of Cashio, a very great thoroughfare, accompanied with good inns, 21 miles N. by W. from London, and 12 miles S. E. of Dunstable. This town sends two members to parliament, elected by all the inhabitants who pay scot and lot; and has one of the best markets for wheat in England; considerable quantities of straw-plait are also brought here. St. Alban's is seated near the ruins of an ancient Roman city, by Tacitus called Verulam; and by the Saxons Watlingcester, because it is seated on the road called Watling-street. The site is said to have been in more ancient times that of the metropolis of Britain. Here queen Boadicea, at the head of a powerful army, made a vigorous assault upon the rising Roman colony; and the elegant pen of Tacitus has recorded the failure of her enterprize, after an immense slaughter. Nothing now remains of Verulam but the ruins of old walls, in the fields adjacent to which Roman coins are still found occasionally, as they formerly found tesselated pavements. In memory of St. Alban, Offa, king of the Mercians, anno 795, erected an abbey, calling it St. Alban's; and near it the town of the same name was afterwards built. Edward VI. granted it a charter, incorporated it under a mayor and burgesses. Charles II. afterwards vested the government in a mayor and twelve aldermen, twenty-four assistant burgesses, a high steward, recorder, coroner, &c. The jurisdiction of this town extends to Rickmansworth, Watford, Barnet, Langley-Abbots, Estree, Bushby, &c. It has a gaol delivery the first Thursday after the quarter-sessions at Hertford. The market-house and the town-hall, in which all the public business of the town is transacted, and under which is the borough gaol, stand in St. Peter's street. The churches are St. Alban's, St. Michael's, St. Peter's, and St. Stephen's. The celebrated duchess of Marlborough endowed nine alms-houses, for thirty-six decayed men and women, with a pension of £12 annually. The church of the abbey still remains; time and weather have made it look like stone although built of brick. When the monasteries were dissolved, the revenues of St. Alban's were estimated at £2510 6*s*. 1*d*. according to Speed; and the townsmen paid £400 to prevent the church being levelled with the ground. They have since converted it into a parish church, which for largeness, beauty, and antiquity, has claims not often rivalled. It formerly had a fine font of solid brass, in which the children of the kings of Scotland were in ancient times baptized; and which was brought from Edinburgh by Sir Philip Lea, when the city was in flames; but in the civil wars it was taken away. Not many years since a leaden coffin was discovered in the church, said to be that of Humphrey, duke of Gloucester, youngest son of Henry IV. The body was almost entire, being preserved in a sort of pickle. There was also once a stately cross in the middle of the town, as there were in many other places where queen Eleanor's body rested, when it was brought out of the north for interment at Westminster; but it has been demolished. The market is on Saturday. The inhabitants, about 5000; and those who pay scot and lot about 600. This town gave the title lord Verulam to Bacon, who was buried in St. Michael's church. In 1451, and 1461, two celebrated battles between the houses of York and Lancaster, were fought near this spot.

ALBANUM, among chemists, denotes salt or urine.

ALBANUM MONS, in ancient geography, now called Mont Albano, sixteen miles from Rome, near where Alba Longa stood.

ALBANUS MONS, in ancient geography, to the north of Istria, called Albius by Strabo; the extremity of the Alps, which, together with the mountains to the east joining it, called Montes Bebii, separated the farther Liburnia and Dalmatia from Pannonia.

ALBANY, a county of the state of New York, on Hudson's river, between Ulster and Saratoga; by which, with Schenectady county, it is bounded on the north, having the county of Hudson or Rensselaer on the east; Green county on the south; and Schoharie county on the west. It comprehends an extent of about 462 square miles, and is of early origin. The state of which it forms a part became a regular settlement, under the Dutch, about the year 1614; and in 1691, Albany county sent two representatives, or delegates, to its first legislative assembly. It has a great variety of soil and produce, is agreeably diversified with hills and dales; and watered by numerous navigable creeks, lakes and rivers. In some places, particularly near its northern boundary, the land is nearly barren indeed, though this county is deemed one of no small importance in North American statistics, the progress of cultivation does not appear to have been very rapid. The population in 1810 amounted to 34,600.

ALBANY, the capital of the above county, and of the state of New York, is situated on the western banks of the Hudson, about 160 miles north of New York city, and 394 miles south of Quebec. In a statistical point of view this is one of the most important cities in the United States. It derives considerable advantages from its situation, as a point of communication on the great roads between the eastern states and western country. In 1797, it is said to have contained about 6000 inhabitants; and in 1810, to have doubled that number. Here are several good places of worship for the episcopalians, presbyterians, the baptists, the methodists, &c.; and several noble public buildings connected with the municipal government of the city, the commerce, amusements, &c. of the inhabitants. Near the capitol or state-house, a reservoir of hewn stone, constructed on a rising ground, receives the water from a spring a few miles distant, and the inhabitants are thus plentifully supplied with water through numerous small aqueducts. There are works here and in the neighbourhood

for the manufacture of mustard, chocolate, tobacco, snuff, starch, &c. equal in extent of business to any on this continent. The climate is healthy; and the inhabitants a mixture of almost every nation. The communication between this place and the city of New York, has, within these few years past, been greatly facilitated by the construction of steam boats, which perform their passages in about thirty-five hours, notwithstanding some rapids and shoals which are found in the passage; and also against the tides, which often are strong in the current of the river.

ALBANY RIVER, in North America, after running in a north-east direction, falls into St. James's bay. It communicates with several small lakes southward of Winnipeg Lake.

ALBANY, the modern district of the colony of the Cape of Good Hope, toward which the emigration of our countrymen has been recently encouraged by government. Its Dutch name is Zuurveldt; and it forms a sub-division of the Drosdy of Uitenhagen. The interest which must now be attached to this spot by many British families, will warrant our noticing it in a distinct article. For more general views of the colony, see CAPE OF GOOD HOPE.

The district of Albany was the ancient possession of the Gonaquas Hottentots, a race that is now lost among the Caffres or other native tribes. It is bounded on the north and north-east by Caffraria from which it is separated by the Great Fish River, east and south by the Indian Ocean, and west by other parts of the district of Uitenhagen, from which it is divided by the Sunday River. Its average breadth inland is about thirty miles, and its length seventy miles, containing 2000 square miles, or 1,280,000 acres of land, of which about 1,000,000 acres are unsettled, and destined to be those which shall be first cleared and occupied by the British emigrants.

The Fish River is the principal stream of this part of the colony, and attracted the attention of the Portuguese so far back as the year 1498, when the admiral of their India fleet called it after his own name Rio d'Infanté, and induced his government, on his return, to attempt a settlement on its banks. It is generally understood, on the faith of the Dutch authorities, (for it is remarkable, that no accurate survey of the colony of the Cape is in the hands of government,)* that this river, in common with all the streams of the coast, has a bar of sand across the mouth, which would prevent the entrance of ships of burden: on the other hand, it has been remarked, that it is not probable the Portuguese would have built a fort, as they did, at its entrance, and attempted to have established here a permanent place of refreshment, had they found any such obstacle. It will be curious to be informed from our emigrant friends, whether any modern accretion of this kind has really been formed; or whether, from whatever motives, this is a misrepresentation of the Dutch. The authors of the Universal History make their quarrels with the natives to be the reason of the Portuguese for their abandonment of this coast. Within the bar the Fish River is said to be of sufficient capacity to receive the largest vessels of war. Graham's Town is a new settlement of this district on the banks of the river, and the residence of the deputy landrost, or chief magistrate of Albany.

The Sondag or Sunday River, the second in importance, rises in the Nieuwveldt or Snow mountains, and, after watering a considerable portion of the Graff Reynet district, enters the ocean in a south-east direction in Zwartkops or Algoa Bay. It is with difficulty crossed by the waggons of the colony, no such erection as a bridge having entered into the thoughts of the Dutch farmers of the neighbourhood. Mr. Campbell's Travels in South Africa, 1815, represents the five waggons with him as being dragged over in an hour with ten, and twelve, and one of them, with two and twenty horses; two waggons having been overturned a few days before, by the rapidity of the current.

The other rivers in this district are the Bosjesman's, the Kareeka, the Kasowka, and the Kowie, or Buffalo River, which, though small, are highly acceptable. The road near the banks of the Kareeka, Mr. Campbell represents, as 'strewed with the dung of elephants,' and the trees and shrubbery of the neighbourhood as bearing frequent marks of their passage amongst them. The writer in the Quarterly Review to whom we have referred in a note, and of whose information we are inclined to think highly, says, that 'In the whole range of the colony there are not fifty of these creatures remaining.' This must, however, be speaking a little by anticipation.

Zwartkops, or Algoa Bay, (which see) is the nearest inlet to the proposed new settlements. On its banks stand the town or drosdy of Uitenhagen, which contains the residence of the landrost, the under sheriff, and the principal local authorities of the eastern part of the Cape. Here is a church, a public school, the matrimonial court, (See the article CAPE OF GOOD HOPE for its useful functions) and a post office; the latter communicating once a week with Cape Town, which is about 500 miles to the west. 'For the present, therefore,' says the writer just named, 'this place will be the general market for the new settlers; but as population multiplies,

* 'Truth compels us to state,' says an able article on 'the Cape of Good Hope' in the Quarterly Review, No. XLIII. 'that, during the last twenty years we have held possession of the Cape of Good Hope, not a single survey has been made:—that it is not known what extent of land is cultivable; what rivers are navigable;—to sum up all in one word, there exists no detailed information on which the government at home can venture to make a single grant.' We certainly have not imbibed Mr. Hobhouse's fears, either of a 'burning sun' which is never felt, or of 'the jackals and tigers,' which are easily subdued here; but we do submit that it would have been far more in keeping with the general intelligence of the colonial measures of adminstration to have met the enquiries of emigrants, with a better account of this district, than could be obtained at Downing-street, or at least to have furnished them with a decent map of the colony.

and the surplus increases, some of the rivers will no doubt be made accessible, and fishing towns, and villages be established along the shore of Albany.'

In this neighbourhood there is a peculiar facility of procuring salt for any purpose; one of the largest salt pans of Uitenhagen, being situated near the Sunday River on the borders of the district. It is an object of annual resort to the inhabitants of various neighbouring and remote regions in time of peace. The salt is taken out of the lake in masses of from four to six inches thick, which are broken down by stones or hammers; but that which accumulates on the banks after a dry wind, is preferred, and is equal to any of the British islands. The bays and inlets here abound with excellent fish, which are said to have been never considerably disturbed, the Dutch boors being too lazy to look after them, even for personal gratification, and the native tribes so singularly indifferent to this advantage as not to ply a single canoe on the shore.

Travellers speak of the general aspect of this district, in the highest terms, and of the agreeable diversity of hill and dale which every where meets the eye and varies the soil. 'Though completely in a state of nature,' says Campbell (and this gentleman made a close survey of Albany, with a permission from the landrost of Uitenhagen to fix upon the most eligible stations for two missionary establishments), 'the country through which we passed was beautiful in the extreme, much resembling a nobleman's park in England. The ground was covered with the finest green, interspersed with single trees and clumps of trees.' 'There is plenty of stone for building in various parts, and timber in every direction.'

Thickets of aloes, euphorbias, and other succulents, sometimes extending to a depth of thirty or forty miles, are uncleared; and although the plains do not, as heretofore, swarm with game, flocks of hart-bucks and spring-boks are occasionally seen. Here also are the holds of various beasts of prey that infest the colony. In the vales are numerous rills and springs that have been accidentally discovered by travellers: many others are supposed to remain unopened. Graham's Town is never without a sufficient supply of water.

The soil is fit for any species of culture. The coarse sour grass of the plains, which gave its original name of Zuurveldt to the district, has been long suffered to grow and wither annually in unchecked rankness, except when the Caffres have set it on fire. But even this, as well as the heavy brushwood, which is every where found in clumps, argues the vigour of the soil. The vines of the colony are recommended to be cultivated on the sloping lands, and are said rarely to experience an unproductive season. Grain, pulse, artificial grain, and culinary vegetables, would do well in the plains. Tobacco has also been recommended as a staple article of cultivation. The climate is highly salubrious, and neither subject to such sudden changes as that of the Cape Peninsula, nor to equal heat and cold with that of England.

The plan of colonizing this district is as follows:—That the application of the £50,000 voted by the House of Commons, be confined to persons, who, possessing the means, will engage to carry out at least ten able-bodied individuals, above eighteen years of age, with or without families.

That every person so engaging, shall deposit at the rate of £10 for every family taken out; in consideration of which, a passage will be provided at the public expense, and also their victualling, from the time of embarkation, until the time of landing at the colony.

That a grant of land will be made to each person carrying out the aforesaid number, at the rate of 100 acres for every such person or family whom he takes out: one-third of the money advanced by him at the onset, to be repaid to him on landing, when the victualling at the public expense shall cease; a farther proportion of one-third to be repaid when it is certified to the governor that the settlers are actually placed on the lands assigned to them; and the remaining third at the expiration of three months from the date of their location.

That the lands will be granted at a perpetual quit-rent, to be fixed, but which will be remitted for the first ten years; this rent not to exceed in any case £2 sterling for every 100 acres; subject, however, to a clause, that the lands shall become forfeited to Government in case the party shall abandon the estate, or not bring it into cultivation within a given number of years.

That in the allotment of lands, the interests and the wishes of the parties will be consulted and attended to, as far as it may be consistent with the public and private interests of the colony, the several landrosts having instructions to that effect; with a caution, however, in the distribution of ground, to preserve the waters, so that the most extensive accommodation may be afforded with regard to future settlers.

That in case 100 families shall proceed together, and apply for leave to carry out with them a minister of their own persuasion, the Governor will, on their being actually fixed, assign a salary to the minister whom they may have selected to accompany them.

The lion, elephant, buffalo, wolf, Cape leopard, and a formidable list of the insect tribe (see our article on the Cape,) are the principal annoyances of the animal world. But the beasts of prey exist in no formidable numbers; and will necessarily retreat before the march of civilization. The lion of the colony is said to be a remarkably sluggish, and almost timid animal. The elephants have constantly diminished within these few years; and the buffalo, though fierce when provoked, never attacks unless hunted. The leopard is the most ferocious of all the remaining tribes. Mr. Latrobe speaks of him in common with other travellers, as the tiger of the Cape, but in fact the striped tiger is unknown here. This gentleman gives us the following picture of the ferocity of this comparatively small animal:—One of the wolves that a hunting party of his friends had lamed with a shot, having retreated into the brushwood, a considerable number of the Hottentots followed him there; when the dogs started an animal, which those among the bushes could not see.

The Hottentots remaining on the outside, perceiving it to be a tiger, called aloud to the missionary to return. He, therefore, with Philip, began to retreat backwards, pointing his gun, and ready to fire, in case the animal made his appearance. Suddenly a tiger sprang forward, but from a quarter not expected; and by a flying leap over bushes, fastened upon the Hottentot, seizing his nose and face with his claws and teeth. 'I measured the distance of the place from whence the tiger made his spring, to that on which the Hottentot stood, and found it full twenty feet, over bushes from six to eight feet high.'

Brother Schmitt observed, that if it had not been for the horror of the scene, it would have been a most amusing sight to behold the enraged creature fly, like a bird, over the length of ground and bushes, with open jaw and lashing tail, screaming with the greatest violence. Poor Philip was thrown down in the conflict, and lay now upon, and then under, the tiger. The missionary might easily have made his escape, but his own safety never entered his thoughts. Duty and pity made him instantly rush forward to the assistance of the sufferer. He pointed his gun; but the motion both of the Hottentot and the tiger, in rolling about and struggling, were so swift, that he durst not venture to pull the trigger, lest he should injure Philip. The tiger perceiving him take aim, instantly quitted his hold, worked himself from under the Hottentot, and flew like lightning upon brother Schmitt. As the gun was of no use in such close quarters, he let it fall, and presented his left arm to shield his face. The tiger instantly seized it with his jaw: brother Schmitt with the same arm catching one of his paws, to prevent the out-stretching claws from reaching his body. With the other paw, however, the tiger continued striking towards his breast, and tearing his clothes. Both fell in the scuffle, and providentially in such a position, that the missionary's knee, without design, came to rest on the pit of the tiger's stomach. At the same time he grasped the animal's throat with his right hand, keeping him down with all his might. The seizure of his throat made the tiger let go his hold; but not before brother Schmitt had received another bite nearer the elbow. His face lay right over that of the tiger, whose open mouth from the pressure of his wind-pipe, sent forth the most hideous, hoarse, and convulsive groans; whilst his starting eyes, like live coals, seemed to flash with fire. In this situation brother Schmitt called aloud to the Hottentots to come to his rescue, for his strength was failing, rage and agony supplying to the animal extraordinary force, in his attempts to disengage himself. The Hottentots at length ventured to enter the thicket, and one of them snatching the loaded gun which lay on the ground, presented it, and shot the tiger, under the missionary's hand, right through the heart. His death was instantaneous; his eyes shut, his jaw fell, and he lay motionless. Had any life been left, his dying struggles might yet have proved fatal to some of his assailants.'—*Latrobe's Journal of a Visit to South Africa in* 1815 *and* 1816, p. 306, 308.

The state of the native tribes in this neighbourhood has also been considered as a source of alarm to the new settlers. This can only refer to the present hostility of the Caffres, proceeding, as there is good reason to suppose, from a temporary cause. The Hottentots within the limits of the colony have been but too effectually and unfeelingly subjugated by its former possessors, the Dutch; and the Bosjesmans, and other wild tribes, are far to the north of this settlement. But in a long-standing quarrel between the chiefs of the Caffre frontier, the British authorities felt it proper to interfere, and not to suffer our forces to assist in carrying off the cattle of one party. For awhile, the line of military forts on Fish River kept the spirit of party in check; but on the withdrawment of the cavalry, they were determined on revenge. They crossed the boundary of the colony in great numbers, and penetrating to the settlement of the Moravians, on the White River, drove away every head of oxen they met with, and killed many of their Hottentot keepers.

The Caffres have been often, of late, completely repulsed; but the boors are generally ordered to be under arms, to resist any new incursion—a sort of summons which they are readily obey. The fact is, that the Caffres have sound reason to complain of the conduct of Europeans towards his country. During the Dutch sovereignty here, perpetual encroachments on the territories and possessions of the tribes were encouraged, on the title, we may suppose, which Kolbern, the historian, urged on the behalf of the States, to all the land from Mosell Bay to Mozambique, a *territory* of 300,000 square miles, which he says was originally purchased for 30,000 guilders! What or of whom, however, he does not condescend to state. The boors a few years since had not much regard for the life of a Caffre as for that of one of their own oxen; and no plausible or promising opportunity of seizing their herds was ever overlooked. At the period of our first conquest of the colony, the whole of this district was desolated by the quarrels thus fermented. The general policy of our government here has certainly been conciliatory; and the late disturbance is the only serious one that have since taken place.

In conclusion we would say, let not emigrants or their friends overlook the disadvantages of the proposed point of emigration. The glowing pictures of vegetable beauty, which all travellers who have seen the country in the beginning of summer, concur in giving us, must not drive from our recollection the sober truth that summer ends. Of the forests of this coast there are descriptions, of course, that frown 'in green or russet o'er the land' throughout the year; and the finest trees of the colony are certainly found in the district of Albany and its neighbourhood. But there is a stuntness of growth about them, and the grain is generally too twisted ever to render the timber important as an article of commerce. And no country shews a greater contrast between the beginning and the end of summer. The predominant soil of the colony being a stiff clay, into which no plough will enter until it is

thoroughly soaked with rain, the uncultivated parts when the wet season has terminated, (and plains of many square miles together are and must for ever remain of this description in the interior,) appear wholly naked and smooth, except where a few quartz pebbles, or gravel may glitter to the eye. Now this is the season at which the emigrants who have embarked lately for the Cape, will arrive at that colony. Some objection has been taken on this head to the choice of government with regard to the season of embarkation. To this it has been replied, that the rains beginning to fall partially towards the end of March, and rarely, if ever, later than April, the moment they begin the labours of the field should commence; that a ship leaving England in December, will reach Algoa Bay in March; and there will not then be more than sufficient time for the emigrants to distribute and settle themselves before the rains will have again begun. 'The new settler will immediately take care to get his potatoes into the ground,' says the *Quarterly Review*, 'in order that he may dig up the first produce of his labour by the end of September, or the beginning of October; with these potatoes, a crop of maize or Indian corn, and a few culinary vegetables, he should lay his account for his first year's supply; and, in truth, this, with the cattle he may purchase from the neighbouring boors at fifty shillings a head, and sheep at six or seven, together with the fish that abound on every part of the coast, especially near the mouths of the rivers, will more than suffice to remove every apprehension of suffering from an actual want of food.'

On the rains of the wet season the principal hopes of the farmer depend. If these fail, the crop fails. But this has been rarely known to occur more than once in seven years. The south-east winds are also occasionally injurious, and the descent of locusts has been sometimes as truly terrific in this neighbourhood as in any part of the world. We cannot but hope that some competent engineers will be found among the new settlers to direct the floods of the rainy season into the most profitable channels; no country would so quickly repay an improved system of irrigation. 'We are anxious, above all things,' says the intelligent writer just quoted, 'to warn the emigrant against the fallacious idea, that he will there reap without sowing; on the contrary, he may lay his account with a few of the first years of his residence being years of toil and anxiety.'

The comparative stupidity and filthiness of the Hottentots—the lazy tyranny of the Dutch boors, who will become his neighbours, and who, in the accumulated filth of some of their establishments, are surpassed by no class of human beings—the want of markets for surplus produce, which will at first be found—the Dutch laws, which at present prevail here, and to which the trial by jury, and the confronting witnesses with the accused, or with each other, are alike unknown—the monopoly of all India and China goods enjoyed by the East India Company—and the depreciated paper currency, especially the two latter, are further annoyances and disadvantages which emigrants and their friends must add to this account: and thus have we placed before them, according to the most recent and authentic documents, a fair view of their prospects in this part of the world. To this ought also to be now added, 1826, that the first settlers have been greatly disappointed in their views, and that the probable general prospects of this settlement are far from promising.

ALBARA, or Albora, among physicians, a name sometimes given to a mixed species of malignant itch, compounded of the morphew, serpigo, and lepra. The albara partakes most of the nature of the leprosy: some make it the same with the leuce, vitiligo, or morphew. See Alphos.

Albara, in botany, the white poplar.

ALBARDEOLA, in ornithology, a name given by many authors to the platea, or spoonbill; a bird approaching to the nature of the heron.

ALBARII, in antiquity, properly denoted those who gave the whitening to earthen vessels, &c. in which sense they stood contradistinguished from dealbatores, those who whitened walls.

ALBARIUM Opus, in the ancient building, the incrustation or covering of the roofs of houses with white plaster made of lime. This is otherwise called opus album. It differs from tectorium, which is the common name given to all roofing or ceiling, including even that formed of lime and sand, or lime and marble; whereas albarium was restrained to that made of lime alone. The baths of Agrippa, Vitruvius says, were covered with the albarium, which was also used for its ornaments, and would take the polish of marble. The white chunam of Indian architecture, and the white patent stucco of Mr. Chambers, the banker, are also of this description.

ALBARRAZIN, an ancient and strong town of Arragon in Spain, seated on an eminence, near the river Guadalaviar, a little below its source, and on the frontiers of Valencia, and New Castile. It is the seat of a bishop, and produces the best wool in all Arragon. Population about 1800; it is about 100 miles east of Madrid. Long. 1°. 16′. W. lat. 40°. 34′ N.

ALBARREGAS, a considerable river of South America, in the kingdom of Granada; which descending from the mountains of Bogotia, empties itself into the lake Maracaibo.

ALBA Terra, one of the numerous names for the philosopher's stone.

ALBATEGNI, a celebrated astronomer, who lived at the close of the ninth century, and derived his name from the town of Batan, between the Tigris and Euphrates, where he was born. In the year 882, he observed that the autumnal equinox was, on the 19th September, at 13h. 15′. at Aracta, or Ruca, a town of Chaldea. In 883, he found the longitude of the first star of Aries to be 18°. 2′.; the obliquity of the ecliptic to be 23°. 35′.; and the motion of the earth's aphelion, and that of the stars, one degree in seventy years. He also ascertained the eccentricity of the earth's orbit. The imperfections of the astronomical tables of Ptolemy, induced Albategni to compute new ones, which he adapted to the meridian of Aracta. His work, entitled The Science of the Stars, founded on his own

observations, as well as those of Ptolemy, was translated into Latin from the original Arabic, which lies unpublished in the Vatican, by Plato of Tibur. It was published at Nuremberg, in 1537, with some additions by Regiomontanus, and republished at Bologna in 1695, with annotations by the same author. Albategni died in 888. See *Phil. Trans.* 1693, No. CCIV. and *D'Herbelot's Biblioth. Orient.*

ALBATI Equi, in antiquity, a name given to those horses, in the games of the circus, which were distinguished by white cloths or furniture.

ALBATROSS Island, a small island on the north of Van Diemen's land, frequented by innumerable albatrosses and seals. Long. 144°. 4′. E. lat. 40°. 25′. S.

Albatross Point, a cape of New Zealand. Long. 184°. 42′. W. lat. 38°. 4′ S.

ALBATROSSE, in ornithology, a species of the diomedea. See Diomedea.

ALBAY, a volcano, and mountain of the island of Lucon, subject to frequent eruptions. It broke forth in the year 1814 with uncommon violence, and laid waste the whole neighbouring province, destroying thousands of the inhabitants.

ALBAZIN, a town of Great Tartary, upon the river Amour, once fortified with a strong castle: it lies on the road from Moscow to Pekin. Long. 104°. 10′. E. lat. 54°. 0′. N.

ALBE′, } Formed of the three words *al*
Albe'it. } *be it*. Now obsolete.

Saturne anon, to stenten strif and drede
Al be it that it is again his kind,
Of all this strif he gan a remedy find.
Chaucer. The Knightes Tale. b. i.

Ne wou'd he suffer sleep once thitherward.
Approach, *albe* his drowsy den was next.
Spenser.

This very thing is cause sufficient; why duties, belonging to each kind of virtue (*albeit* the law of reason teach them) should notwithstanding be prescribed, even by human law. *Hooker.*

One whose eyes
(*Albeit* unused to the melting mood)
Drop tears as fast as the Arabian trees
Their medicinal gum. *Shaksp.*

Le Beu. Good sir, I do in friendship counsel you
To leave this place, *albeit* you have deserv'd
High commendation, true applause, and love,
Yet such is now the duke's condition,
That he mis-construes all that you have done.
Shaksp. As you Like it.

He, who has a probable belief, that he shall meet with thieves in such a road, thinks himself to have reason enough to decline it; *albeit* he is sure to sustain some less (though yet considerable) inconvenience, by his so doing. *South's Sermons.*

A flashing pang! of which the weary breast
Would still, *albeit* in vain, the heavy heart divest.
Lord Byron's Childe Harold.

Albe, in commerce, a small coin, current in Germany, worth only a French sol and seven derniers.

Albe, a river of France, in Lorraine, which runs into the Sarre, at Sarre-alb, in the department of the Moselle.—Also a river of Hanover, in the principality of Luneburg, which falls into the Aller, near Rethem.

ALBELEN, in ichthyology, the name of a fish of the trutta ceous kind, called the Albulla, and much resembling the ferra. It is caught in the German and other lakes, and is found from five to twelve lbs. weight: its colour is a fine silvery white.

ALBELLUS, in the Linnæan system, a species of anseres, belonging to the genus mergus.

ALBEMARLE, or Aumarle, a town of France, in Upper Normandy, from whence the noble family of Keppel takes the title of earl. The serges of this town are esteemed. It is seated on the declivity of a hill, on the confines of Picardy, 35 miles north-east by north of Rouen, and seventy N.N.W. of Paris. It is the head of a canton in the department of the Lower Seine, arrondissement of Neufchatel, with 170 houses, and about 1720 inhabitants. Long. 1°. 48′. E. lat. 49°. 46′. N.

Albemarle, a county of Virginia, North America. In extent it is thirty-five miles square, and contains 20,000 inhabitants; the chief town is Charlottesville.

Albemarle Sound, on the coast of North Carolina, is a kind of inland sea, sixty miles in length, and from eight to twelve in breadth. It lies north of Pamplico Sound, and communicates with it; as it likewise does with the Currituck, Roanoke, and Meherrin rivers. The neck leading into the sea is called Roanoke Inlet.

ALBEN, a market-town and mountain of Carniola, in Germany, where there are mines of quicksilver. It is two miles north-west of Ozirthnitz.

ALBENGA, or Albengua, a town of Italy, in Genoa, anciently called Albingaunum, and Albium Ingaunum. It is the see of a bishop; and was once a handsome town, but is not well peopled on account of the insalubrity of the air. It is situated on a beautiful and well cultivated plain: is a sea-port, about thirty miles south-west of Genoa, and twelve north-east of Oneglia. Long. 8°. 3′. E. lat. 44°. 4′. N.

ALBEOLA, a species of anas.

ALBERNUO, in commerce, a kind of camblet, brought from the Levant by the way of Marseilles.

ALBERONI, (Julius, Cardinal,) was the son of a poor gardener of Placentia; and born in 1664. At the age of fourteen he obtained a post in the cathedral of Placentia, and in due time became priest and canon. Having had the good fortune to relieve M. Campistron, secretary to the duke of Vendome, when he was robbed near Placentia, he was recommended by him to his general, who took him into Spain; where he rose by several gradations, to the dignity of cardinal, and archbishop of Valentia, and to the office of prime minister, in the court of Spain. He was indebted for both these honours to the patronage of the princess of Parma, whose marriage with Philip V. he had projected and accomplished. Alberoni's disposition was intriguing and enterprising. Not content with effecting some domestic reforms and arrangements, in which were included many regulations favourable to the arts and to commerce; he formed the design of an expedition against Sardinia and Sicily, and in order to prevent the interference of other powers, made an alliance with czar Peter, Charles XII. of Sweden, and the Ottoman Porte. He also proposed exciting the Turks to make war on the emperor,

to advance the pretender to the throne of England, by means of Peter and Charles, to divest the duke of Orleans of the regency of France; and to annihilate the German power in Italy. But an union between England and France, was the result of the discovery of this plan; and these powers concurred in declaring war against Spain, in 1719: making, as the condition of peace, the removal of Alberoni, and his banishment from the kingdom. Having, therefore, in December 1720, received an order to quit Madrid in twenty-four hours, he retired with great wealth; nor was it discovered before he had been two days on his journey, that he had abstracted the important will of Charles II. of Spain, which appointed Philip universal heir of the monarchy. Being followed, this document could only be wrested from him by force; when pursuing his journey, he was arrested at Genoa, by order of the pope, on the charge of negociating with the Turks. On his liberation from the convent of the Jesuits, to which he was confined for a year, he engaged in new intrigues, and particularly in an unsuccessful enterprise against the small republic of St. Marino. A bon mot of Benedict XIV. on this occasion has been very generally circulated: 'Alberoni is like a glutton, who, after having eaten a large salmon, cannot help casting a wishful eye at a minnow.' His views were more laudably directed to the establishment and endowment of a seminary of education for poor scholars in his native city. Alberoni preserved his health and vivacity to old age; when his conversation usually turned on the recital of his own exploits, and was instructive and amusing; though in his temper he was irascible and impatient. He died in 1752, at the advanced age of eighty-seven, leaving behind him the character of a great politician, daring as Richelieu, and supple as Mazarin, and with as little principle as either. His life, to the year 1719, has been published by John Rousset, translated from the Spanish. A Testament Politique, published under the name of Alberoni, in 1753, is considered spurious. *Nouv. Dict. Hist. &c.*

ALBERT, of Aix, or ALBERTUS AQUENSIS, was a canon of Aix-la-Chapelle, in the twelfth century, who travelled in the Holy Land, and wrote a History of the Expedition to Jerusalem, under Godfrey of Bouillon, and other leaders. It is esteemed an accurate narrative, and comprehends a period of twenty-four years. It was printed by Reineccius in 1662. *Voss. de Hist. Lat.* lib. iii. c. 6.

ALBERT I. surnamed the Triumphant, son of Rudolphus I. was elected emperor of Germany on the deposition and death of Adolphus, of Nassau, whom he himself killed in battle in 1298. He was assassinated in 1308, by his nephew, John, duke of Suabia, and other conspirators. During the reign of this emperor the Swiss regained their independence, and laid the foundation of the Helvetic League. *Bon. Fin.* 1. 3, dec. 4.

ALBERT II. surnamed the Grave and the Magnanimous, the son of Albert IV. duke of Austria, was elected emperor in 1438, as also king of Hungary and Bohemia, and died after a short but honourable reign of a year and seven months. *Aventin. Ann. Boior.* 1. 7; *Æn. Silv. Hist. Bohem.* c. 56; *Spondan. Annal.* ann. 1437, &c.

ALBERT the Great, in biography, ALBERTUS MAGNUS, so called, on account of his great erudition, was born at Lawingen, in Suabia, about the year 1193, or, as some say, 1205. He was educated at Pavia, and in 1236, made doctor in medicine at Paris; where, having heard father Jourdain, the Dominican, preach, he was induced to take the habit; and on the death of Jourdain, was made vicar-general, then provincial of that order. He taught philosophy, medicine, and theology, at Cologne, and at Paris, to numerous auditories. St. Thomas Aquinas was his pupil, at Cologne. In 1260, he was made bishop of Ratisbon; but at the end of three years resigned that dignity, and retired to Cologne. From hence he travelled through Germany and Bohemia, to preach the crusade; and in 1274 attended the council of Lyons. He continued to instruct the religious of his order at Cologne till the time of his death, November 1280. His very voluminous works were collected by father Jammi, a Dominican of Grenoble, and published at Lyons in 1615, in twenty-one volumes in folio; many of them are supposed to be spurious; but he was undoubtedly the author of numerous works on arithmetic, geometry, perspective or optics, music, astrology, and astronomy; under the titles—De Sphæra, de Astris, de Astronomia, item speculum Astronomicum, &c. Being a man of genius and knowledge superior to his contemporaries, he was charged, according to the spirit of the times, with being a magician. He is said to have contrived a kind of androides, or machine in the human form, which he had brought to such perfection, that it could speak: and of which many idle tales are related. Some have, without foundation, ascribed to Albert the invention of fire-arms. The chief object of his investigation was, probably, the philosopher's stone, as this was the ignis fatuus of the age. *Gen. Dict. Dupin* cent. xiii. *Brucker's Hist. Philos. by Enfield*, vol. ii. p. 371, 372.

ALBERT, margrave of Brandenburgh, and the last grand master of the Teutonic order, laid aside the habit of his order, embraced Lutheranism, and concluded a peace at Cracow in 1525, by which he was acknowledged duke of the east part of Prussia, (formerly called for that reason Ducal Prussia,) but to be held as a fief of Poland, and to descend to his male heirs. See PRUSSIA.

ALBERT, (Jane d') daughter of Margaret, queen of Navarre, was betrothed at the age of eleven to the duke of Cleves, but the marriage was annulled. In 1548, she espoused Antony de Bourbon, duke of Vendome; and in 1553 was delivered of a son, afterwards Henry IV. of France. In anticipation of this event, the king, her father, promised to put into her hands his *will*, on condition that during her labour she should sing a Bearnoise song; accordingly, it is said, when her father entered the chamber, she sang a popular song in the language of her native country. The king, on her delivery, gave her a gold box containing his will, and at the same time threw round her neck a chain of gold,

saying, 'These are for you, but this is mine!" taking the infant in his arms, which he carried to his chamber. On the death of her father, in 1555, she became queen of Navarre, and established the protestant religion. Being invited to the French court, to assist at the nuptials of her son with Margaret of Valois, she expired suddenly, not without suspicion of poison, in 1572, in the forty-fourth year of her age. She left several compositions in prose and verse.—*Bayle.*

ALBERT, (Louis Joseph d') son of Louis Charles duke de Luynes, was born in 1672. After serving gallantly in the armies of France, he entered into that of the elector of Bavaria, who, on becoming emperor under the title of Charles VII., created him a prince of the Holy Roman Empire, by the title of Prince of Grimberghen. His political and military engagements did not wholly divert him from literature: his works are, Le Songe d' Alcibiade, Paris, 1735, 12mo.; Timandre instruit par son Genie, and other pieces, published under the title of Recueil de Differentes Pieces de Litterature, Amsterdam, 12mo., 1759. He died in 1758, aged eighty-seven. *Biog. Universelle.*

ALBERT, (Erasmus) a German divine, educated under Luther, known only as the author of a book entitled the Koran of the Cordeliers, ridiculing the Franciscans. It was printed in German, with a preface by Luther, in 1531, and in Latin, in 1542. The best edition is that of Amsterdam, in 2 vols. 12mo., 1734. This author died in 1553.

ALBERTET, an Italian mathematician and poet of the thirteenth century, was a native of Provence. He wrote several poems in honour of his Platonic mistress, the marchioness of Malespine, which he left to a friend in order to be presented to the lady, instead of which he sold them to Faber d'Uzes, who published them as his own. The plagiarism being discovered, D'Uzes was whipped for the appropriation, agreeably, it is said, to a then existing law upon the subject. *Vossius Moreri.*

ALBERTI, (Leone Baptista,) was descended from a noble family in Florence; and was a proficient in painting, sculpture, and architecture. He wrote on each of these subjects; but his studies did not permit him to leave any thing considerable behind him in painting. He was much employed by Pope Nicholas V., and Lorenzo Medici. His principal erections are at Florence, Mantua, and Rimini. His works are, first, Momus de Principe, Rome, 1520; second, Trivia sive de Causis Senatoriis, 1588, 4to.; third, Fables or Apologues; fourth, Treatise on Scripture; fifth, De Pictura, Basil, 4to., 1540, and Leyden, (Elzevir) 1649; sixth, De Re Ædificatoria, 1485. The last has been translated into Italian by Lauro, and was handsomely published in Italian and English in 3 vols. folio, London, 1726. The invention of the Camera Obscura has been ascribed to this artist, who died in 1475.

ALBERTI, (di Villanova Francis) an able lexicographer, was born at Nice in 1737. His principal work is entitled, Dizionario Universale Critico Enciclopedeco della Lingua Italiana, a new edition of which, in six volumes, was published in the year in which he died at Lucca, 1803. *Un. Biog. Dict.*

ALBERTISCHER Bass, in music, a German expression, denoting a species of bass consisting of arpeggios, invented by Dominico Alberti, an amateur, in the year 1730. See Ex. 5.

ALBERTISTS, a sect of scholastics, so named from their leader Albertus Magnus, a man of superior erudition, who was honoured with the title of a magician, and regarded by the alchemists as one of the most successful of the brethren.

ALBERTUS, in commerce, a gold coin worth about fourteen French livres; and so coined during the administration of Albert archduke of Austria.

ALBESIA, a kind of shield used by the ancient Albenses, a nation of the Marsi. See DECUMANA.

ALBESZTI, a market town in Wallachia, between the rivers Proava and Chiricon; not far from the Syul. It is 70 miles N. E. of Bucharest.

ALBI, or ALBY, an ancient city of France, the capital of the department of Tarn, seated on the river of that name, which washes its walls, and serves both for defence and ornament. It is situated 335 miles south from Paris, 30 south by west of Rhodes, and 42 north-east of Toulouse. It was the chief city of the Albigeois, and the ci-devant see of an archbishop. The cathedral is dedicated to St. Cecilia, and was once ornamented with a valuable silver shrine, of the Mosaic kind, of exquisite workmanship. It still possesses what is accounted the finest organ in France. The chapel of this pretended saint is magnificent, and adorned with paintings. The Lice is a fine large walk without the city, distinguished by a terras above a deep moat, which serves instead of a fosse; and two rows of fine trees, which are kept in excellent order. Here are some inconsiderable manufactories of coarse linen and woolen stuffs. Population 9860.

ALBI, anciently called Alba fucentes, a small town of Naples, in Abruzzo.

ALBICI, the inhabitants of Albioece, mentioned by Cæsar. They were also called Albici Apollinares from their superstitious worship of Apollo. See ALBIOECE.

ALBICILLA, in ornithology, a species of Falco, in the Linnæan system, the aquila albicilla of Brisson, pygargus, albicilla *hirundinaria* of Bellon, Gesner, and Ray, grand pygargue or great eagle of Buffon, braun fahler adler of Frisch, white-tailed eagle of Willughby, and cinereous eagle of Pennant and Latham. Its specific characters are, that its cere and feet are yellow, the tail-feathers white, and the intermediate ones black at their vertex. It is of the size of a peacock, and inhabits Europe, particularly Scotland and the neighbouring isles. Aristotle Hist. Anim. lib. ix. b. 32, tom. i. p. 788, gives this species the epithet of *Hinnularia*, denoting that it preys upon fawn, that is, young stags, deer, and roe-bucks.

ALBICILLA, in conchology, is a species of the Nerita, with a striated shell, subdentate; the interior tuberculated. It is found at the Cape of Good Hope and in the Indian sea

ALBIFICATION, *album facere*, to make white.

Our lampes brenning bothe night and day
To bring about our craft, if that we may
Our fourneis eke of calcination
And of wateres *albification*.
Chaucer. The Chanones Yemanne's Tale.

ALBIGENSES, in ecclesiastical history, the name of a religious sect of the twelfth century, eminently distinguished by their zealous opposition to the church of Rome, as well as for the importance of many of the sentiments for which they contended. Too often 'their ashes flew, no marble tells us whither,' and the difficulty attending the detection of facts, amidst imperfect and often contradictory documents, renders it almost impossible to give any very minute and accurate detail, either of their history or opinions. They have been frequently considered as the same people with the Waldenses, but little evidence of this identity can be deduced except their being confounded with them, and condemned under their name, by the decrees of their enemies.

The Albigenses first made their appearance in the vicinity of Toulouse, and the Albigeois in Languedoc, and may, with probability, be considered as a sect of the Paulicians, who, having withdrawn from Bulgaria and Thrace, either to escape persecution, or from motives of zeal to extend their doctrines, settled in various parts of Europe. They acquired different names in different countries, as in Italy, whither they originally migrated, they were called Paterini and Cathari, and in France Albigenses, from the circumstance, as Mosheim affirms, of their opinions being condemned in a council held at Alby, Lat. *Albigia*, in the year 1176. Others, however, maintain that this appellation was derived from the district itself which was their chief residence. Besides these epithets, they were called in different times and places, and by various authors, Bulgarians, Publicans, Boni Homines, or good men, Petro-Brussians, Henricians, Albelardists, Arnoldists, and Passagers. In fact, the term was frequently employed to denote any description of heretic or dissentient from the Romish church. Hence it becomes extremely difficult to ascertain their peculiar sentiments with precision. Upon the authority of several writers, they are charged with holding Manicheism, in which is said to have consisted their chief disagreement from the Waldenses, who are allowed to have held a purer faith. The book of the Sentences of the Inquisition at Toulouse, charges them with believing that there are two Gods and Lords, good and evil; that all things visible and corporeal were created by the devil, or the evil god; that the sacraments of the Romish church are vain and unprofitable; and that, in short, its whole constitution is to be condemned. They are stated to have maintained the unlawfulness of marriage; to have denied the incarnation of Christ, and the resurrection of bodies; and to have believed that the souls of men were spirits banished from heaven on account of their transgressions.

There were likewise said to be two classes of them; the perfect and the believers. The perfect boasted of their living in continence, of eating neither flesh, eggs, nor cheese. The believers lived like other men, and were even loose in their morals; but they were persuaded they should be saved by the faith of the perfect, and that none could perish who received imposition of hands from them.

The Albigenses became so formidable to the Romish priesthood at the beginning of the thirteenth century, that a crusade was formed for their extirpation; and Innocent III. admonished all princes to oppose and expel them from their dominions. Raymond, earl of Toulouse, who was their chief protector, drew upon his head the thunders of excommunication; and the legate who bore the papal decree, promised a plenary remission of sins to all who engaged in the holy league against them. Dominic, the inventor of the inquisition, joined in this service; and Raymond, after much resistance, at length yielded to terror and self-interest. In the year 1209 the dreadful war began, and Simon, the celebrated earl of Montfort, became generalissimo of the army. Notwithstanding the intrepidity displayed by the objects of this military persecution, town after town was captured, and the poor people who were stigmatised with the name of heretics, but whom Hume Hist. vol. ii. has characterised as 'the most innocent and the most inoffensive of mankind,' were hanged, slaughtered, and burnt, without mercy. The earl of Toulouse was assisted by the kings of England and Arragon, but he lost his dominions, and in vain appealed to the council of Lateran. Raising some forces in Spain, while his son Raymond exerted himself in Provence, he regained the city of Toulouse, and part of his possessions. The earl died in 1221, and his son succeeded to the dominions he had recovered; but pope Honorius III. stimulated Lewis of France to engage in the contest, and, though he encountered numerous difficulties, Raymond was necessitated at length to obtain peace upon very degrading conditions, and finally relinquished his protestantism; the Albigenses became dispersed, and excited no further attention till they united with the Vaudois, and the Genevan reformed church.

ALBIGNY, a village and lordship of France, in the Lyonnois.—Also a small town on the river Nerre, in the province of Berry.

ALBIN, or Aubin, a small town of France, in the department of the Aveyron, and arrondissement of Ville Franche. It contains about 3200 inhabitants, and is eight leagues north-west of Rhodes. E. Lon. 2°. 20'. N. Lat. 44°. 31'.

ALBINO.

ALBINO, Leucæthiop. or White Negroes, a variety of the human species, that frequently occurs in Africa. Ptolemy and Pliny apply the term Leucæthiopes to a tribe of people in Nigritia. The Portuguese first gave the name of Albino to the white negro. Instances are met with in different parts of Europe; but races, the hue of whose skin approaches most nearly to black, are in general most liable to deviations in colour. Albinos have been seen in the Indies, in Borneo, in New Guinea, in Java, and in Ceylon.

The peculiarities of the Albino appertain to the eye, the skin, and the hair. The iris of the eye is of a bright red, or of a blue colour; and the whole organ is peculiarly sensible to the impression of light. The skin is either uncommonly fair, or of a dull white colour, similar to that of a recently dead body. The hair is either white and silky, or of a very flaxen colour; and, according to Dr. Pritchard, when this variety springs up among the negroes, the woolly excrescence which covers the heads of that race is white.

These characters have been met with in animals, both wild and domesticated. In the buffalo, the common roe, sometimes, though rarely, in the elephant; in the bear, the dromedary, apes, squirrels, rabbits, rats, mice, hogs, moles, opossums, martins, goats, and foxes. Several species of birds, as crows, blackbirds, canary-birds, partridges, fowls, and peacocks, exhibit similar phenomena, having their feathers of a pure white colour, and their eyes red.

Buffon does not consider the Albinos as a particular race, but as individuals who have accidentally degenerated from the original stock; and considers the production of whites by negro parents as supporting his opinion. According to this author, they are among the negroes what Wafer tells us the white Indians are among the yellow or copper-coloured Indians of Darien.—'It is singular,' he remarks, 'that this variation of nature takes place from black to white only, and not from white to black. It is no less singular, that all the people in the East Indies, in Africa, and in America, where these white men appear, lie under the same latitude: the Isthmus of Darien, the negro country, and the island of Ceylon, are under the very same parallel. White then,' he continues, 'appears to be the primitive colour of nature, which may be varied by climate, by food, and by manners, to yellow, brown, and black; and which, in certain circumstances, returns, but so greatly altered that it has no resemblance to the primitive whiteness.'

The following is Wafer's account of the Albinos, which are found among the Indians of the Isthmus of Darien: 'They are white, and there are of them of both sexes; yet there are but few of them in comparison of the copper-coloured possibly but one to two or three hundred. They differ from the other Indians chiefly in respect of colour, though not in that only.—Their skins are not of such a white as those of fair people among Europeans, with some tincture of a blush or sanguine complexion; neither yet is their complexion like that of our paler people, but it is rather a milk-white, lighter than the colour of any Europeans, and much like that of a white horse. For there is this further remarkable in them that their bodies are beset all over, more or less, with a fine, short, milk-white down, which adds to the whiteness of their skins; for they are not so thick-set with this down, especially on the cheeks and forehead, but that their skin appears distinct from it. The men would probably have white bristles for beards, did they not prevent them by their custom of plucking the young beard up by the roots continually.—Their eye-brows are milk-white also, and so is the hair of their heads, and very fine withal, about the length of six or eight inches, and inclining to a curl. They are not so big as the other Indians, and what is yet more strange, their eye-lids bend, and open in an oblong figure, pointing downwards at the corners, and forming an arch, or figure of a crescent, with the points downwards. From hence, and from their seeing so clear as they do in a moon-shiny night, we used to call them moon-eyed. For they see not very well in the sun, poring in the clearest day, their eyes being but weak, and running with water if the sun shines towards them; so that in the day time they care not to go abroad, unless it be a cloudy dark day. Besides, they are but a weak people, in comparison of the others, and not very fit for hunting or other laborious exercise, nor do they delight in any such. But notwithstanding their being thus sluggish and dull in the day-time, yet when moon-shiny nights come, they are all life and activity, running abroad and into the woods, and skipping about like wild bucks, and running as fast by moon-light, even in the gloom and shade of the woods, as the other Indians do by day; being as nimble as they, though not so strong and lusty. The copper-coloured Indians seem not to respect them so much as those of their own complexion, looking on them as something monstrous. They are not a distinct race by themselves, but now and then one is bred of a copper-coloured father and mother; and I have seen of less than a year old of this sort. Some would be apt to suspect they might be the offspring of some European father; but, besides that the Europeans come little here, and have but little commerce with the Indian women when they do come, these white people are as different from the Europeans in some respects, as from the copper-coloured Indians in others. But neither is the child of a man and woman of these white Indians, white like the parents, but copper-coloured as their parents were. For so Lacenta, the chief of one of the Indian tribes, told me, and gave me this as his conjecture, how these came to be white, that it was through the force of the mother's imagination, looking on the moon at the time of the conception; but this I leave others to judge of. He told me withal, that they were but

short-lived.' This author accompanied Dampier in his voyage round the world.

Dapper, in his Description de l'Afrique, speaks of Albinos as a variety seen in Lower Ethiopia, and remarks, that they have flaxen hair, blue eyes, the countenance and body so white, that at a distance they may be mistaken for Europeans; but when approached the difference is readily perceived. He observes also, that the colour of the skin is not that of a bright or natural white, but pale and livid, like that of a dead body, or of one affected with the leprosy; that their eyes are weak by day, but that by the light of the moon they are brilliant, and their sense of sight strong. They generally sleep during the day, and go abroad in the night. They are mostly males; are not so robust and vigorous as other men, but are exceedingly active during the night; and when the moon shines they run through the forests with as much alacrity as other men do in the brightest day-light. Dapper further remarks, that they are put to labour in the mines of Brazil, but that they prefer death to a life of slavery. The negroes regard them as monsters, and therefore endeavour to prevent them from multiplying their species. As the sight of Albinos is so feeble during the day that they are almost incapable of discerning any object; the negroes, their enemies, attack them during that time, and readily secure them.

In Saussure's Voyages dans les Alpes, is the following account of two boys, at Chamouni, who have been called Albinos. 'The elder, who was at the end of the year 1785 about twenty, or one and twenty years of age, had a dull look, with lips somewhat thick, but nothing else in his features to distinguish him from other people.—The other, who is two years younger, is rather a more agreeable figure; he is gay and sprightly, and seems not to want wit. But their eyes are not blue; the iris is of a very distinct rose-colour; the pupil too, when viewed in the light, seems decidedly red; which seems to demonstrate, that the interior membranes are deprived of the uvea, and of that black mucous matter that should line them. Their hair, their eye-brows, and eye-lashes, the down upon their skin, were all, in their infancy, of the most perfect milk-white colour, and very fine; but their hair is now of a reddish cast, and has grown pretty strong. Their sight too is somewhat strengthened; though they exaggerate to strangers their aversion for the light, and half shut the eye-lids to give themselves a more extraordinary appearance. But those who, like me, have seen them in their infancy, before they were tutored to this deceit, and when too few people came to Chamouni to make their affection profitable to them, can attest that they then were not much offended with the light of day. At that time, they were so little desirous of exciting the curiosity of strangers, that they hid themselves to avoid such; and it was necessary to do a sort of violence to them before they could be prevailed on to allow themselves to be inspected. It is also well known at Chamouni, that when they were of a proper age they were unable to tend the cattle like the other children at the same age; and that one of their uncles maintained them out of charity, at a time of life when others were capable of gaining a subsistence by their labour.—I am therefore of opinion, that we may consider these two lads as true Albinos; for if they have not the thick lips and flat noses of the white negroes, it is because they are Albinos of Europe, not of Africa. This affinity affects the eyes, the complexion, and the colour of the hair; it even diminishes the strength, but does not alter the conformation of the features.—Besides, there are certainly in this malady various degrees: some may have less strength, and be less able to endure the light; but these circumstances in those of Chamouni are marked with characters sufficiently strong to entitle them to the unhappy advantage of being classed with that variety of the human species denominated Albinos.'

'When nature,' continues this author, 'presents the same appearance often, and with circumstances varied, we may at last discover some general law, or some relation which that appearance has with known causes: but when a fact is so singular and so rare, as that of those Albinos, it gives but little scope to conjectures: and it is very difficult to verify those by which we attempt to explain it. I at first imagined that this disease might be referred to a particular sort of organic debility; that a relaxation of the lymphatic vessels within the eye might suffer the globules of the blood to enter too abundantly into the iris, the uvea, and even into the retina, which might occasion the redness of the iris and of the pupil. The same debility seemed also to account for the intolerance of the light, and for the whiteness of the hair.'

But professor Blumenbach, who has made many profound observations on the organs of sight, and has considered with great attention the Albinos of Chamouni, attributes their infirmity to a different cause. He says, it is generally to be seen in the warm blood animals; but that he has never met with it in those of cold blood; and is of opinion, that the redness of the iris, and of the other internal parts of the eye, as well as the extreme sensibility that accompanies this redness, is owing to the total privation of that brown or blackish mucus, that, about the fifth week after conception, covers all the interior parts of the eye in its sound state. He observes that Simon Pontius, in his treatise de Coloribus Oculorum, long ago remarked, that in blue eyes the interior membranes were less abundantly provided with this black mucus, and were therefore more sensible to the action of light. This sensibility of blue eyes agrees very well, says M. Blumenbach, with northern people, during their long twilight; while, on the contrary, the deep black in the eyes of negroes enables them to support the splendour of the sun beams in the torrid zone. As to the connection between this red colour of the eyes, and the whiteness of the skin and hair, the same learned physiologist says, that it is owing to a similarity of structure, consensus ex similitudine fabricæ. He asserts, that this black mucus is formed only in the delicate cellular substance, which has numerous blood-vessels contiguous to it, but contains no fat; like the inside of the eye, the skin of negroes, the spotted palate of several

domestic animals, &c.' And, lastly, he says, 'that the colour of the hair, generally corresponds with that of the iris.' See *Gazette Lett. de Gottengen*, Oct. 1787.

At the time M. Blumenbach was reading this memoir to the Royal Society of Gottingen, M. Buzzi, surgeon to the hospital at Milan, an elevé of the celebrated anatomist Moscati, published in the Opusculi Scelti de Milan, 1784. t. vii. p. 11, a very interesting memoir, in which he demonstrates by dissection what Blumenbach had only supposed. A peasant of about forty years of age, died at the hospital of Milan of a pulmonary disorder. His body was exceedingly remarkable for the uncommon whiteness of the skin, of the hair, of the beard, and of all the other covered parts. M. Buzzi, who had long desired an opportunity of dissecting such a subject, immediately seized upon this. He found the iris of the eyes perfectly white, and the pupil of a rose-colour. The eyes were dissected with the greatest possible care, and were found entirely destitute of that black membrane which anatomists call the uvea; it was not to be seen either behind the iris, or under the retina. Within the eye there was only found the choroid coat extremely thin, and tinged of a pale red colour, by vessels filled with discoloured blood. What was more extraordinary, the skin, when detached from different parts of the body, seemed also entirely divested of the rete mucosum: maceration did not discover the least vestige of this, not even in the wrinkles of the abdomen, where it is most abundant and most visible. M. Buzzi also accounts for the whiteness of the skin and of the hair, from the absence of the rete mucosum, which, according to him, gives the colour to the cuticle. Among other proofs of this opinion, he alleges a known fact, that if the skin of the blackest horse be accidentally destroyed in any part of the body, the hairs that afterwards grow on that part are always white, because the rete mucosum, which tinges those hairs, is never regenerated with the skin. What is it then that destroys the rete mucosum in such persons? M. Buzzi relates a singular fact which seems to throw some light on this subject. A woman of Milan, named Calcagni, had seven sons. The two eldest had brown hair and black eyes; the three next had white skins, white hair, and red eyes: the two last resembled the two eldest. It was said that this woman, during the three pregnancies that produced the Albinos, had a continual and immoderate appetite for milk, which she took in great quantities: but that when she was with child of the other four children, she had no such desire. It is not, however, ascertained, that this preternatural appetite was not itself the effect of heat or internal disease, which destroyed the rete mucosum in the children before they were born. According to Bichât, the internal portion of the hair, consists apparently of two systems of minute vessels. One of these has the functions of the vascular system in general, and affords a passage to excreted fluids; the other contains the colouring matter in the form of a stagnant fluid, the absence of which in the Albino occasions the whiteness, or flaxen colour, of the hair. There appears to be a constant relation preserved between the complexion of the skin, the colour of the hair, and the hue of the pigment of the eye. This is clearly shown in the Albino, and in all kinds of animals liable to a similar variety. The Albino cannot correctly be regarded as afflicted with disease; there is defective organization, but not morbid action, and the phenomena which result from the absence of the black pigment, &c. in this variety of the human species, serve to point out, in the clearest manner, the uses to which these parts are subservient. See *Philos. Trans.* 1706-7. *Nicholson's Journal*, ix. *Soemmering, Icones Oculi Humani. Wafer's Account of the Isthmus of Amercia*, 1704. *Saussure's Voyages dans les Alpes*, &c.

ALBINO, a well-built but small town of Italy, in the Lombardo-Venetian kingdom, district of Bergamasco.

ALBINOVANUS, a Latin poet whom Ovid styled divine. No part of his works is extant, except two elegies on Drusus and Mecænas.

ALBINTEMELIUM, Albintimelium, or at full length, albium intemelium, in ancient geography, now Vintimiglia, situated on the south-west of the territory of Genoa, near the borders of the country of Nice, with a port on the Mediterranean, at the mouth of the Rivulet Rotta, about half way between Monaco and South Remo. Lon. 7°. 40′. E. lat. 43°, 17′. N.

ALBINUS, in ancient history, an African who, having entered into the Roman armies, was made governor of Britain by Commodus; after the murder of Pertinax he was elected emperor by the soldiers in Britain, amounting to about 50,000 men; but Severus having been elected by his own army, met him in Gaul with the same number, attacked and conquered him. His head was cut off by the order of Severus, and his body thrown into the Rhone. He was always attached to a military life, and when at school used to repeat with ardour, the following line from Virgil,

Arma amens capio, nec sat rationis in armis.
Æneid. ii. 314.

A writer of the name of Codrus gives an exaggerated account of his appetite, according to whom he devoured for breakfast no less than 500 figs, 100 peaches, 20 pounds of dry raisins, ten melons, and 400 oysters.

ALBINUS, (Bernard Siegfred) a celebrated physician and anatomist, was born of an illustrious family, at Frankfort on the Oder, in 1697. His father was then professor of medicine in the university of Frankfort; but in the year 1702, was appointed professor of anatomy and surgery in the university of Leyden. Here the son studied under Boerhaave, the most eminent master in Europe, who, from the abilities which he displayed, had no difficulty in prognosticating his future eminence. On the death of his father, he was appointed to succeed him as professor of anatomy; and delivered an oration, De vera via ad fabricæ humani corporis cognitionem ducente; which was heard with universal approbation. He wrote, 1. Index Supellectilis Anatomicæ Ravianæ, 4to. Ludg. Bat. 1725. 2. De Ossibus

oris Humani, 8vo. Lugd. Bat. 1726; an oved edition with plates in 1762. 3. His- Musculorum Hominis, 4to. Lugd. Bat. . 4. Annotationes Academicæ, 4 vols. 4to.: les treatises on the Vascular System of the stines, &c. and revised editions of Harvey, lius, Fabricius, and Eustachius; and, after ably filling the professor's chair for nearly a century, died at Leyden in 1770.

ALBINUS, (Christian Bernard) brother of foregoing, was professor of anatomy at cht, where he died in 1752. He is author . Specimen anatomicum exhibens novam ium Hominis Intestinorum descriptionem, den, 4to. 1722, 8vo. 1724; 2. De Anatome res detegente in Medicina, Utrecht, 1723.— *Univ.*

ALBIOECE, or ALEBECE, in ancient geogra-, otherwise called civitatis reiensium; now z, in Provence, about eighteen leagues to the h-east of Toulon, on the north side of the let Verdon, was originally a Roman colony, celebrated for the devotion of its inhabitants Apollo. See ALBICA.

ALBION, in ancient geography, album, white, the island of Great Britain, so called by sar, on account of the chalky cliffs on the glish coast. It distinguished this island from ernia and the other British islands. Aga- merus, lib. xi. c. 4, speaking of the British nds, says, they are many in number; but the st considerable are Hibernia and Albion; and lemy, lib. ii. c. 3, calls Albion a British nd. Pliny, H. N. lib. iv. c. 16. tom. i. p. 222, erves, that the island of Britain, so much ce- rated by the Greek and Latin writers, was merly called Albion; the name of Britain ng common to all the islands round it.

ALBION, NEW, a name given by Sir Francis Drake the extensive district of California and part the north-west Coast of America, of which he k possession in 1578. Humboldt, and recent graphers, limit the denomination of New bion to that part of the coast which extends m the 43rd to the 48th degree of north lati- le, which was visited, and all its coasts minutely plored, by Vancouver, in May, 1792. Re- rded in an agricultural point of view, says this vigator, I should conceive it capable of high provement, notwithstanding the soil in general ay be considered to be light and sandy. Its ontaneous productions in the vicinity of the ods are nearly the same, and grow in equal xuriance with those under a similar parallel in rope; favouring the hope, that if nutritious otics were introduced, and carefully attended , they would succeed in the highest degree. he mildness of the climate, and the forward- ss of every species of plants, afforded strong ounds in support of this opinion. The in- rruptions we experienced in the general se- nity of the weather were probably no more an were absolutely requisite in the spring of e year to bring forward the annual productions. hese were attended with no violence of wind, nd the rain which fell, although disagreeable to avellers, was not so heavy as to beat down and estroy the first efforts of vegetation. Under all ese favourable circumstances, the country yet labours under one material disadvantage, in the scarcity of fresh water. The streams, however, that we met with appeared sufficient to answer all purposes, in the domestic economy of life, to a very numerous body of inhabitants; and, were the country cleared and searched, there can be little doubt that a variety of eligible situations might be found for establishments, where, with proper exertions, wholesome water might be procured.

The mountains were covered with pines even to their summits. Insulated peaks, however, were observed towering above the general height of the ridges to which they belonged, and rising far above the line of perpetual snow. Near the coast the country offered the finest prospects. Extensive lawns were seen covered with luxuriant grass, or diversified with woods and flowers, so that no pleasure grounds could have been more skilfully or more agreeably arranged. The soil for the most part was found to be a light sandy loam, in several places of very considerable depth, and abundantly mixed with decayed vegetables. The forests with which the country was covered consisted of poplar, arbor-vitæ, common yew, black and common dwarf oak, American ash, common hazel, sycamore, maple, oriental astintus, American alder, common willow, the Canadian alder, small fruited crab and Pennsylvanian cherry trees. Aquatic birds are numerous along the shore, and at the outskirts of the woods near the coast were found, in great numbers, the white-headed and brown eagle, ravens, carrion crows, American king'sfisher, a very handsome species of wood-pecker, and, on some of the low projecting points and open places in the woods, a bird which seemed to be of the heron species, with a remarkably long neck and legs, and its body equal to the size of the largest turkey. Its plumage is of a light brown, and when erect its height could not be less than four feet. Partridges and humming birds are also found in abundance in the woods. The only living quadrupeds seen by Vancouver or his crew were a black bear, several wild dogs, rabbits, squirrels, rats, mice, and another small animal, whose effluvia was the most intolerable that they had ever experienced. From the skins shewn them by the inhabitants, all the animals common to the western coasts of America seemed to abound in this district.

The country is but thinly inhabited, and the manners of the natives are exactly similar to those of Nootka, described by captain Cook. The only difference is, that they are not so stout, and are less filthy in their habits; not covering their bodies with such a profusion of paint, nor loading their hair with that immense quantity of oil and colouring matter which is customary among the people of Nootka. Their hair in general is neatly combed and tied behind. Their dress is a woollen garment, or the skins of deer, bears, &c. Some wear dresses manufactured of bark, which like their woollen dresses are very neatly manufactured. Their spears, arrows, and other weapons, are generally barbed; some are pointed with common flint, agate, and bone; but most of them with thin flat iron. Their bows, which are made of yew, are of a superior construction,

in general from two and a half to three feet in length, and about three quarters of an inch thick, neatly made, tapering to each end, which terminates in a shoulder and a hook for the security of the bow-string. Their habitations are rude in the extreme, being composed of cross sticks, with a few mats laid upon them. They are a wandering race, living almost entirely by hunting and fishing. But some deserted villages were found.

ALBIREO, a star of the third or fourth magnitude, in the constellation Cygnus.

ALBIS, in ancient geography, now the Elbe, which divided ancient Germany in the middle, and was the boundary of that country, so far as it was known to the Romans: all beyond they reckoned uncertain, no Roman except Drusus, and Tiberius having penetrated so far as the Elbe. A. U. C. 744, or about six years before Christ, Domitius Ænobarbus, crossing the river with a few, merited a triumph; so glorious was it reckoned at Rome to have the passage accomplished. In the following age, however, the river that before occupied the middle of ancient Germany, became its boundary to the north, from the irruptions of the Sarmatæ, who possessed themselves of the Transalbin Germany. See ELBE.

ALBIUM INGANNUM. See ALBENGA.

ALBOGALERUS, in Roman antiquity, a sacerdotal cap, or ornament, worn by the priests, styled flamen dialis, otherwise called galerus.

ALBOIN, a king of the Lombards, in the sixth century, who, having slain the son of Turisund, king of the Gepidæ, when fighting under the banners of his father Audoin, the Lombards requested that he should be permitted to sit at the royal feast, by which the victory was to be commemorated. But as this was contrary to the custom of the country, till the young prince should be invested with arms by a foreign king, Alboin set out with forty of his companions to visit the court of Turisund. At the entertainment prepared for the occasion, Alboin occupied the seat of the prince whom he had slain in battle. This circumstance awakened the feelings of the father: and his surviving son Cunismund, with the other Gepidæ, who perceived his agitation, determined to be revenged upon the Lombard prince. They addressed their visitors in the language of reproach and contumely. The Gepidæ sprung from their seats at the appointed signal. The young hero and his brave associates grasped their swords; but the rising tumult was instantly assuaged by the interference of Turisund, who generously dismissed Alboin with the blood-stained arms of the prince whom he had slain. When Alboin succeeded to the throne, he asked in marriage the fair Rosamond, the daughter of Cunismund, who now swayed the sceptre of the Gepidæ. This request being refused, the Lombard king, with the assistance of the Avars, overturned the kingdom of the Gepidæ in 566; and Cunismund having fallen in battle, his fair daughter became the prize, and afterwards the wife, of her victorious lover. Having relinquished these territories to the Avars, who promised to restore them in the event of misfortunes, the Lombards attacked Italy, and made themselves masters of the whole country, from the mountains of Trent to the gates of Venna and Rome, which henceforth bec... kingdom of the conquerors. In a feast at V..., given by Alboin to his fellow-soldiers, ... formed of the skull of Cunismund, was ... duced upon the table. The brutal and ... Lombard placed it in the hands of Rosa... She touched the sacred cup with trembling ... which at the same instant muttered ven... against her savage lord. After some ... attempts to procure an accomplice, she ... Peredeus, one of the Lombard chiefs; but ... it necessary to employ art to secure his assis... Rosamond secretly supplied the place of ... Peredeus's mistresses, and then assured he... ceived companion, that either his death, or ... of Alboin, must be the consequence of ... criminal indulgence. Peredeus did not ... about the alternative which he was to ch... He introduced the assassin into the cham... his master: Alboin starting from his sleep, ... tempted to draw his sword, but Rosamo... secured it in the scabbard; and the L... king, with only a stool to defend him, fe... spears of his murderers, A. D. 573. See ... *vers. Hist.* vol. p. 337. *Gibbon*, vol. viii. p. ... chap. 44. *Giannome, Hist. de Naples*, ... cap. 4.

ALBON, (James D',) in biography, ma... of Fronsac, was one of the greatest genera... the sixteenth century, and rose to high ... eminence, in the reigns of Henry II. and Ch... IX. of France. By the former he was ... marshal of France in 1547, and was cho... carry the collar of his order to Henry VI... England, who decorated him in return wi... of the garter. He acquired great reputa... the wars of 1552, and 1554; and in 155... made prisoner at the battle of St. Quintin. A... the death of Henry II. he was one of the tri... virate who governed the kingdom four or ... years in spite of Catharine of Medicis. He ... killed in 1562, at the battle of Dreux, by a ... son whose confiscated estate he possessed. T... Huguenots, who did not love him, used to ... him the Harquebuseer of the west. He had ... qualities of a soldier and a courtier; was ... dicted to every kind of luxury, excelled in po... ness and the amiable accomplishments, and ... the day of battle was distinguished by his p... dence and his courage. His daughter and he... is said to have been poisoned by her own ... for her property. *Gen. Biog.*

ALBORAK, amongst the Mahommed... writers, the beast on which Mahomet rode in ... journeys to heaven. The Arab commen... give many fables concerning this extraordin... animal. It is represented as of an interm... shape and size between an ass and a mule. ... place, it seems, was secured for it in paradise ... the intercession of Mahomet; which, however ... was in some measure extorted from the pro... by Alborak's refusing to let him mount him, ... any other condition, when the angel Gabriel ... come to conduct him to heaven.

ALBORAN, an island lying between the ... of Spain and Africa.

ALBORG, or ALBOURG. See AALBORG.

ALBORO, in ichthyology, a name by ...

the erythrinus, a small red fish, caught in the Mediterranean, is commonly known in the markets of Rome and Venice.

ALBRICIUS, born at London in the eleventh century, was a great philosopher, an able physician, and well versed in polite literature. He wrote first, De Origine Deorum; second, De Ratione Veneni; third, Virtutes Antiquorum; fourth, Canones Speculativi. Other works have been attributed to him, which belong, as is supposed, to a bishop of Utrecht, of his name, who died in 784.

ALBUCA, Bastard Star of Bethlehem: a genus of the monogynia order, belonging to the hexandria class of plants; and in the natural method, ranking under the tenth order, coronariæ. The characters are: CAL. wanting: COR. six oval oblong petals, which are persistent: STAM. six three-sided filaments the length of the corolla; of these, three are fertile, with versatile antheræ; three are barren, without antheræ: PIST. an oblong three-sided germen; the stylus three-sided: the pericarpium, an oblong obtuse triangular capsule, having three cells, and three valves: the seeds are numerous, flat, and incumbent. Of this genus Linnæus reckons only two species; viz. first, Albuca major, or star flower, with spear-shaped leaves, a native of Canada, and some other parts of North America: Second, Albuca minor, or African star flower, a native of the Cape of Good Hope.

ALBUCUS, in botany, a name used by some for the white asphodel.

ALBUGINEA, in anatomy, the outermost coat, or tegument of the eye; otherwise called adnata, and conjunctiva. It takes its name albuginea from its whiteness; as it is this that forms what we call the album, or white of the eye. Albuginea is also applied to the third coat of the testicles; so called from its colour which is white. It is a strong thick membrane, very smooth on the outer surface; the inner, which adheres to the substance of the testicle, being rough and uneven. In its upper part are inserted blood vessels, nerves, and lymphatics, which from thence, send divers branches into the substance of the testicles.

ALBUGIN'EOUS, *albus*, *albumen*, *albugo*, applied to a white speck in the eye; or, partaking of the nature of *albumen*, one of the constituent properties of animal substances.

Eggs will freeze in the *albugineous* part thereof.
Brown's Vulgar Errours.

ALBUGINEUS, in anatomy, a term sometimes applied to the aqueous humour of the eye.

ALBUGO, or Leucoma, is defined by physicians, to be a distemper occasioned by a white opaque spot, growing on the cornea of the eye, and obstructing vision. See Medicine, Index.

ALBULA, in ichthyology, a genus of fishes of the truttaceous kind, having no teeth. The principal species are; first, Albula indica, a small fish, resembling a herring, caught about the shores of the East Indies, and called by the Dutch the wit-fish. Second, albula nobilis, a truttaceous fish, found in great plenty in the lakes of Germany, and other places.

Albula, in natural history, mineral waters of an aluminous kind; hence endowed with an astringent quality, and of use in wounds.

AL'BUM, a white table book on which the Prætors recorded their edicts. The names of the senators were written in the Album Senatorum. Also a white paper book which foreigners have long been accustomed to provide, with the design of inviting strangers of distinction, or literary eminence to insert their names, together with any observation in prose or verse, as a memorial of their visit. The practice has been of late years extensively adopted in this country.

The composer of this work, in his begging scraps all about, I know not by what means, seems to have lighted on a merry definition of an ambassador, which above eight years before, passing by that way, I had chanced to set down, at my friend's Mr. Christopher Hickamon, in his *album* of friends, after the German custom, which was worded thus: Legatus est vir bonus peregre missus, ad mentiendum respublicâ causâ. *Sir H. Wootton's Lett. to M. Valerus.*

Album, in antiquity, a kind of white table, or register, wherein the names of certain magistrates, public transactions, &c. were entered. Of these there were various sorts, such as the ALBUM DECURIONUM, JUDICUM, &c. which see.

Album, in alchemy, a tincture pretended to transmute metals.

Album, in chemistry, white lead, or ceruse.

Album, in natural history, is used for the white of an egg; more properly called albumen.

Album, in pharmacy, is applied to divers compound medicines, of a white colour, as unguentum album, white ointment, &c.

Album Amicorum, has been used in modern times, to denote a kind of memorandum-book, or literary repository, wherein the men of letters, with whom a person has conversed, inscribe their names with some sentence or motto.—The famous Algernon Sidney, being in Denmark, was by the university of Copenhagen, presented with their album, whereupon he wrote these words:

———Manus hæc inimica tyrannis
Ense petit placidam sub libertate quietem.

Album Decurionum, in Roman antiquity, the register wherein the names of the decuriones were entered. It is otherwise called matriculatio decurionum.

Album Judicum, in Roman antiquity, was a table wherein the names of judges were entered.

Album Nigrum, is used by some medical writers, for muscerda.

Album Oculi, among anatomists, the tunica adnata; also called albugo; or the white of the eye.

Album Prætoris, in Roman antiquity, was a book wherein the formulæ of all actions, and the names of such judges as the prætor had chosen to decide causes, were written.

Album Rhasis, in pharmacy, an ointment so called from Rhasis, the inventor.

Album Senatorum, the list of senators' names, which was first introduced by Augustus, and renewed yearly.

ALBUMAZAR, a learned Arabian astronomer, in the tenth century, who wrote a treatise of the Revolutions of the Years.

ALBUMEN, Albumena, in physiology, al-

bus, white, has been considered as one of the radical parts of animal substances, which received its name from being first noticed in the eggs of birds, where it forms the white. Fourcroy discovered a similar substance in vegetables. Animal albumen exists, in its most perfect state, in the white of eggs, and in the serum of the blood. It is a viscous fluid, soluble in water at the common temperature, and coagulating when exposed to a heat of 134°, Fahr. then it is no longer soluble in water. The vitreous and crystalline humours of the eye, and the liquor that fills the abdomen in dropsy, contain large portions of albumen. As contained in milk, it conduces largely to the nutriment of man.

In the vegetable kingdom it is found principally amongst the narcotic and antiscorbutic plants, where it generally resides in the leaves. Fourcroy first obtained it from the juice of young cresses. Solid albumen, says Dr. Ure, may be obtained by agitating white of eggs with ten or twelve times its weight of alcohol. This seizes the water which held the albumen in solution; and this substance is precipitated under the form of white flocks or filaments, which cohesive attraction renders insoluble, and which consequently may be freely washed with water. Albumen thus attained is like fibrine, solid, white, insipid, inodorous, denser than water, and without action on vegetable colours. It dissolves in potash and soda more easily than fibrine; but in acetic acid and ammonia with more difficulty. When these two animal principles are separately dissolved in potash, muriatic acid added to the albuminous does not disturb the solution, but it produces a cloud in the other. Fourcroy, and several other chemists, have ascribed the characteristic coagulation of albumen by heat to its oxygenation; but cohesive attraction is the real cause of the phenomenon. In proportion as the temperature rises, the particles of water and albumen recede from each other, their affinity diminishes, and then the albumen precipitates. However, by uniting albumen with a large quantity of water, we diminish its coagulating property to such a degree, that heat renders the solution merely opalescent. A new laid egg yields a soft coagulum by boiling; but when, by keeping, a portion of the water has transuded so as to leave a void space within the shell, the concentrated albumen affords a firm coagulum. An analogous phenomenon is exhibited by acetate of alumina, a solution of which, being heated, gives a precipitate in flakes, which redissolves as the caloric which separated the particles of acid and base escapes, or as the temperature falls. A solution containing one-tenth of dry albumen forms by heat a solid coagulum; but when it contains only one-fifteenth, it gives a glairy liquid. One thousandth part, however, on applying heat, occasions opalescence. Putrid white of egg, and the pus of ulcers, have a similar smell. According to Dr. Bostock, a saturated solution of corrosive sublimate let fall into water containing one-two-thousandth of albumen, occasions a milkiness and curdy precipitate. On adding a slight excess of the mercurial solution to the albuminous liquid, and applying heat, the precipitate which falls, being dried, [illegible] every seven parts, five of albumen. [illegible] salt is the most delicate test of this [illegible] duct. The yellow pitchy precipitate [illegible] by tannin, is brittle when dried, and [illegible] putrefaction. But tannin, or infusion of [illegible] a much nicer test of gelatine than of albumen.

The cohesive attraction of coagulated [illegible] makes it resist putrefaction. In this state [illegible] be kept for weeks under water without [illegible] change. By long digestion in weak nitric [illegible] albumen seems convertible into gelatine. [illegible] the analysis of Gay Lussac and Thenard, [illegible] parts of albumen are formed of 52.883 [illegible] 23.872 oxygen, 7.540 hydrogen, 15.705 nitrogen, or in other terms, of 52.883 carbon, 27.127 [illegible] gen and hydrogen, in the proportions for [illegible] stituting water, 15.705 nitrogen, and [illegible] hydrogen in excess. The negative pole of [illegible] voltaic pile in high activity coagulates albumen, but if the pile be feeble coagulation goes on [illegible] at the positive surface. Albumen, in such a state of concentration as it exists in serum of blood, can dissolve some metallic oxides, particularly the protoxide of iron. Orfila has found white of egg to be the best antidote to the poisonous effects of corrosive sublimate on the human stomach. As albumen occasions precipitates with the solutions of almost every metallic salt, probably it may act beneficially against every species of mineral poison. For much interesting information respecting this substance, see Fourcroy, *Systeme des Con. Chemique*, and *Phil. Trans.* vol. xc. See also CHEMISTRY.

The white of an egg, according to Boerhaave, makes an extraordinary menstruum. Boiled hard in the shell, and afterwards suspended in the air by a thread, it resolves and drops away into an insipid scentless liquor, which appears to be the anomalous unaccountable menstruum of Paracelsus; and will, though it contains something sharp, oleaginous, or saponaceous, make a thorough solution of myrrh; which is more than either water, oil, spirits, or even fire itself can effect. A little putrid white of egg, taken into the stomach, occasions a nausea, sickness, fainting, vomiting, diarrhœa, and gripes: it inflames the bile, excites heat, thirst, fever, and dissolves the humours like the plague. On the contrary, the white of fresh-laid eggs, if taken while warm from the hen, is extremely nourishing to the infirm: it may be taken in luke-warm milk; but if any other heat is applied to it, the nutritious quality will be diminished. The fresh white of egg prevents burns from rising in blisters, if it is used immediately after the accident: it mitigates inflammations of the eyes, and preserves the face from sun-burning. In pharmacy, it is used as a medium to mix balsams and turpentines, &c. miscible with the aqueous fluids; but as it disagrees with many stomachs when thus taken, a mucilage of gum arabic may supply its place; it being as good a medium in similar circumstances, and not apt to offend the tenderest stomach. Whites of eggs are also useful for clarifying liquors; for which purpose, being mixed and incorporated with the liquors to be clarified, and the whole afterwards

boiled, they carry off the gross parts of the liquor. A solution of that has also been used in cases of contraction and rigidity of the joints. Whites of eggs, beaten in a basin till they coagulate, form the alum curd of Riverius, and alum cataplasm of the London Pharmacopæia. See Egg.

ALBUNA, the tenth Sybil, worshipped as a goddess by the ancient Romans.

ALBUNEA, in ancient geography, a wood on the river Anio, near Tibur, sacred to the Muses, and deriving its name from the sibyl Albunea, to whom a temple was erected at Tibur, the ruins of which yet remain. The albunea fons was a name given to some sulphureous waters that were found near this spot, and which were resorted to for medical purposes.

ALBUQUERQUE, (Alphonso, d',) surnamed the great, was born at Lisbon, 1452, and raised the power of the Portuguese to its utmost height in India. He and his brother Francis went to India in 1503 on a voyage of discovery; but Francis arrived first, and having restored the king of Cochin to his capital, was joined by his brother. Here they built a fort, and compelled the Zamorin to sue for peace. The two brothers soon after sailed for Portugal, where Alphonso arrived in safety, but the other was lost. In 1508, Alphonso being appointed governor of the Portuguese settlements in India, subdued Ormuz; but he was soon obliged to quit that place and return to India. Here in an attack on Calicut he was wounded, and compelled to retreat. In 1510 he took Goa, and afterwards the strong city of Malacca; but while about to engage in other enterprises, he was taken ill, and died in 1515. His son Blaise, on his father's death, took the name of Alphonso, pursuant to the command of the king of Portugal, who also conferred on him the rank of nobility. He wrote memoirs of his father's transactions, and died in 1580.—*Moreri.*

Albuquerque, a small city of Spain, in the province of Estremadura, seated on an eminence nine miles from the frontiers of Portugal, and twenty north of Badajos. It is defended by an almost impregnable fortress, built on a high mountain; and carries on a considerable woollen trade. It was founded in the middle of the eighteenth century, and taken in 1735, by the Portuguese, who kept it till the peace of Utrecht. Inhabitants, about 5500.

ALBURN, or Auburn, from albus, white, Lat. and bruno, brown, Ital. a compound colour, a mixture of white and red, or reddish brown.

ALBURNUM, the soft white substance, which in trees is found between the liber, or inner bark, and the wood, and in progress of time acquiring solidity, becomes itself the wood. From its colour and comparative softness, it has been styled by some writers adeps arborum, the fat of trees. The alburnum is found in largest quantities in trees that are vigorous; though in such as languish, or are sickly, there is a great number of beds. In an oak, six inches in diameter, this substance is nearly equal in bulk to the wood. In a trunk of one foot diameter, it is as one to three and a half; of two and a half feet diameter, as one to four and a half, &c. but these proportions vary according to the health and constitution of the trees. The alburnum is frequently gnawed in pieces by insects, which lodge in this substance, and are nourished from it.

ALBURNUS, in ichthyology, a fresh water fish, commonly called, in English, the bleak. It is common in our rivers, and in those of Germany and elsewhere; and is esteemed a well tasted fish. It is most in season in September, and is a species of the cyprinus of Linnæus.

ALBUS, in commerce, a small French coin current at Cologne, and worth about a halfpenny, English.

Albus Piscis, the white fish, in ichthyology, a name by which Silvian has called capito-lacustris, and the same with the blue chub, or, as it is more commonly called, the jentling. It is the cyprinus jeses of Linnæus.

ALBURY, or Aldersbury, a town in the county of Surry, five miles from Guildford, seated on the Wye, which runs through it.

Albury, a town in Hertfordshire, near Putmore heath.

ALBY, a town in the county of Norfolk, four miles from Aylsham.

Alby, in France. See Albi.

ALCA, or Auk, in ornithology, a genus of the order of anseres. The beak of the genus is without teeth, short, convex, compressed and frequently furrowed transversely: the inferior mandible is gibbous near the base; the feet have generally three toes. There are twelve species of the alca, of which the most remarkable are:

1. Alca Alle, the little auk, or black and white diver, with a smooth conical bill, a white streak on the belly and wings, and black feet. The size of this species exceeds not that of a blackbird. It is not very common in Britain, but met with in various parts of Spitzbergen, and Greenland, in company with the black-billed species. In Greenland it is called the ice-bird, being the harbinger of ice. This species is sometimes seen of a pure white.

2. Alca Arctica, or the puffin, with a compressed bill and four furrows; the orbit of the eyes and temples are white. The legs of this species are very small; and placed so far behind as to disqualify it from standing except quite erect, resting not only on the foot, but the whole length of the leg. This circumstance, which likewise attends every one of the genus, makes the rise of the puffin from the ground very difficult, and it meets with many falls before it gets on wing; but when that is effected, few birds fly longer or stronger. These birds frequent the coasts of several parts of Great Britain and Ireland; but no place in greater numbers than Priestholm isle, where their flocks may be compared to swarms of bees for multitude. They are birds of passage; and resort there annually about the fifth or tenth of April, quit the place, almost to a bird, and return twice or thrice, before they settle to burrow and prepare for ovation and incubation. They begin to burrow the first week in May; but some few save themselves that trouble, and dislodge the rabbits from their holes, taking possession of them till their departure from the isle. Those which form their own burrows, are at that time so intent on the work as to suffer themselves to be

taken by the hand. This task falls chiefly to the share of the males; who also assist in incubation. The first young are hatched the beginning of July. If a parent is taken at breeding time, and suspended by the wings, it will in a sort of despair treat itself most cruelly, by biting every part it can reach; and the moment it is loosed, will never offer to escape, but instantly resort to its unfledged young: this affection ceases at the stated time of migration, which is most punctually about the eleventh of August, when they leave such young as cannot fly to the mercy of the peregrine falcon, who watches the mouths of the nests for the appearance of the little deserted puffins, which, forced by hunger, are compelled to leave their burrows. Their flesh is extremely rank, as they feed on seaweeds and fish, especially sprats: but when pickled and preserved with spices is admired by those who love high eating. Their noise, when taken, is very disagreeable; being like the efforts of a dumb person to speak. These birds are also common in Ireland; on the island Skerries, three leagues north-north-west of Holyhead; and in the south Stack, near Holyhead, they breed in plenty. This species is also found in the Ferroe Isles, where it is called lunda; and in the Farn Isles, where it is called coulterneb, from the shape of the bill. It goes also by various names; such as gulden-head, bottle-nose, and helegug, in Wales; at Scarborough, mullet; and in Cornwall, pope. In America they are said to frequent Carolina in winter; and have been met with in Sandwich Sound: the natives ornament the fore parts and collar of their seal-skin jackets with the beaks of them; and those of Aoonalashka wear gowns of their skins, along with those of other birds. On the coasts of Kamtschatka and the Kurulschi islands they are also common, even as far as Ochotka: the nations of the two first wear the bills about their necks fastened to straps; and according to the superstition of these people, their shaman or priest must put them on with a proper ceremony in order to procure good fortune.

3. Alca Cirrhata, so called by Pallas, or tufted auk, is somewhat bigger than the common puffin, and the colours much the same; the bill is an inch and three quarters in length, the same in depth at the base, and crossed with three furrows: over each eye arises a tuft of feathers four inches in length, which falls elegantly on each side of the neck, reaching almost to the back; and are white as far as they are attached to the head, but are afterwards of a fine buff yellow; the legs are of a bright red; the claws black. The female is principally distinguished by having the bill crossed only with two furrows instead of three. This species inhabits the shores of Kamtschatka, the Kurile islands, and those intervening between Kamtschatka and America. In manners it greatly resembles the puffin; living all day at sea, but at no great distance from the rocks; it comes on shore at night; burrows a yard deep under ground, and makes a nest with feathers and sea plants; is monogamous, and lodges there the whole night with its mate. It lays one white egg in the end of May, or beginning of June, which alone is thought fit to be eaten, the flesh of the bird itself being insipid and hard. It feeds on crabs, shrimps, and shell-fish, which last it forces from the rocks with its strong bill. Pallas remarks, that the Kamtschatkan girls imitate the tufts of these birds which nature has supplied them with, by wearing a similar strip of the white skin of the puffin behind each ear, hanging down by way of ornament; and such a present is well received from a lover to his mistress. The bills of this and the common puffin were formerly worn by the natives as a charm, and worn by the priests as amulets; indeed at present they are said to have been fixed round their head dresses, but seem now to be only esteemed as mere ornaments. The skins are, however, made use of for clothing, and is called in Kamtschatka muechagatka: in the Oschotsta, igilma.

4. Alca Impennis, the northern penguin, or great auk, with a compressed bill furrowed on each side, and an oval spot on each side of the eyes. According to Mr. Martin, this bird breeds on the isle of St. Kilda; appearing there in the beginning of May, and retiring the middle of July. It lays one egg, six inches long, of a white colour; some are irregularly marked with purplish lines crossing each other: others have a ring with black and ferruginous about the larger end: if the egg is taken away, it will lay another that season. Mr. Macauley says that it does not visit that island annually, but sometimes keeps away for several years together; and adds, that it lays its eggs close to the water mark, being incapable, by reason of the shortness of its wings, to mount higher. The length of this bird, to the end of its toes, is three feet, but its wings are so small, as to be useless for flight; the length from the tip of the longest feathers to the first joint, being only four inches and a quarter. This bird is observed by fishermen never to wander beyond soundings: and according to its appearance they direct their measures, being then assured, that land is very remote. It sometimes frequents the coasts of Norway, the Ferroe Isles, Iceland, Greenland, and Newfoundland; and feeds much on the lump fish, father-lasher, and other fish of the size. The young birds eat rose roots, and other plants. The old ones are very rarely seen on shore, though the young ones are not unfrequently met with. It is a very shy bird, walks ill; but dives well, and is taken in the manner used for the razor-bill and puffin. The skin between the jaws is blown into a bag, and used for the darts of the Greenlanders. The skin is also that of some other birds. The skin of the body is supposed to be used by the Esquimaux Indians for garments.

5. Alca Pica, or black-billed auk, has the bill of the same form with the torda, but entirely black. The cheeks, chin, and throat white: in all other respects it agrees with the torda. Mr. Latham is of opinion that it is no other than the young of that species. Mr. Pennant observes, that it is sometimes found on the coasts; but, according to Mr. Latham, only in the winter season only, when the common

quitted them. They are said to be met with ıe coasts of Candia, and other parts of the iterranean.

Alca Psittacula, or perroquet auk, of Pallas, is about the size of the little auk. bill is much compressed on the sides, in e convex both above and below, and of a ıt red colour: from the remote corner of eye is a very tender tuft of fine white fea-, hanging down the neck; the head and r part of the body are dusky; the lower ish, varied with black edges; the legs are a yellow; and the webs dusky. The species ound at Kamtschatka, in the isles towards ın, and on the western shores of America. y are sometimes seen in flocks, but seldom from land, except when driven by storms. ing night they harbour in the crevices of s. They lay an egg almost the size of a hen's, dirty white or yellowish colour spotted with vn; which they do about the middle of June, a the bare rock, or sand, for they make no . Like most of the tribe, they are stupid s, as is evinced by the method of catching a. One of the natives places himself under ose garment of fur, of a particular make, with e open sleeves, among the rocks at evening; n the birds, returning to their lodging places usk, run under the skirts, and up the arm s for shelter, during the night, and thus be-ıe an easy prey. Their stupidity likewise ap-rs from flying aboard ships, mistaking them roosting places, whereby navigators have n taught to avoid the danger of falling in too r the land, either in the evenings, or on ap-aching storms. The eggs are esteemed good.

. Alca Torda, or the razor-bill, with four ows on the bill, and a white line on each side ning from the bill to the eyes. These birds, ompany with the gullimot, appear in our seas beginning of February; but do not settle on ir breeding places till they begin to lay, about beginning of May. They inhabit the edges the highest rocks that impend over the sea, ere they form a grotesque appearance, sitting se together, and in rows, one above another. ey properly lay but one egg apiece, of an ex-ordinary size for the bulk of the bird, being ee inches long: it is either white, or of a pale green, irregularly spotted with black: if this g is destroyed, both the auk and the gullimot l lay another; if that is taken, then a third: y make no nest, depositing their egg on the e rock: and though such multitudes lie con-uous, by a wonderful instinct each distinguishes own. What is also a matter of great amaze-nt, they fix their eggs on the smooth rock with exact a balance, as to secure it from rolling ; yet should it be removed, and attempted to replaced by the human hand, it is extremely ficult, if not impossible, to find its former uilibrium. According to Mr. Latham, it is by ans of a cement that the bird fixes its egg. ıe eggs are food to the inhabitants of the coast ey frequent, which they get with great hazard, ing lowered from above by ropes, trusting to e strength of their companions, whose footing often so unstable that they are forced down e precipice, and perish together. These birds are found in the north of Europe, also in Iceland, Greenland, and on the coast of Labrador. In Europe they extend along the White Sea, into the Arctic Asiatic shores, and from thence to Kamtschatka and the gulph of Ochotka. They are the only species which reach the inland Baltic; being found there on the Carls-Ozar isles, near Gothland, and the isle of Bondon off Angermania.

ALCACER-DO-SAL, or Alcazar-do-sal, a town of Portugal, in Estremadura, seated on the river Caldao, thirty-eight miles south-east of Lisbon. It was called Salagia by the ancient Romans, on account of the salt it produces.

ALCÆUS, a famous ancient lyric poet, born at Mitylene in the island of Lesbos, esteemed by Horace the inventor of this kind of poetry. He flourished in the forty-fourth Olympiad, at the same time with Sappho, who was likewise of Mitylene. Alcæus professed himself a great enemy to tyrants, but was not a very brave soldier. He was present at an engagement, wherein the Athenians gained a victory over the Lesbians; and here, as he himself confessed, he threw down his arms and saved himself by flight. The taste and talents of Alcæus are undisputed: and though his poems were chiefly in the lyric strain, yet his muse was capable of treating the sublimest subjects with suitable dignity

Alcæus, an Athenian tragic poet, and, as some think, the first composer of tragedies. He renounced his native country Mitylene, and passed for an Athenian. He left ten pieces, one of which was Pasphaë, that which he produced when he disputed with Aristophanes, in the fourth year of the ninety-seventh Olympiad.

Alcæus, another poet, mentioned by Plutarch, perhaps the same whom Porphyrius mentions as a composer of satirical iambics and epigrams, and who wrote a poem concerning the plagiarism of Euphorus the historian. He lived about the 145th Olympiad.

Alcæus, the Messenian, lived in the reign of Vespasian and Titus, and is said to have suffered, for his lewdness, a very singular kind of death; which gave occasion to the following epitaph:

Ἄλκαιω ταφος ιτος, &c.

'This is Alcæus's tomb, who died by a radish; the daughter of the earth, and punisher of adulterers.'

ALCAHEST, *n. s.* an Arabic word, to express an universal dissolvent, pretended to by Paracelsus and Helmont.

ALCAIC, in ancient poetry, a denomination given to several kinds of verse, from Alcæus, the inventor. The first kind consists of five feet, viz. a spondee or iambic; a cæsura, and two dactyls; such is the following verse of Horace;

Eheu! | fugaces, | Postume, | Postume,
Labuntur anni! | nec pietas moram.

The second kind of two dactyls and two troches; as

Afferet, | indomitæque | morti.

Besides these two, which are called dactylic alcaics, there is another styled simply alcaic;

consisting of an epitrite, two choriambi, and a bacchius: the following is of this species.

Cur timet fla|vum Tiberim | tangere, cur|olivum ?

Alcaic Ode, an elegant kind of ode composed of several strophies, each consisting of four verses; the two first of which are always Alcaics of the first kind: the third verse is a diameter hypericatalectic, consisting of four feet and a cæsura; and the fourth verse is an alcaic of the second kind. The following strophe is of this species, which Horace calls minaces Alcæi camenæ.

O | ma|tre pul|chra | filia | pulchrior,
Quem cri mino|sis | cunque vo|les modum
Pones | iam|bis; si|ve flam|ma
Sive ma|ri libet | Adri|ana.

ALCAID, Alcayde, or Alcalde, in the polity of the Moors, Spaniards, and Portuguese, a magistrate, or officer of justice, answering nearly to the British justice of peace.—The alcaid among the Moors is vested with the supreme jurisdiction, both in civil and criminal cases.

ALCALA de Gauderirra, a small town of Spain, in Andalusia, upon the river Guadalquiver, six miles S. of Seville. Here are abundance of springs, from whence they convey water to Seville by an aqueduct. Lon. 6°. 16′. W. Lat. 37°. 20′. N.

Alcala de Henarez, a beautiful and extensive city of Spain, in New Castile, seated upon the river Henarez, which washes its walls, eleven miles south-west of Guadalaxara, and fifteen E. N. E. of Madrid. The ancient name was Complutum, when it was a Roman colony; and at this place was printed the celebrated Biblia Complutensia, or Complutensian Polyglot, at a cost of 250,000 ducats to cardinal Ximenes. It was the first polyglot Bible ever printed, and we must gratify our bibliographical readers with one anecdote respecting it. The impression was limited to six hundred copies, three of which were struck off on vellum; one of these being deposited in the Royal library at Madrid; a second in the Royal library at Turin; and the third, supposed to have belonged to the cardinal himself, after passing through various hands, was purchased at the sale of Signor Pinelli's library in 1739, for the late Count M'Carthy of Toulouse, for four hundred and eighty-three pounds. On the sale of this nobleman's library, at Paris in 1817, it was bought by George Hibbert, Esq. of Portland Place, London for 16,100 francs, or £676. 3*s*. 4*d*. sterling,

Alcala is built upon a fertile plain and was once a most flourishing place, containing an university, endowed by Ximenes, that rivalled Salamanca, but which has now fallen wholly into decay. Here are still, however, three parish churches, twenty-eight monastic institutions for both sexes, four hospitals, and twenty-four colleges. Cardinal Ximenes lies buried in the university church. Inhabitants about 5000. Lon. 4°. 20. W. Lat. 4°. 35′ N.

Alcala la Real, a small city of Spain, in Andalusia, with a fine abbey. Population 9000. It is built on the top of a high mountain, near the river Salado, nine leagues from Jaen. Several kinds of exquisite fruits and wines are found in the vicinity. Lon. 4°. 12′. W. Lat. 38′. N.

ALCALI, or Alkali. See Chemistry.

ALCAMER, or Alcamere. See Alkali.

ALCAMO, a town and district of Sicily, in the valley of Mazaro, at the foot of Mount Bonfati, on the road to Palermo, twenty-five miles of Palermo. Lon. 13°. 52′. E. Lat. 38°. 2′ N.

ALCANITZ, a town of Arragon in Spain, seated on the river Guadaloupe, forty-six miles from Saragossa. It was formerly the capital of the kingdom of the Moors; but being taken from them, it was made a commandery of the order of Calatrava. Lon. 0°. 9′. W. Lat. 41°. 0′ N.

ALCANNA, in commerce, a cosmetic powder prepared from the leaves of the Egyptian privet, in which the people of Cairo drive a considerable trade. It is much used by the Turkish women to give a golden colour to their nails and hair. There is also an oil extracted from the berries of alcanna, and used in medicine as a quiescent.

ALCANTARA, or Alcantarilla, a town of Spain, in the province of Andalusia. It stands on an eminence near a morass, where the Romans built a bridge, with a tower at each end.

Alcantara, or Valenza de Alcantara, a small, but strong city of Spanish Estremadura, seated on the banks of the Tajo, or Tagus. It lies in a very fruitful soil, and is celebrated for a bridge over that river, which was built in the time of the emperor Trajan, as appears by an inscription over one of the arches, by the people of Lusitania, who were assessed to support the expense. At the entrance of the bridge, there was a small antique chapel hewn in a rock by the ancient pagans, who dedicated it to Trajan, as the Christians did to St. Julian. The city is said to have been built by the Moors on account of the convenience of the bridge, which is at a place where the Tajo is very deep, running between two high steep rocks: and for this reason they called it Al-Cantara, signifying the bridge. It was taken from them in 1214, and given to the knights of Calatrava. The principal occupation of the inhabitants is the trade in wool and cloth. Population 3000. It is 115 miles S.S.W. of Salamanca, 130 W. S. W. of Madrid. Lon. 6°. 43′. W. Lat. 39° 40′. N.

Alcantara, or Alcantarilla, another town of Spain, in the province of Seville, near from the Guadalquiver. The Romans built here a bridge, to pass the marshes formed by the river, which is still remaining. It was shut at each side with a gate, over which was a tower. It is situated fourteen miles south of Seville.

Alcantara, a town of Portugal, near Lisbon, in the province of Estremadura, seated on the Tagus; there is a royal palace here with beautiful gardens, grottos, and artificial fountains.

Alcantara, a town in the province of Maranham, Brazil; in the bay of St. Marcos, opposite to the island of Marenham. It is built on a semicircular hill, and consists of stone houses one story high. It is a thriving place, as the lands in the neighbourhood are in request for cotton plantations. A handsome stone mole has been built for small craft, upon the tongue of a neck of land, round which the harbour curves

ALCANTARA, THE KNIGHTS OF, a military order of Spain, which took its name from the above-mentioned city. They make a very considerable figure in the history of the expeditions against the Moors; and took the same vows as those of Calatrava, being only distinguished from them by this, that the cross, fleur de lis, which they bear over a large white cloak, is of a green colour. They possess thirty-seven commanderies. By the terms of surrender of Alcantara to this order, it was stipulated, that there should be a confraternity between the two orders, with the same practices and observances in both; and that the order of Alcantara should be subject to be visited by the grand-master of Calatrava. But the former soon released themselves from this engagement, on pretence that their grand-master had not been called to the election of that of Calatrava, as had been likewise stipulated. After the expulsion of the Moors and taking of Granada, the sovereignty of these two orders was settled in the crown of Castile by Ferdinand and Isabella.—In 1540, the knights of Alcantara sued for leave to marry, which was granted them.

ALCARAQUE, a river in Spain that falls into the Guadiana, about twenty miles from the city of Badajos, in the province of Estremadura.

ALCARAZ, a small city of Spain, in the province of La Mancha, situated on a mountain of the same name, in a fertile tract, called the Campo di Montiel, near the source of the Guadarmena. It has 3300 inhabitants, and is 105 miles S. S. E. of Madrid.

ALCARRAZAS, in pottery, vessels used in Spain for cooling water. They are distinguished principally by their porosity, from other kinds of earthenware, which is so considerable as to allow the liquor to ooze slowly through and stand in small drops on the outside, hence there is a constant evaporation from the surface (though surrounded by a current of warm air) and the water in the jar continues at a much lower temperature than the surrounding atmosphere. In Portugal these vessels are used for moistening snuff or tobacco, the jar for this purpose being filled with snuff and placed in water, which, by filtering slowly through its sides, gives the powder the requisite humidity. The following is an analysis of the clay used for these vessels, according to M. Darcets: sixty parts of calcareous earths, mixed with alumina and a little peroxide of iron, and thirty-six of silicious earths mixed with a little alumina, worked up with water and salt, which are dried in it. The pieces are only half baked.

ALCASSAR, a fortified town of Barbary, about two leagues from Larache, in Afgar, a province of the kindom of Fez. It was of great note, the seat of the governor of this part of the kingdom, and built by Jacob Almanzor, king of Fez. about the year 1180. He designed it for a magazine and place of rendezvous, for the great preparations he was making for the invasion of Spain. The place is now fallen greatly into decay. Not far from hence the famous battle was fought between Don Sebastian, king of Portugal, and the Moors; in which the Portuguese were defeated, and their king slain.

ALCASSAR-DO-SAL. See ALCACAR-DO-SAL.

ALCAVALA, in the Spanish finances, was at first a tax of ten per cent. afterwards of fourteen per cent. then of six per cent. levied upon the sale of every sort of property, whether moveable or immoveable; and repeated every time the property is sold. It is at this time about five per cent. The levying of this tax requires a multitude of officers sufficient to guard the transportation of goods, not only from one province, but from one shop to another; and it subjects the dealer in all sorts of goods, to the continual visits and examinations of the tax-gatherer. It is to the alcavala, that Ustaritz imputes the ruin of the manufactures of Spain.

ALCAZAR, a city of Spain in New Castile, seated on the river Guardamena, which lies in a very fruitful country, 100 miles north-west of Carthagena.

ALCAZAR LEGUER, a town of Africa, in the kingdom of Fez, which was taken by Alphonzo, king of Portugal, in 1468; but, soon after, abandoned to the Moors. It is seated on the coast of the straits of Gibraltar.

ALCE, ALCES, or ELK, in zoology, the trivial name of a species of the cervus, belonging to the order of mammalia pecora. See CERVUS.

ALCEA, the HOLLYHOCK, a genus of the polyandria order, belonging to the monadelphia class of plants; and in the natural method ranking under the thirty-seventh order, columniferæ. The characters are; CAL. a double perianthium, monophyllous and persistent; the exterior one six-cleft, the interior five-cleft: COR. five petals, coalesced at the base, heart-shaped inversely, and expanding: STAM. numerous filaments, coalesced below in a five-coloured cylinder, loose above, and inserted into the corolla: the antheræ are kidney shaped: PIST. a roundish germen; a short cylindric stylus; and numerous bristly stigmata the length of the stylus. The pericarpium consists of many arilli, jointed into a verticillum about a columnar depressed receptacle. The seeds are solitary, reniform, and depressed. Though Linnæus mentions two distinct species of this genus, he thinks that the one perhaps is only a variety of the other; but Mr. Miller affirms them to be a distinct species, whose difference in the form of their leaves always continues. First, Alcea Ficifolia, a native of Istria. Second, Alcea Rosea, a native of China. Its leaves are roundish, and cut at their extremities into angles. Though both species are natives of warm countries, they are hardy enough to thrive in the open air in Britain, and have for many years been some of the greatest ornaments in our gardens, towards the end of summer.

ALCEDO, or KINGSFISHER, in ornithology, a genus of the order of picæ. The alcedo has a long, strait, thick, triangular bill; with a fleshy, plain, short, flat tongue. Of this genus there are a great many species, with one or other of which almost every part of the world is furnished. Most of them frequent rivers, and live on fish, the mode of their catching which, is admirable sometimes hovering over the water, where small fishes are seen playing, at other times waiting with attention, on some low branch hanging over the water, for the approach of a single one

who is so unlucky as to swim that way; in either case dropping like a stone, or rather darting with rapidity on its prey, when, seizing it crosswise in its bill, it retires to a resting-place to feast on it; which it does piecemeal, bones and all, without reserve, afterwards bringing up the indigestible parts in pellets like birds of prey. The wings of most of the genus are very short; yet the birds fly rapidly and with great strength. It may be remarked, that throughout this genus, blue, in different shades, is the most predominant colour. This species, found in the South-Sea Islands, are held in a kind of superstitious veneration by the natives; perhaps, on account of their being frequently seen flying about the morais or burial places. That which inhabits Otaheite, where it is called Erooro, is accounted particularly sacred, and not allowed to be taken or killed. The jacamars are much allied to this genus, and have been ranked under it by Linnæus. There are above thirty species of this genus, of which the following are the most remarkable, viz.

1. ALCEDO GALBULA, or green jacamar, is about the size of a lark. The bill is black, of a square form, a little incurvated and sharp at the point: the plumage, in general, in the upper part of the body, is of a most brilliant green, glossed with copper and gold in different lights: the belly, throat, and vent, are rufous; the tail is composed of ten feathers, and shaped like a wedge; the legs are of a greenish yellow, very short and weak; the claws are black. This species is found, both in Guiana and Brasil, in the moist woods, which it prefers to the more dry spots for the sake of insects, on which it feeds. It is seldom seen except single, as it is a very solitary bird, keeping generally in the thickest parts; its flight quick, but short; it perches on branches of a middling height, where it sits all night, and frequently part of the day without stirring. Though these birds are solitary, yet they are far from scarce, as many may be met with. They are said to have a short and agreeable note. The natives of Guiana call this bird Venetore; and the Creoles, Colibri des grands bois. At Brasil their flesh is eaten by some.

2. ALCEDO ISPIDA, or common kingsfisher, is not much larger than a swallow; its shape is clumsy; the bill disproportionably long; it is two inches from the base to the tip; the upper chap black, and the lower yellow. But the colours of this bird atone for its inelegant form: the crown of the head and the coverts of the wings are of a deep blackish green, spotted with bright azure; the back and tail are of the most resplendent azure; the whole under side of the body is orange coloured; a broad mark of the same passes from the bill beyond the eyes; beyond that is a large white spot; the tail is short, and consists of twelve feathers of a rich deep blue; the feet are of a reddish yellow, and the three joints of the outermost toe adhere to the middle toe, while the inner toe adheres only by one. From the diminutive size, the slender short legs, and the beautiful colours of this bird, no person would be led to suppose it one of the most rapacious little animals that skims the deep. Yet it is for ever on the wing, and feeds on fish; which it takes in surprising quantities, when we consider its size and figure. It takes its prey after the manner of the osprey, balancing itself at a certain distance above the water for a considerable space, then darting into the deep, and seizing the fish with inevitable certainty.—While it remains suspended in the air, in a bright day, the plumage exhibits a beautiful variety of the most dazzling and brilliant colours. This striking attitude did not escape the notice of the ancients; for Ibycus, as quoted by Athenæus, styles these birds αλκυονες ταννσιπτεροι, the halcyons with expanded wings. It makes its nest in holes in the sides of the cliffs, which it scoops to the depth of three feet; and lays from five to nine eggs, of a most beautiful semi-transparent white. The female begins to lay early in the season, and excludes her first brood about the beginning of April. The male, whose fidelity exceeds even that of the turtle, brings her large provisions of fish while she is thus employed; and she, contrary to most other birds, is found plump and fat at that season. The male, that used to twitter before this, now enters the nest as quietly and as privately as possible. The young ones are hatched at the expiration of twenty days; but are seen to differ as well in their size as in their beauty. This bird is found not only in Britain, but throughout Europe, Asia, and Africa; as specimens have been received from China, Bengal, and Egypt. Belon also remarks his having met with it in Romania and Greece; and Scopoli notices it as a bird of Carniola, where, he says, it remains the whole year as in England. Indeed it bears the rigours of the colder climates so well, that among the Germans it has gained the name of Eiszvogal, or Ice bird: Olnia speaks also of its not regarding the ice and cold; and Gmelin assures us, that it is found even in Tartary and Siberia. But, however this may be, there are few winters in which many of these birds do not perish, apparently from cold alone; as several have been found frozen stiff by the sides of even running water, without the least mark of violence about them. M. D'Aubenton has kept these birds for several months, by means of small fish put into basins of water, on which they have fed; for on experiment they have refused all other kinds of nourishment.

This species is the αλκυοναφωνος, or mute halcyon of Aristotle, which he describes with more precision than is usual with that great philosopher. After this description of the bird follows that of its nest; than which the most inventive of the ancients have delivered nothing that appears at first more fabulous and extravagant. He relates, that it resembled those concretions that are formed by the sea-water; that it resembled the long-necked gourd; that it was hollow within; that the entrance was very narrow, so that, should it overset, the water could not enter; that it resisted any violence from iron, but could be broken with a blow from the hand; and that it was composed of the bones of the Βελονη, or sea-needle. The nest had medical virtues ascribed to it; and from the bird was called Halcyoneum. In a fabulous age, every

odd substance that was flung ashore received that name; a species of tubular coral, a sponge, a zoophite, and a miscellaneous concrete, having by the ancients been dignified with that title from their imaginary origin. Yet much of this is founded on truth. The form of the nest is justly described; and the materials which Aristotle says it was composed of, are not entirely of his own invention. Whoever has seen the nest of the kingsfisher, will observe it strewed with the bones and scales of fish; the fragments of the food of the owner and its young. On the foundation laid by this philosopher, succeeding writers formed other tales; and the poets, indulging the powers of imagination, dressed the story in all the colours of romance. Its nest they represented as a floating one, placed in a tranquil sea, and the bird was supplied with charms, to allay the fury of the turbulent element. The Halcyons were therefore said to be the peculiar favourites of Thetis, the Nereids, and the other sea-goddesses; as to their influence these deities were supposed to owe a repose in the midst of the storms of winter. Aristotle and Pliny tells us, that this bird was most common in the seas of Sicily; that it sat only a few days, in the depth of winter; and that during that period the mariner might sail in full security; for which reason they were styled halcyon days; and the expression became at last proverbial for prosperity in general. The modern fables, that the flesh of the kingsfisher will not corrupt, that it banishes all vermin, and that when hung up dead, its breast always points to the north, are perhaps remains of the old traditions.

3. Alcedo Paradisea, or paradise jacamar, is of the same size with the former, and has a similar bill: the throat, fore part of the neck, and under wing coverts, are white: the rest of the plumage is of a deep dull green, in some lights appearing almost black, in others with a slight gloss of violet and copper bronze; the tail is composed of twelve feathers of unequal lengths; the two middle ones longest; the legs are black: the toes are placed two before and two behind, and pretty much united. It inhabits Surinam; and like the galbula, it feeds on insects; and sometimes, contrary to it, frequents open places. It flies farther at a time, and perches on the tops of trees: it is frequently found with a companion, not being quite so solitary a bird as the other. It also differs in the note, having a kind of soft whistle, often repeated, but not heard a great way off.

4. Alcedo Rudis, or Egyptian kingsfisher, as described by Hasselquist, is the size of the Royston crow. The bill is blackish, more than half an inch broad at the base, and two inches in length: the head, shoulders, and back, are brown, marked with oblong ferruginous spots: the throat is of a ferruginous white: the belly and thighs are whitish, marked with longitudinal, broadish, cinereous, spots: the upper tail coverts quite white: the quills spotted with white on the inner webs, chiefly at the tips: the tail is ash-coloured: the legs are of a pale green; and the claws blackish. It inhabits lower Egypt, about Cairo; builds in sycamore and date trees; and feeds on frogs, insects, and small fish; which last it meets with in the fields when they are overflowed. Its cry is not unlike that of the common crow.

5. Alcedo Taparara of Buffon, is about the size of a starling. The upper mandible of the bill is black, the lower red: the hind part of the neck, the back, and scapulars, are of an elegant blue; the rump and upper tail coverts bright beryl-blue: the under parts of the body are white; the wing coverts blue, and the legs red. It inhabits Cayenne and Guiana, at which last place the natives call all the kingsfisher tribe by the name of Taparara. In this part of South America, which contains many rivers full of fishes, kingsfishers, as might be expected, abound in vast numbers: but what is remarkable, they never herd together, always being found single, except in breeding time, which is about the month of September. They lay their eggs in the holes of banks, like the kingsfisher of Europe. The cry of this bird imitates the word Carac.

6. Alcedo Torquata, or cinereous kinsgfisher, is about the size of a magpie, and fifteen inches and a half in length. The bill is three inches and a half long, and brown; the base of the lower mandible reddish: the head is crested: the upper parts of the head and body are bluish ash; the under parts chesnut; the throat is whitish, descending down the neck, and passing behind like a collar, ending towards the back in a point: the under tail coverts are of a pale fulvous, transversely striated with black: lesser wing coverts varied with bluish, ash, black, and yellowish: the legs are red; and the claws blackish. It inhabits Martinico and Mexico: at which last place it is called Achalalactli. This bird migrates into the northern parts of Mexico, at certain seasons only, and is supposed to come there from some hotter parts.

ALCHATA, in ornithology, a species of the tetrao.

ALCHEMILLA, or Ladies-Mantle: a genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the thirty-fifth order, senticosæ: cal. a single-leaved perianthium, tubular, and persistent; the mouth flat, and eight-parted; there is no corolla: stam. four small erect subulated filaments placed in the mouth of the calyx; the antheræ are roundish: pist. an egg-shaped germen: the stylus is filiform, the length of the stamina, and inserted at the base of the germ: the stigma is globular. There is no pericarpium, but the neck of the calyx closed. The seed solitary, elliptical and compressed. Of this genus there are three species, viz.;

1. Alchemilla Alpina, or cinquefoil ladies-mantle, with finger-shaped sawed leaves, and greenish blossoms. It is a native of the mountainous parts of Europe.

2. Alchemilla Minor, or least ladies-mantle, with five smooth leaves growing at a joint and cut into many segments. It grows naturally in Sweden, Lapland, and other cold countries. This and the alpina are eaten by cows and goats; but refused by horses, sheep, and swine.

3. Alchemilla Vulgaris, or common ladies-mantle, with leaves plaited like a fan, and

yellowish green blossoms. It grows naturally in pasture lands in this as in most other countries in Europe.

ALCHEMIST, a practitioner in alchemy.

ALCHEMY, from *al*, the, Arab. and Χημια, chemistry, that obsolete or rather pretended branch of chemistry which had for its objects, the transmutation of metals into gold; the panacea, or universal remedy; an alkahest, or universal menstruum; an universal ferment; and many other things equally ridiculous. The origin and antiquity of alchemy are much controverted.—If regard may be had to legend and tradition, it must be as old as the flood. But in fact few of the ancient poets, philosophers, or physicians, from Homer till 400 years after Christ, mention any such thing. The first author who writes of making gold, is Zosimus the Panapolite, who lived towards the beginning of the fifth century, and who has an express treatise, Περι της ιερας τηχνης της τυ χρυσυ και τυ αργυρυ ποιησεως, of the divine art of making gold and silver, extant, in manuscript, in the late French king's library. Kircher, instructed in all the secrets of chemistry, fully exposed the artifices and impostures of alchemists. Mr. Harris very properly distinguishes between alchemy and chemistry; and defines the former to be, Ars sine arte, cujus principium est mentiri, medium laborare, et finis mendicare; and the Italians have a proverb, non ti fidiare ol alchemista povero o modico amalato. The ruin which has attended this delusion has occasioned several states to make severe laws against pretences to alchemy. The Romans formerly banished all such as professed it; and the sacred canons likewise directed the thunder of their censure against them. Diocle-sian and Cæsar ordered all books which treated of this subject to be burnt. Rymer furnishes us with a licence for practising alchemy, with all kinds of metals and minerals, granted to one Richard Carter in the year 1476; Rym. Fæd. tom. xii. Nevertheless, we have had severe laws against alchemy, and multiplying of metals, as much so as against coining itself. Mr. Thomas Taylor, the ingenious defender of the system of Plato, and translator of the principal part of his works, examines the opinion of Suidas, that alchemy could not be satisfactorily proved more ancient than the time of Dioclesian. He instances, from the Greek Dictionary of the empress Eudocia, p. 108 of Villoison's edition, the following observations concerning the famous golden fleece. 'Dionysius, the Mitylenean, says, a man whose name was Krius, this name means also a ram, was the pedagogue of Phiyxus, and that the sheep skin had a golden fleece, not agreeably to poetic assertion, but that it was a book written in skins, containing the manner in which gold ought to be made, according to the chemical art. Justly therefore, says he, did those of that period denominate the skin golden through the energy proceeding from it.'—This Dionysius, as Fabricius shews, lived somewhat prior to Cicero. Again Manetho, in the fourth book of his Apotelesmatica, p. 66, says, 'Venus alone, in conjunction with the beautiful Phæton, the sun, points out makers of gold and workers of Indian ivory.' This Manetho lived in the time of Ptolemy Philadelphus, to whom he dedicates his work. Alchemical knowledge was anciently kept secret, but the invention of print-ing, and a more extended spirit of enquiry has caused all its nostrums and mysteries to disap-pear.

ALCHIMELLA. See ALCHEMILLA.

ALCHOLEA, a kind of food in use among the western Moors, being fleshy meat, pulled, dried and potted.

ALCHORNEA, in botany, a genus of the dioecia monadelphia class and order of persons Martyn, and monadelphia octandria of Sowerby and Gmelin, the characters of which are: calyx of the male, a three or five-leaved perianth; leaflets ovate, concave, equal, coloured, and deciduous: no corolla. STAM. eight filaments equal, scarcely longer than the calyx, subulate, connate at the base; antheræ ovate and erect. PIST. a rudiment; the calyx of the female one-leafed, four or five-toothed persistent, the teeth equal and small; no corolla; the pistillum has a germ twin, superior; styles two, very long and filiform; stigmas simple and acute; the pericarpium, a capsule berried, two-seeded, two-celled, two-valved; the seeds solitary, ovate and oblong: there is one species, viz. Alchornea latifolia.

AL'CHYMIZE, *v.*
AL'CHYMY,
ALKYM'ISTRIE,
ALCHYM'ICAL,
ALCHYM'ICALLY,
AL'CHYMIST,
ALCHYMIST'ICAL,
ALCHYMIST'ICALLY,

Deduced by some from the Arabic article *al* and χευω, to melt. Perhaps it may be derived from the pouring and running of mineral substances in a state of fusion, in order to obtain the precious metals supposed to be contained therein.

And whan this *alkymistre* saw his time,
Riseth up, sire preest, quod he, and stondeth by me
And for I wote wel, ingot had ye non,
Goth, walketh forth, and bringeth a chalk ston.
Chaucer. The Chanones Yemannes Tale.

White *alchymy* is made of pan brass one pound and arsenicum three ounces; or *alchemy* is made of copper and auripigneantum.
Brown's Vulgar Errours.

Raymond Lully would prove it *alchymicalls*.
Camden.

To solemnize this day, the glorious sun
Stays in his course, and plays the *alchymist*;
Turning, with splendour of his precious eye,
The meagre cloddy earth to glittering gold.
Shakesp. King John.

Every *alchymist* knows, that gold will endure a vehement fire for a long time without any change, and after it has been divided by corrosive liquors into invisible parts, yet may presently be precipitated, so as to appear in its own form.
Grew.

Compared to this,
All honour's mimick; all wealth, *alchymy*.
Donne.

They bid cry,
With trumpets regal sound, the great result;
Tow'rds the four winds, four speedy cherubim
Put to their mouths the sounding *alchymy*,
By herald's voice explained.
Milt. Par. Lost.

It was by the means of fantastical ideas and notions that chemistry was turned into *alchymy*; astronomy into judicial astrology.
Bolingbroke's Essay on Human Knowledge.

Time was, when I know not what mystical meanings were drawn, by a certain cabalistic *alchymy*, from the simplest expressions of holy writ.

Horsley's Sermons.

ALCIATI, (Andrew,) a celebrated lawyer, who flourished in the sixteenth century, born at Milan. Thuanus highly commends him for mingling much of polite learning in the explication of the laws, and divesting it of barbarous technicalities. He published a great many law books, and some notes upon Tacitus.

ALCIBIADES, a famous Athenian general, was the son of Clinias, who fell at the battle of Coronæa, by Dionomache, the daughter of Xantippus, who overthrew the Persians at Mycale; and the sister of Pericles, the celebrated orator. He was born B. C. 405, and lived at a time when his country was a scene of confusion. The Greeks, grown insolent from their conquests in Persia, turned their arms against each other, under the conduct of the two most opulent states, Athens and Lacedæmon. Alcibiades, in the midst of an expedition he had planned against the enemy, was recalled home to answer some charge of a private nature; but fearing the malice of his enemies, instead of going to Athens, he offered his services to Sparta, where they were readily accepted. By his advice the Lacedæmonians made a league with Persia, which gave a favourable turn to their affairs. But his credit in the republic giving rise to jealousies against him, he privately reconciled himself to his country, and took again the command of an Athenian army. Here victory attended all his motions. The loss of seven battles obliged the Spartans to sue for peace. He enjoyed his triumphs, however, only a short time at Athens; one unsuccessful event making it expedient for him to retire. In his absence the Spartans again took the lead, and at the fatal battle of Ægos entirely subdued the Athenian power. Alcibiades, though an exile, endeavoured to restore the power of his country; of which the Spartans having intelligence, procured him to be assassinated. He was a man of admirable accomplishments, but indifferent principles; of great parts, and of an amazing versatility of genius.

ALCIBIADUM, or Alcibium, in botany, a word used by the ancients as an epithet for a kind of echium, or vipers bugloss, and sometimes as the name of a peculiar plant.

ALCIDES, in mythology, an epithet of Hercules.

ALCINOUS, in fabulous history, a king of the Phœnicians, in the island now called Corfu, son of Nausithous, and grand-son of Neptune and Peribœa. His gardens have immortalized his memory. He received Ulysses with great hospitality, when a storm had cast him on his coast.

ALCMÆON, the thirteenth and last perpetual archon of Athens, died, after reigning only two years, in the third year of the sixth Olympiad, A. A. C. 754.

ALCMAER, a city of North Holland, about four miles from the sea, and twenty-four N.N.W. from Amsterdam. It is one of the cleanest towns in Holland; and the town-house, and arsenal have been much admired. It had formerly two parish churches situated near each other, dedicated to St. Matthew and St. Lawrence. The latter had so high a tower that it served for a sea mark, but it fell down in 1464, and so much damaged the other, that they were both demolished in 1470, and one church was built in their stead, dedicated to the same saints. The Spaniards, under the command of Frederic of Toledo, son of the duke d'Alva, came to besiege it, after they had taken Haerlem in 1573; but were forced to raise the siege, after lying before it three months, as well on account of the infection of the air as the brave resistance of the inhabitants and soldiers; even the women signalizing themselves boldly in its defence. In this city, in the year 1637, 120 tulips, with the offsets, sold for 90,000 florins; and one of them, called the viceroy, for 4203 guilders! The states at last put a stop to this extravagant passion for flowers, which had ruined so many, or rather to the speculative passion of gambling in them as an article of commerce, by severe penalties. The town has a very good trade in butter, and cheese, which are esteemed the best in Holland; as well as in grain, seeds, and flower roots. It is well fortified, and contains, besides the Catholic churches, two Calvinist, one Lutheran, and one Baptist church, as well as a Jewish synagogue. Inhabitants from 9000 to 10,000. Alcmaer was taken and held for a short time by the British in 1799; here is a canal which leads from Hoorn through Alcmaer to Petten, and serves to unite the Zuyderzee with the North sea. Lon. 4°. 21'. E. Lat. 52°. 38'.N.

ALCMAN, a lyric poet, was born at Sparta, and flourished in the twenty-seventh Olympiad. He composed several poems, of which only some fragments remain, quoted by Athenæus and some other ancient writers. He was very amorous: accounted the father of gallant poesy; and is said to have been the first that introduced the custom of singing love songs in company. He is reported to have been one of the greatest eaters of his age. He died of a strange disease; for he was eaten up with lice.

ALCMANIAN, from Alcman, see last article, in ancient lyric poetry, a kind of verse consisting of two dactyls and two trochees, as,—

Post equi|tem sede|ta tra | cura.

Some authors mention other Alcmanian verses, composed of three dactyls, and a cæsura; as,

Munera | lætiti|amque Dei|.

ALCMENA, in mythology, the daughter of Electryon, king of Mycenæ, and wife of Amphitryon. Jupiter, assuming the form of her betrothed husband, while he was abroad in the wars, made her the mother of Hercules; Amphitryon is said to have been proud of the circumstance.

ALCO, in zoology, the canis Americanus of Linnæus, about the size of a squirrel, with a small head, pendulous ears, curved body, and short tail. There are two varieties, viz. the fat alco, ytzcuinte-porzotli, canis Mexicanus of Hernandez, which is extremely fat, head very small, ears pendulous, with the fore part of the head very white, and yellowish ears, short neck, arched back, yellow hair, white short pendulous

tail, large belly, spotted with black, white legs and feet, and the female with six conspicuous paps; and the techichi of Fernandes, which is like the small dogs of Europe, except that it has a wild and melancholy air. The first of these approaches the Iceland dog, and the second is perhaps the same animal with the koupara, or crab-dog of Guiana, which in figure resembles the fox, and in its hair the jackal. It has been called the crab-dog, because it lives chiefly upon crabs and other testaceous animals.

ALCOCK, (John,) LL. D. and bishop of Ely, in the reign of Henry VII. was born at Beverly in Yorkshire, and educated at Cambridge. He was first made dean of Westminster, and in 1471, was consecrated bishop of Rochester; in 1476, he was translated to the see of Worcester; and in 1486, to that of Ely. He was a man of great learning and piety; and so highly esteemed by king Henry, that he appointed him lord president of Wales, and afterwards lord high Chancellor of England. Alcock founded a school at Kingston upon Hull, and built the spacious hall belonging to the episcopal palace at Ely. He was also the founder of Jesus College at Cambridge, and the house which was formerly a nunnery, dedicated to St. Radigund, had become so notorious for the incontinence of its inmates, that king Henry VII. and Pope Julius II. consented to its dissolution; and Alcock obtained a grant of it, which calls it spiritualium meretricum [illegible]. Bishop Alcock, wrote, 1. Mons Perfectionis. Lond. 1501. 2. In Psalmos Penitentiales. 3. Homiliæ Vulgares. 4. Meditationes Piæ. 5. Cantus ad Confratres suos Curatos in Synod. apud Barnwell, 1498, 4to. which bears on the pun on the bishop's name by a print of preaching with a cock on each side of him. He died in 1500.

Also, a philosopher of the second century, who wrote a treatise De Doctrinâ Platonis, which has been edited by various learned men: the best edition is the 12mo. Oxford, 1667.

ALCOHOL.

ALCOHOL, in chemistry, ardent spirit, spirit of wine: *alcool esprit de vin*, Fr.; *weingeist*, Ger.; *spirito ardente*, *spirito de vino*, *acquarzente*, Italian; in the nomenclature of modern chemistry, the purely spirituous part of all liquors that have undergone the vinous fermentation, and derived from none but such as are susceptible of it. As a chemical agent, it is of the highest importance, and in its various combinations, involving all the grand principles of the science. All fermented liquors agree in two points: a saccharine juice is necessary to the production; and they are all capable of furnishing an ardent spirit by distillation. The term, however, is commonly used to signify this spirit more or less imperfectly freed from water, in the state in which it is usually met with in the shops, and in which, as it was first obtained from the juice of the grape, it was long distinguished by the name of spirit of wine. At present it is extracted chiefly from grain or melasses in Europe, and from the juice of the sugar-cane in the West-Indies; and, in the diluted state in which it commonly occurs in trade, constitutes the basis of the several spirituous liquors, such as brandy, rum, arrack, malt-spirits, &c.: differing from each other in colour, smell, taste, and strength; but the spirituous part, to which they owe their inflammability, their hot fiery taste, and their intoxicating quality, being the same in each, may be procured in its purest state by a second distillation, which is termed, in technical language, rectification. As we are not able to compound alcohol immediately from its ultimate constituents, we have recourse to the process of fermentation, by which its principles are first extricated from the substances in which they were combined, and then united into a new compound; to distillation, by which this new compound, the alcohol, is separated in a state of dilution with water, and contaminated with essential oil; and to rectification, by which it is ultimately freed from these. In this country, alcohol, as well as ardent spirits of different kinds, is procured most largely from fermented grain [illegible] prepared, for the purpose of distillation, of wheat, barley, melasses, &c.; but in the wine countries, the spirit is obtained by the distillation of wine, whence the synonymous term, spirit of *wine*.

It appears to be essential to the fermentation of alcohol, that the fermenting fluid should contain saccharine matter, which is indispensable to that species of fermentation called vinous. In France, where a great deal of wine is made, particularly at the commencement of the vintage, which is too weak to be a saleable commodity, it is a common practice to subject this wine to distillation, in order to draw off the spirit; and the essential oil that rises in this process has a more pleasant flavour than that of malt or melasses, the French brandies are preferred to all other; though even in the flavour of these there is a difference, according to the wine from which they are produced. In the West Indies a spirit is obtained from the juice of the sugar-cane which is highly impregnated with its essential oil, and well known by the name of rum. The distillers in this country use grain or melasses, which they distinguish the products by the name of malt spirits, and melasses spirits. It is said that a very good spirit may be extracted from the juice of gooseberries or currants, after wine has been made from them.

As the process of malting develops the saccharine principle of grain, it would appear to render it fitter for the purpose: though it is the common practice to use about three parts of raw grain with one of malt. For this two reasons may be assigned; by using raw grain the expence of malting is saved, as well as the duty on it, and the process of malting requires some [illegible]

of attention, since, if it be carried too far, part of the saccharine matter is lost, and if it be stopped too soon, this matter will soon be wholly developed. Besides, if the malt be dried too quickly, or by an unequal heat, the spirit it yields will be less in quantity, and more unpleasant in flavour. Barley appears to produce less spirit than wheat; and if three parts of raw wheat be mixed with one of malted barley, the produce is said to be particularly fine. This is the practice of the distillers in Holland for producing a spirit of the finest quality; but in England they are expressly prohibited from using more than one part of wheat to two of other grain. Rye affords still more spirit than wheat.

The practice with the distillers in Scotland, is to use one part of malted with from four to nine parts of unmalted grain; which yields an equal quantity of spirit, and at a much cheaper rate than the former proportions. The grain employed must be coarsely ground, and then mixed with a little cold water, so as to prevent its running into lumps; water about ninety degrees of Fahrenheit may then be added, till it is sufficiently diluted; and, lastly, a sufficient quantity of yeast. The whole may then be allowed to ferment in a covered vessel, to which the air can have access. If the temperature exceeds seventy-seven degrees of Fahrenheit, the fermentation will be too rapid; if it be below sixty degrees, the fermentation will cease: hence the mean between these will be found most favourable. In this country the common practice is to mash the grain as for brewing malt liquors, and to boil the wort. But if the wash or liquor intended for distillation be made from melasses and water, the fermentation must be continued till the liquor grows fine, and pungent to the taste, which will generally be about the third day, but not so long as to permit the acetous fermentation to commence.

In this state the wash is to be committed to the still, of which, including the head, it should occupy at least three-fourths; and be distilled with a gentle heat as long as any spirit comes over, which will be till about half the wash is consumed. The more slowly the distillation is conducted, the less will the spirit be contaminated with essential oil, and the less danger will there be of empyreuma. A great saving of time and fuel may be obtained by making the still very broad and shallow, and contriving a free exit for the steam. This has been carried to such a pitch in Scotland, that a still, measuring forty-three gallons, and containing sixteen gallons of wash, has been charged and worked no less than four hundred and eighty times in the space of twenty-four hours; which, if it were not established by unquestionable evidence, would appear incredible.

This wonderful rapidity of distillation has ceased since the excise duties have been levied on the quantity of spirit produced, and not, as formerly, by the size of the still. Hence, too, the spirit is probably improved in flavour.

The first product, technically termed low wine, is again to be subjected to distillation, the latter portions of what comes over, called faints, being set apart to be put into the wash still at some future operation. Thus a large portion of the watery part is left behind. This second product, termed raw spirit, being distilled again, is called rectified spirit. It is calculated, that a hundred gallons of malt or corn wash will not produce above twenty of spirits, containing sixty parts of alcohol to fifty of water: the same of cyder wash, fifteen gallons; and of melasses wash, twenty-two gallons. The most spirituous wines of France, those of Languedoc, Guienne, and Rousillon, yield, according to Chaptal, from twenty to twenty-five gallons of excellent brandy from 100; but those of Burgundy and Champagne much less. Brisk wines, containing much carbonic acid, from the fermentation having been stopped at an early period, yield the least spirit.

The spirit thus obtained ought to be colourless, and free from any disagreeable flavour; and in this state it is fittest for pharmaceutical purposes, or the extraction of tinctures.

We shall take the example of brandy, which is the product of the first distillation of wine, and exhibit the methods by which alcohol is procured from it by rectification, to illustrate one of the most useful modes of preparing alcohol.

This spirit is a compound of alcohol, water, a colouring extractive matter, and a small quantity of oil. It is to the two last that it owes its peculiar flavour, smell, and appearance, whereby it is distinguished from other distilled spirits. The object of the process of rectification is to separate the first from the other ingredients, and this separation is effected upon the principle that alcohol is the most easily volatilized when a gentle heat is applied, and therefore appears in the first product of distillation, whilst the extractive matter and much of the water remain behind. It is more difficult, however, to get rid of the small portion of oil which brandy contains, as this is soluble in alcohol, and will rise with it in distillation, unless prevented by the means which will be presently mentioned. The observations of M. Baumé, and his directions for the preparations of alcohol, are so judicious and accurate, that we shall here mention them.

'To procure rectified alcohol,' says this able chemist, 'put a quantity of brandy in the water bath of an alembic, and proceed to distillation. Set apart the first product of the distillation when it amounts to about a fourth part of the liquor put into the alembic. Then continue the process till about as much more is obtained, or till the liquor comes over white and milky. Then re-distil the latter product, and mix the first half which comes over with the first part of the former distillation, and continue to distil as long as any spirit comes over. This latter portion may be again distilled, and the first product mixed with the former first products, as before After each distillation, there remains in the alembic a watery liquor which retains the smell of brandy, but is entirely deprived of inflammable spirit, and is thrown away as useless. Having thus procured all the spirit from the brandy, return all the reserved first products to the alembic, and distil with a gentle fire. When about half the liquor has come over, it should be kept apart as pure rectified alcohol; the remainder is to be distilled as long as it is inflammable, and may either be

again rectified, or reserved for those purposes where a spirit of inferior strength is required. This judicious chemist gives this reason for the above process: the spirit which first passes over in distillation is the purest, and contains the least portion of gross essential oil; the latter portion, on the other hand, is almost saturated with this oil, and the difference between the two is easily distinguishable when rubbed on the hands; the first product leaves no smell of brandy, but the last gives an odour like the breath of drunkards, who digest their food imperfectly. The quantity of oil, however, varies according to the nature of the brandy; that which is made from wine alone containing the least oil, but that which is procured from wine lees being so full of it as to leave a stratum of the oil swimming on the watery extractive liquor left in the alembic, after all the spirit has been distilled off.

Dubuisson remarks, concerning this oil, that the Languedoc brandies contain much more of it that the Cogniac; and that after distilling a large quantity of the former, the head of the alembic was covered with expanded drops of the oil, which adhered to the vessel. When collected together, and quite cold, they became as stiff as suet, had a chesnut colour, a strong disagreeable taste, and a smell like turpentine. Various additions have been made to the impure sprit, in order to assist in the separation of the oil. The simplest and one of the most efficacious is water. This, when added to the oily spirit, turns it milky (as is the case with any other solution of essential oil in alcohol), and, by weakening the adhesion between the oil and the spirit, it enables the latter to rise in distillation, unmixed with the former. The chief inconvenience is, that this addition weakens the strength of the spirit so much, as to require successive rectifications before it can be sufficiently deprived of its water. Bran, chalk, crumbs of bread, and other substances, are also added, before distillation, to the spirit, when oily and ill-flavoured; and they all have a good effect in keeping down the matters which contaminate the alcohol, and render the distillation more effectual in purifying it. Quicklime is still more efficacious, but much lessens the product of alcohol, alters its nature in some degree, and makes it more penetrating. It would appear, however, that there are some kinds of wine in which the odorant particles are so intimately mixed with the spirituous, that it is scarcely possible to separate them by simple distillation, however cautiously and skilfully conducted. The common still, with the worm-tube and refrigeratory, is well calculated for the rectification of spirits, only allowance must be made for the readiness with which ardent spirit, when heated, assumes the state of vapour, and the very great expansion which it then undergoes.

Alcohol, freed from all foreign ingredients but water, and already of considerable strength, may be brought to the specific gravity of 0.825, at the temperature of 60°, by a single distillation, where the heat is moderate and applied gradually, and the condensation slow. When about a third or half of the spirit is distilled over, the strength of the succeeding portion is diminished, the specific gravity increases, and it becomes more watery, and therefore the first product should be kept apart. This cannot be rendered stronger by any simple distillation, but it may be still further dephlegmated by means which will be mentioned hereafter.

But for ordinary sale something more is required. The brandy of France, which is most in esteem here, though perfectly colourless when first made, and often preserved so for use in that country by being kept in glass or stone bottles, is put into new oak casks for exportation, where it soon acquires an amber colour, a peculiar flavour, and something like an unctuosity of consistence. As it is not only prized for these qualities, but they are commonly deemed essential to it, the English distiller imitates by design these accidental qualities. The most obvious and natural method of doing this would be by impregnating a pure spirit with the extractive, resinous, and colouring matter of oak shavings; but other modes have been contrived. The dulcified spirit of nitre, as it is called, is commonly used to give the flavour; and catechu, burnt sugar, to impart the desired colour. A French writer has recommended three ounces and a half of finely powdered charcoal, and four ounces and a half of ground rice, to be digested for a fortnight in a quart of malt spirit.

The finest gin is said to be made in Holland from a spirit drawn from wheat, mixed with a third or fourth part of malted barley, and twice rectified over juniper berries; but in general rye meal is used instead of wheat. They pay much regard to the water employed, that many send vessels on purpose to fetch it from the Meuse; but all use the softest and clearest river water they can get. In England it is the common practice to add oil of turpentine, in the proportion of two ounces to ten gallons of raw spirit with three handfuls of bay salt, and draw off till the faints begin to rise.

But corn, or melasses spirit, is flavoured likewise by a variety of aromatics, with or without sugar, to please different palates; all of which are included under the general technical term of compounds or cordials.

Other articles have been employed, though not generally, for the fabrication of spirit, as carrots and potatoes; and we are lately informed by professor Proust, that from the fruit of the carob tree he has obtained good brandy in the proportion of a pint from five pounds of the dried fruit.

To obtain pure alcohol, different processes have been recommended; but the purest rectified spirit, obtained as above described, being that which is least contaminated with foreign matter, should be employed. Rouelle recommends to draw off the spirit in a water bath; to rectify this twice more, drawing off two-thirds each time; to add water to this alcohol, which will turn it milky by separating the essential oil remaining in it; to distil the spirit from this water; and finally, rectify it by another distillation.

Alcohol is often dephlegmated, or still further freed from water, by means of some alkaline salt. Boerhaave recommended, for this purpose, the muriate of soda, deprived of its water of crystallization by heat, and added hot to the spirit. But

the subcarbonate of potash is preferable. About a third of the weight of the alcohol should be added to it in a glass vessel, well shaken, and then suffered to subside. The salt will be moistened by the water absorbed from the alcohol; which being decanted, more of the salt is to be added, and this is to be continued till the salt falls dry to the bottom of the vessel. The alcohol in this state will be reddened by a portion of the pure potash, which it will hold in solution, from which it must be freed by distillation in a water bath. Dry muriate of lime may be substituted advantageously for the alkali.

Alcohol, as we have already intimated, is a colourless transparent liquor, appearing to the eye like pure water. It possesses a peculiar penetrating smell, distinct from the proper odour of the distilled spirit from which it had been procured. To the taste it is excessively hot and burning, but without any peculiar flavour. From its great lightness and mobility, the bubbles, which are formed on shaking it, subside almost instantaneously, and this is one method of judging of its purity. Alcohol is very easily volatilized by the heat of the hand, it even begins to be converted into a very expansible vapour at the temperature of 55° Fahr. and the quickness of evaporation always produces a considerable cold. It boils at about 165°, and the vapours when condensed return unaltered to their former state. It has never been frozen by any cold, natural or artificial, and hence its use in thermometers to measure very low temperatures.

Alcohol takes fire very readily on the application of any lighted body, the speedier in proportion to its purity. It burns with a pale flame, white in the centre and blue at the edges; this gives but a small degree of heat, and is so faint as to be scarcely visible in bright day-light. It burns without any smoke or vapour, and if strong, leaves no residuum; but if weak, it is extinguished spontaneously, and the watery part remains behind.

As alcohol is much lighter than water, its specific gravity is adopted as the test of its purity. Fourcroy considers it as rectified to the highest point when its specific gravity is 829, that of water being 1000; and perhaps this is nearly as far as it can be carried by the process of Rouelle or Baumé simply. M. Bories found the first measure that came over from twenty of spirit at 836 to be 820, at the temperature of 71° of Fahrenheit. Sir Charles Blagden, by the addition of alkali, brought it to 813, at 60° of Fahrenheit. Chaussier professes to have reduced it to 798; but he gives 998.35 as the specific gravity of water. Lowitz asserts that he has obtained it at 791, by adding as much alkali as nearly to absorb the spirit; but the temperature is not indicated. In the shops it is about 835 or 840: according to the London College it should be 815.

It is by no means an easy undertaking to determine the strength or relative value of spirits, even with sufficient accuracy for commercial purposes. The following requisites must be obtained before this can be well done: the specific gravity of a certain number of mixtures of alcohol and water must be taken so near each other, as that the intermediate specific gravities may not perceptibly differ from those deduced from the supposition of a mere mixture of the fluids; the expansions or variations of specific gravity in these mixtures must be determined at different temperatures; some easy method must be contrived of determining the presence and quantity of saccharine or oleaginous matter which the spirit may hold in solution, and the effect of such solution on the specific gravity; and lastly, the specific gravity of the fluid must be ascertained by a proper floating instrument with a graduated stem, or set of weights; or, which may be more convenient, with both.

The strength of brandies in commerce is judged by the phial, or by burning. The phial proof consists in agitating the spirit in a bottle, and observing the form and magnitude of the bubbles that collect round the edge of the liquor, technically termed the bead, which are larger the stronger the spirit. These probably depend on the solution of resinous matter from the cask, which is taken up in greater quantities, the stronger the spirit. It is not difficult, however, to produce this appearance by various simple additions to weak spirits. The proof by burning is also fallacious; because the magnitude of the flame, and quantity of residue, in the same spirit, vary greatly with the form of the vessel it is burned in. If the vessel be kept cool, or suffered to become hot, if it be deeper or shallower, the results will not be the same in each case. It does not follow, however, but that manufacturers and others, may, in many instances, receive considerable information from these signs, in circumstances exactly alike, and in the course of operations wherein it would be inconvenient to recur continually to experiments of specific gravity.

The importance of this object induced the British government to employ Dr. Blagden, now Sir Charles, to institute a very minute and accurate series of experiments. Of these we shall give a summary in this place, from the Philosophical Transactions for 1790.

The first object to which the experiments were directed, was to ascertain the quantity and laws resulting from the mutual penetration of water and spirit.

All bodies in general expand by heat; but the quantity of this expansion, as well as the law of its progression, is probably not the same in any two substances. In water and spirit they are remarkably different. The whole expansion of pure spirit from 30° to 100° of Fahrenheit's thermometer is not less than 1-25th of its whole bulk at 30°; whereas that of water, in the same interval, is only 1-145th of its bulk. The laws of their expansion are still more different than the quantities. If the expansion of quicksilver be, as usual, taken for the standard, (our thermometers being constructed with that fluid,) the expansion of spirit is, indeed, progressively increasing with respect to that standard, but not much so within the above-mentioned interval, while water kept from freezing to 30°, which may easily be done, will absolutely contract as it is heated for ten or more degrees, that is to 40° or 42° of the thermometer, and will then begin

to expand as its heat is augmented, at first slowly, and afterward gradually more rapidly, so as to observe upon the whole a very increasing progression. Now, mixtures of these two substances will, as may be supposed, approach to the less or the greater of these progressions, according as they are compounded of more spirit or more water, while their total expansion will be greater, according as more spirit enters into their composition; but the exact quantity of the expansion, as well as the law of progression, in all of them, can be determined only by trials. These were, therefore, the two other principal objects to be ascertained by experiment.

The person engaged to make these experiments was Dr. Dollfuss, an ingenious Swiss gentleman then in London, who had distinguished himself by several publications on chemical subjects. As he could not conveniently get the quantity of spirit he wanted lighter than 825, at 60° Fahrenheit, he fixed upon this strength as the standard for alcohol.

These experiments of Dr. Dollfuss were repeated by Mr. Gilpin, clerk of the Royal Society; and as the deductions in this account will be taken chiefly from that last set of experiments, it is proper here to describe minutely the method observed by Mr. Gilpin in his operation. This naturally resolves itself into two parts: the way of making the mixtures, and the way of ascertaining their specific gravity.

1. The mixtures are made by weight, as the only accurate method of fixing the proportions. In fluids of such very unequal expansions by heat as water and alcohol, if measures had been employed, increasing or decreasing in regular proportions to each other, the proportions of the masses would have been sensibly irregular: now the latter was the object in view, namely to determine the real quantity of spirit in any given mixture, abstracting the consideration of its temperature. Besides, if the proportions had been taken by measure, a different mixture should have been made at every different degree of heat. But the principal consideration was, that with a very nice balance, such as was employed on this occasion, quantities can be determined to much greater exactness by weight than by any practicable way of measurement. The proportions were therefore always taken by weight. A phial being provided of such a size as that it should be nearly full with the mixture, was made perfectly clean and dry, and being counterpoised, as much of the pure spirit as appeared necessary was poured into it. The weight of this spirit was then ascertained, and the weight of distilled water required to make a mixture of the intended proportions was calculated. This quantity of water was then added, with all the necessary care, the last portions being put in by means of a well-known instrument, which is composed of a small dish terminating in a tube drawn to a fine point: the top of the dish being covered with the thumb, the liquor in it is prevented from running out through the tube by the pressure of the atmosphere, but instantly begins to issue by drops, or a very small stream, upon raising the thumb. Water being thus introduced into the phial, till it exactly counterpoised the weight, which [illegible] been previously computed, was put into the opposite scale, the phial was shaken, and [illegible] stopped with its glass stopple, over which [illegible] was tied very tight to prevent evaporation. The mixture was used till it had remained [illegible] phial at least a month, for the full process to have taken place; and it was always well shaken before it was poured out to have its specific gravity tried.

2. There are two common methods of taking the specific gravity of fluids; one by finding the weight which a solid body loses by being immersed in them; the other, by filling a contrived vessel with them, and ascertaining the number of weight it acquires. In both cases a standard must have been previously taken, which is usually distilled water; namely, in the first method, by finding the weight lost by the solid body in water; and in the second method, the weight of the vessel filled with water. The latter was preferred, for the following reasons:—

When a ball of glass, which is the [illegible] kind of solid body, is weighed in any spirituous or watery fluid, the adhesion of the fluid occasions some inaccuracy, and renders the balance comparatively sluggish. To what degree this effect proceeds is uncertain; but from some experiments made by Mr. Gilpin with that view it appears to be very sensible. Moreover, in this method, a large surface must be exposed to the air during the operation of weighing, which, especially in the higher temperatures, would give occasion to such an evaporation as to alter essentially the strength of the mixture. It seems also as if the temperature of the fluid under trial could be determined more exactly in the method of filling a vessel, than in the other: for the fluid cannot well be stirred while the ball to be weighed remains immersed in it; and, as every time must necessarily be spent in the weighing, the change of heat which takes place during that period will be unequal through the mass, and may occasion a sensible error. It is true, on the other hand, that in the method of filling a vessel the temperature could not be ascertained with the utmost precision, because the neck of the vessel employed, containing about ten grains, was filled up to the mark with spirit not exactly of the same temperature, as will be explained presently: but this error, it is supposed, will by no means equal the other, and the whole quantity of it may be estimated very nearly. Finally, it was much easier to bring the fluid to any given temperature when it was in a vessel to be weighed, than when it was to have a solid body weighed in it; because in the former case the quantity was smaller, and the vessel containing it more manageable, being readily heated with the hand or warm water, and cooled with cold water: and the very circumstance, that not much of the fluid was not required, proved a material convenience. The particular disadvantage in the method of weighing in a vessel is the difficulty of filling it with extreme accuracy; but when the vessel is judiciously and neatly marked, the error of filling, will, with due care, be exceedingly minute. By several repe-

of the same experiments, Mr. Gilpin seemed to bring it within the 1-15000th part of the whole weight.

The above-mentioned considerations induced Dr. Blagden, as well as the gentlemen employed in the experiments, to give the preference to weighing the fluid itself; and that was accordingly the method practised both by Dr. Dollfuss and Mr. Gilpin in their operations.

The vessel chosen as most convenient for the purpose was a hollow glass ball, terminating in a neck of small bore. That which Dr. Dollfuss used held 5800 grains of distilled water; but as the balance was so extremely accurate, it was thought expedient, upon Mr. Gilpin's repetition of the experiments, to use one of only 2965 grains capacity, as admitting the heat of any fluid contained in it to be more nicely determined. The ball of this vessel, which may be called the weighing bottle, measured about 2.8 inches in diameter, and was spherical, except a slight flattening on the part opposite to the neck, which served as a bottom for it to stand upon. Its neck was formed of a portion of a barometer tube, .25 of an inch in bore, and about 1½ inch long; it was perfectly cylindrical, and, on its outside, very near the middle of its length, a fine circle or ring was cut round it with a diamond, as the mark to which it was to be filled with the liquor. This mark was made by fixing the bottle in a lathe, and turning it round with great care, in contact with the diamond. The glass of this bottle was not very thick; it weighed 916 grains, and with its silver cap 936.

When the specific gravity of any liquor was to be taken by means of this bottle, the liquor was first brought nearly to the required temperature, and the bottle was filled with it up to the beginning of the neck only, that there might be room for shaking it. A very fine and sensible thermometer was then passed through the neck of the bottle into the contained liquor, which showed whether it was above or below the intended temperature. In the former case the bottle was brought into colder air, or even plunged for a moment into cold water; the thermometer in the mean time being frequently put into the contained liquor, till it was found to sink to the right point. In like manner, when the liquor was too cold, the bottle was brought into warmer air, immersed in warm water, or more commonly held between the hands, till upon repeated trials with the thermometer the just temperature was found. It will be understood, that during the course of this heating or cooling, the bottle was very frequently shaken between each immersion of the thermometer; and the top of the neck was kept covered, either with the finger, or a silver cap made on purpose, as constantly as possible. Hot water was used to raise the temperature only in heats of 80° and upwards, inferior heats being obtained by applying the hands to the bottle: when the hot water was employed, the ball of the bottle was plunged into it, and again quickly lifted out, with the necessary shaking interposed, as often as was necessary for communicating the required heat to the liquor; but care was taken to wipe the bottle dry after each immersion, before it was shaken, lest any adhering moisture might by accident get into it. The liquor having by these means been brought to the desired temperature, the next operation was to fill up the bottle exactly to the mark upon the neck, which was done by some of the same liquor, by means of a glass funnel with a very small bore. Mr. Gilpin endeavoured to get that portion of the liquor which was employed for this purpose, pretty nearly to the temperature of the liquor contained in the bottle; but, as the whole quantity to be added never exceeded ten grains, a difference of ten degrees in the heat of that small quantity, which is more than it ever amounted to, would have occasioned an error of only 1-30th of a degree in the temperature of the mass. Enough of the liquor was put in to fill the neck rather above the mark, and the superfluous quantity was then absorbed to great nicety, by bringing into contact with it the fine point of a small roll of blotting paper. As the surface of the liquor in the neck would be always concave, the bottom or centre of this concavity was the part made to coincide with the mark round the glass; and in viewing it, care was taken that the near and opposite sides of the mark should appear exactly in the same line, by which means all parallax was avoided. A silver cap, which fitted tight, was then put upon the neck to prevent evaporation; and the whole apparatus was in that state laid in the scale of the balance, to be weighed with all the exactness possible.

The spirit employed by Mr. Gilpin was furnished to him by Dr. Dollfuss, under whose inspection it had been rectified from rum supplied by government. Its specific gravity, at 60 degrees of heat, was .82514. It was first weighed pure, in the above-mentioned bottle, at every five degrees of heat from 30 to 100 inclusively. Then mixtures were formed of it and distilled water, in every proportion, from 1-20th of the water to equal parts of water and spirit; the quantity of water added being successively augmented, in the proportion of five grains to one hundred of the spirit; and these mixtures were also weighed in the bottle, like the pure spirit, at every five degrees of heat. The numbers hence resulting are delivered in the following table; where the first column shows the degrees of heat; the second gives the weight of the pure spirit contained in the bottle at those different degrees; the third gives the weight of a mixture in the proportions of 100 parts by weight of that spirit to 5 of water, and so on successively till the water is to the spirit as 100 to 5. They are the mean of three several experiments at least, as Mr. Gilpin always filled and weighed the bottle over again that number of times, if not oftener. The heat was taken at the even degree, as shewn by the thermometer, without any allowance in the first instance, because the coincidence of the mercury with a division can be perceived more accurately than any fraction can be estimated; and the errors of the thermometers, if any, it was supposed would be less upon the grand divisions of 5 degrees than in any others It must be observed, that Mr. Gilpin used the same mixture throughout all the different temperatures, heating

it up from 30° to 100°; hence some small error in its strength may have been occasioned in the higher degrees, by more spirit evaporating than water: but this, it is believed, must have been trifling, and greater inconvenience would probably have resulted from interposing a fresh mixture.

The precise specific gravity of the pure spirit employed was .82514; but to avoid an inconvenient fraction, it is taken, in constructing the table of specific gravities, as .825 only, a proportional deduction being made from all the other numbers. Thus the following table gives the true specific gravity, at the different degrees of heat, of a pure rectified spirit, the specific gravity of which at 60° is .825, together with the specific gravities of different mixtures of it with water, at those different temperatures.

REAL SPECIFIC GRAVITY AT THE DIFFERENT TEMPERATURES.

Heat.	The pure spirit.	100 grains of spirit to 5 gr. of water.	100 grains of spirit to 10 gr. of water.	100 grains of spirit to 15 gr. of water.	100 grains of spirit to 20 gr. of water.	100 grains of spirit to 25 gr. of water.	100 grains of spirit to 30 gr. of water.	100 grains of spirit to 35 gr. of water.	100 grains of spirit to 40 gr. of water.	100 grains of spirit to 45 gr. of water.	100 grains of spirit to 50 gr. of water.
30°	.83896	.84995	.85957	.86825	.87585	.88282	.88921	.89511	.90054	.90558	.91023
35	83672	84769	85729	86587	87357	88059	88701	89294	89839	90345	90811
40	83445	84539	85507	86361	87184	87838	88481	89073	89617	90127	90596
45	83214	84310	85277	86131	86905	87613	88255	88849	89396	89909	90380
50	82977	84076	85042	85902	86676	87384	88030	88626	89174	89684	90160
55	82736	83834	84802	85664	86441	87150	87796	88393	88945	89458	89933
60	82500	83599	84568	85430	86208	86918	87569	88169	88720	89232	89707
65	82262	83362	84334	85193	85976	86686	87337	87938	88490	89006	89479
70	82023	83124	84092	84951	85736	86451	87105	87705	88254	88773	89252
75	81780	82878	83851	84710	85496	86212	86864	87466	88018	88538	89018
80	81530	82631	83603	84467	85248	85966	86622	87228	87776	88301	88781
85	81291	82396	83371	84243	85036	85757	86411	87021	87590	88120	88609
90	81044	82150	83126	84001	84797	85518	86172	86787	87360	87889	88376
95	80794	81900	82877	83753	84550	85272	85928	86542	87114	87654	88146
100	80548	81657	82639	83513	84038	85031	85688	86302	86879	87421	87915

Heat.	100 grains of spirit to 55 gr. of water.	100 grains of spirit to 60 gr. of water.	100 grains of spirit to 65 gr. of water.	100 grains of spirit to 70 gr. of water.	100 grains of spirit to 75 gr. of water.	100 grains of spirit to 80 gr. of water.	100 grains of spirit to 85 gr. of water.	100 grains of spirit to 90 gr. of water.	100 grains of spirit to 95 gr. of water.	100 grains of spirit to 100 gr. of water.
30°	.91449	.91847	.92217	.92563	.92889	.93911	.93474	.93741	.93991	.94222
35	91241	91640	92009	92355	92680	92986	93274	93541	93790	94025
40	91026	91428	91799	92151	92476	92783	93072	93341	93592	93827
45	90812	91211	91584	91937	92264	92570	92859	93131	93382	93621
50	90596	90997	91370	91723	92051	92358	92647	92919	93177	93419
55	90367	90768	91144	91502	91837	92145	92436	92707	92963	93208
60	90144	90549	90927	91287	91622	91933	92225	92499	92758	93002
65	89920	90328	90707	91066	91400	91715	92010	92283	92546	92794
70	89695	90104	90484	90847	91181	91493	91793	92069	92333	92580
75	89464	89872	90252	90617	90952	91270	91569	91849	92111	92364
80	89225	89639	90021	90385	90723	91046	91340	91622	91891	92142
85	89043	89460	89843	90209	90558	90882	91186	91465	91729	91969
90	88817	89230	89617	89988	90342	90668	90967	91248	91511	91751
95	88588	89003	89390	89763	90119	90443	90747	91029	91290	91531
100	88357	88769	89158	89536	89889	90215	90522	90805	91066	91310

Heat.	95 grains of spirit to 100 gr. of water.	90 grains of spirit to 100 gr. of water.	85 grains of spirit to 100 gr. of water.	80 grains of spirit to 100 gr. of water.	75 grains of spirit to 100 gr. of water.	70 grains of spirit to 100 gr. of water.	65 grains of spirit to 100 gr. of water.	60 grains of spirit to 100 gr. of water.	55 grains of spirit to 100 gr. of ater.	50 grains of spirit to 100 gr. of water.
30°	.94447	.94675	.94920	.95173	.95429	.95681	.95944	.96209	.96470	.96719
35	94249	94484	94734	94988	95246	95502	95772	96048	96315	96579
40	94058	94295	94547	94802	95060	95328	95602	95879	96159	96434
45	93860	94096	94348	94605	94871	95143	95423	95705	95993	96280
50	93658	93897	94149	94414	94683	94958	95243	95534	95831	96126
55	93452	93696	93948	94213	94486	94767	95057	95357	95662	95966
60	93247	93493	93749	94018	94296	94579	94876	95181	95493	95804
65	93040	93285	93546	93822	94099	94388	94689	95000	95318	95635
70	92828	93076	93337	93616	93898	94193	94500	94813	95139	95469
75	92613	92865	93132	93413	93695	93989	94301	94623	94957	95292
80	92393	92646	92917	93201	93488	93785	94102	94431	94768	95111

Heat.	45 grains of spirit to 100 gr. of water.	40 grains of spirit to 100 gr. of water.	35 grains of spirit to 100 gr. of water.	30 grains of spirit to 100 gr. of water.	25 grains of spirit to 100 gr. of water.	20 grains of spirit to 100 gr. of water.	15 grains of spirit to 100 gr. of water.	10 grains of spirit to 100 gr. of water.	5 grains of spirit to 100 gr. of water.
30°	.96967	.97200	.97418	.97635	.97860	.98108	.98412	.98804	.99334
35	96840	97086	97319	97556	97801	98076	98397	98804	99344
40	96706	96967	97220	97472	97737	98033	98373	98795	99345
45	96563	96840	97110	97384	97666	97980	98338	98774	99338
50	96420	96708	96995	97284	97589	97920	98293	98745	99316
55	96272	96575	96877	97181	97500	97847	98239	98702	99284
60	96122	96437	96752	97074	97410	97771	98176	98654	99244
65	95962	96288	96620	96959	97309	97688	98106	98594	99194
70	95802	96143	96484	96836	97203	97596	98028	98527	99134
75	95638	95987	96344	96708	97086	97495	97943	98454	99066
80	95467	95826	96192	96568	96963	97385	97845	98367	98991

From this table, when the specific gravity of any spirituous liquor is ascertained, it will be easy to find the quantity of rectified spirit of the above-mentioned standard, contained in any given quantity of it, either by weight or measure.

Dr. Blagden concludes this part of the report with observing, that as the experiments were made with pure spirit and water, if any extraneous substances are contained in the liquor to be tried, the specific gravity in the tables will not give exactly the proportions of water and spirit in it. The substances likely to be found in spirituous liquors, where no fraud is suspected, are essential oils, sometimes empyreumatic, mucilaginous, or extractive matter, and perhaps some saccharine matter. The effect of these, in the course of trade, seems to be hardly such as would be worth the cognizance of the excise, nor could it easily be reduced to certain rules. Essential and empyreumatic oils are nearly of the same specific gravity as spirit, in general rather lighter, and therefore, notwithstanding the actual penetration, will probably make little change in the specific gravity of any spirituous liquor in which they are dissolved. The other substances are all heavier than spirit; the specific gravity of common gum being 1.482, and of sugar 1.063, according to the tables of M. Brisson. The effect of them therefore will be to make spirituous liquors appear less strong than they really are. An idea was once entertained of endeavouring to determine this matter with some precision; and accordingly Dr. Dollfuss evaporated 1000 grains of brandy, and the same quantity of rum, to dryness; the former left a residuum of 40 grains, the latter only of 8½ grains. The 40 grains of residuum from the brandy, dissolved again in a mixture of 100 of spirit, with 50 of water, increased its specific gravity .00041; hence the effect of this extraneous matter upon the specific gravity of the brandy containing it, would be to increase the fifth decimal by six nearly, equal to what would indicate, in the above-mentioned mixture, about one seventh of a grain of water more than the truth, to 100 of spirit; a quantity much too minute for the consideration of government.

The strength of spirit is determined, according to law, by Sykes's hydrometer; but as many dealers use Dicas's, we shall describe it here, and the former under DISTILLATION.

It consists of a light copper ball, terminating below with a ballast bottom, and above with a thin stem, divided into ten parts. The upper extremity of the stem is pointed, to receive the little brass poises, or discs, having each a hole in its centre. These poises are numbered 0, 10, 20, 30, &c. up to 350, which is the lightest of the series. The intermediate units are given by the subdivisions on the stem. A graduated ivory scale, with a sliding rule and thermometer, accompanies the hydrometer, to make the correction of temperature. The first thing in using this instrument is to plunge the thermometer into a glass cylinder containing the spirits to be tried. The sliding rule has then the degree of temperature indicated, moved opposite to zero. The hydrometer is now placed in the liquid, and such a poise is put on as to submerge a portion of the stem. The weight, added to the number on the stem, gives a sum, opposite to which on the scale we find a quantity by which the particular spirit may exceed or fall short of proof. Thus, if it mark 20 under proof, it signifies that every 100 gallons of that spirit would require to have 20 gallons of water abstracted from it to bring it up to proof. If it mark 10 over proof, we learn that every 100 gallons contain too little water by 10 gallons. When the thermometric degree of 60° is put opposite to zero, then the weights and value of the spirits have the following relations on the scale.

102.5	denotes 20 under proof
122.0	10
143.5	Proof
167.	10 over proof
193.	20
221.	30 over proof
251.	40
284.5	50
322.5	60
350.5	Alcohol.

There is, besides, an upper line on the scale, which exhibits the relation of spirit to water reckoned unity. Thus, above 10 per cent over proof in the second line, we find in the upper line 8. From which we learn, that 8 of that spirit by bulk, will take 1 of water to bring it down to proof. At 60° Fah. we find that 10 over

proof, on Dicas, corresponds to specific gravity 0.9085.

3½ over proof to	0.9169
Proof,	0.9218.

Now, by Gilpin's tables, this indicates a compound of 100 grains of alcohol 0.825, and 85 grains of water. But by Lowitz's table in Crell's Annals, the above specific gravity corresponds to 48 alcohol of 0.791 at the temperature of 68°, united to 52 of water, and cooled down to 60. Equal weights of that strong alcohol and water, give at 60°, a specific gravity of 0.9175. By the Act of Parliament of 1762, the specific gravity of proof was fixed at 0.916. It is at present to water as 12 to 13, or=0.923. See DISTILLATION.

For the following table of the quantity of absolute alcohol, in spirits of different densities, we are indebted to Lowitz.

100 parts.		Sp. gravity.		100 parts.		Sp. gravity.		100 parts.		Sp. gravity.	
Alc.	Wat.	At 68°.	At 60°.	Alc.	Wat.	At 68°.	At 60°.	Alc.	Wat.	At 68°.	At 60°.
100	0	0.791	0.796	66	34	0.877	0.881	32	68	0.952	0.955
99	1	0.794	0.798	65	35	0.880	0.883	31	69	0.954	0.957
98	2	0.797	0.801	64	36	0.882	0.886	30	70	0.956	0.958
97	3	0.800	0.804	63	37	0.885	0.889	29	71	0.957	0.960
96	4	0.803	0.807	62	38	0.887	0.891	28	72	0.959	0.962
95	5	0.805	0.809	61	39	0.889	0.893	27	73	0.961	0.963
94	6	0.808	0.812	60	40	0.892	0.896	26	74	0.963	0.965
93	7	0.811	0.815	59	41	0.894	0.898	25	75	0.965	0.967
92	8	0.813	0.817	58	42	0.896	0.900	24	76	0.966	0.968
91	9	0.816	0.820	57	43	0.899	2.902	23	77	0.968	0.970
90	10	0.818	0.822	56	44	0.901	0.904	22	78	0.970	0.972
89	11	0.821	0.825	55	45	0.903	0.906	21	79	0.971	0.973
88	12	0.823	0.827	54	46	0.905	0.908	20	80	0.973	0.974
87	13	0.826	0.830	53	47	0.907	0.910	19	81	0.974	0.975
86	14	0.828	0.832	52	48	0.909	0.912	18	82	0.976	0.977
85	15	0.831	0.835	51	49	0.912	0.915	17	83	0.977	0.978
84	16	0.834	0.838	50	50	0.914	0.917	16	84	0.978	0.979
83	17	0.836	0.840	49	51	0.917	0.920	15	85	0.980	0.981
82	18	0.839	0.843	48	52	0.919	0.922	14	86	0.981	0.982
81	19	0.842	0.846	47	53	0.921	0.924	13	87	0.983	0.984
80	20	0.844	0.848	46	54	0.923	0.926	12	88	0.985	0.986
79	21	0.847	0.851	45	55	0.925	0.928	11	89	0.986	0.987
78	22	0.849	0.853	44	56	0.927	0.930	10	90	0.987	0.988
77	23	0.851	0.855	43	57	0.930	0.933	9	91	0.288	0.989
76	24	0.853	0.857	42	58	0.932	0.935	8	92	0.989	0.990
75	25	0.856	0.860	41	59	0.934	0.937	7	93	0.991	0.991
74	26	0.859	0.863	40	60	0.936	0.939	6	94	0.992	0.992
73	27	0.861	0.865	39	61	0.938	0.941	5	95	0.994	
72	28	0.863	0.867	38	62	0.940	0.943	4	96	0.995	
71	29	0.866	0.870	37	63	0.942	0.945	3	97	0.997	
70	30	0.868	0.872	36	64	0.944	0.947	2	98	0.998	
69	31	0.870	0.874	35	65	0.946	0.949	1	99	0.999	
68	32	0.872	0.878	34	66	0.948	0.951	0	100	1.000	
67	33	0.875	0.879	33	67	0.950	0.953				

The most remarkable characteristic property of alcohol, is its solubility or combination in all proportions with water, a property possessed by no other combustible substance, except the acetic spirit obtained by distilling the dry acetates. When it is burned in a chimney which communicates with the worm-pipe of a distilling apparatus, the product, which is condensed, is found to consist of water, which exceeds the spirit in weight about one-eighth part; or more accurately, 100 parts of alcohol, by combustion, yield 136 of water. If alcohol be burned in close vessels with vital air, the product is found to be water and carbonic acid. Whence it is inferred that alcohol consists of hydrogen, united either to carbonic acid, or its acidifiable base; and that the oxygen uniting on the one part with the hydrogen, forms water; and on the other with the base of the carbonic acid forms that acid.

The most exact experiments on this subject are those recently made by M. de Saussure. The alcohol he used had, at 62.8°, a specific gravity of 0.8302; and by Richter's proportions, consists of 13.8 water, and 86.2 of absolute alcohol. The vapour of alcohol was made to traverse a

narrow porcelain tube ignited, from which the products passed along a glass tube about six feet in length, refrigerated by ice. A little charcoal was deposited in the porcelain, and a trace of oil in the glass tube. The resulting gas being analyzed in an exploding eudiometer, with oxygen, was found to resolve itself into carbonic acid and water. Three volumes of oxygen disappeared for every two volumes of carbonic acid produced: a proportion which obtains in the analysis by oxygenation of olefiant gas. Now, as nothing resulted but a combustible gas of this peculiar constitution, and condensed water equal to $\frac{1800}{1484}$ of the original weight of the alcohol, we may conclude that vapour of water and olefiant gas are the sole constituents of alcohol. Subtracting the 13.8 per cent of water in the alcohol at the beginning of the experiment, the absolute alcohol of Richter will consist of 13.7 hydrogen, 51.98 carbon, and 34.32 oxygen. M. Gay Lussac infers, that alcohol, in vapour, is composed of one volume of olefiant gas, and one volume of the vapour of water, condensed by chemical affinity into one volume.

The sp. gr. of olefiant gas is	0.97804
Of aqueous vapour is	0.62500
Sum =	1.60304
And alcoholic vapour is =	1.6133

These numbers approach nearly to those which would result from two prime equivalents of olefiant gas, combined with one of water; or ultimately, three of hydrogen, two of carbon, and one of oxygen.

A considerable number of the uses of this fluid, as a menstruum, will pass under our observation in the various articles of this work. The mutual action between alcohol and acids produces a light, volatile, and inflammable substance, called æther. Pure alkalis unite with spirit of wine, and form alkaline tinctures. Few of the neutral salts unite with this fluid, except such as contain ammonia. The carbonated fixed alkalis are not soluble in it.

From the strong attraction which exists between alcohol and water, it unites with this last in saline solutions, and in most cases precipitates the salt. This is a pleasing experiment, which never fails to surprise those who are unacquainted with chemical effects. If, for example, a saturated solution of nitre in water be taken, and an equal quantity of strong spirit of wine be poured upon it, the mixture will constitute a weaker spirit, which is incapable of holding the nitre in solution; it therefore falls to the bottom instantly, in the form of minute crystals.

The degrees of solubility of many neutral salts in alcohol have been ascertained by experiments made by Macquer, of which an account is published in the memoirs of the Turin Academy.—The alcohol he employed was carefully freed from superabundant water by repeated rectifications, without addition of any intermediate substance. The salts employed in his experiments were previously deprived of their water of crystallization by a careful drying. He poured into a matrass, upon each of the salts thus prepared, half an ounce of his alcohol, and set the matrass in a sand bath. When the spirit began to boil, he filtrated it while it was hot, and left it to cool, that he might observe the crystallizations which took place. He then evaporated the spirit, and weighed the saline residuums. He repeated these experiments a second time, with this difference, that instead of evaporating the spirit in which the salt had been digested, he set fire to it in order to examine the phenomena which its flame might exhibit. The principal results of his experiments are subjoined.

Quantity of grains.	Salts soluble in 200 grains of spirit.	Peculiar phenomena of the flame.
4	Nitrate of potash	Flame larger, higher, more ardent, yellow, and luminous.
5	Muriate of potash	Large, ardent, yellow, and luminous.
0	Sulphate of soda	Considerably red.
15	Nitrate of soda	Yellow, luminous, detonating.
0	Muriate of soda	Larger, more ardent, and reddish.
0	Sulphate of ammonia	None.
108	Nitrate of ammonia	Whiter, more luminous.
24	Muriate of ammonia	None.
288	Nitrate of lime	Larger, more luminous, red, and decrepitating.
288	Muriate of lime	Like that of the calcareous nitre.
84	Nitrate of silver	None.
204	Muriate of mercury	Large, yellow, luminous, and decrepitating.
4	Nitrate of iron	Red and decrepitating.
36	Muriate of iron	More white, luminous, and sparkling.
48	Nitrate of copper	More white, luminous, and green; much smoke. The saline residuum became black and burnt.
48	Muriate of copper	Fine green, white, and red fulgurations.

He also accompanies the relation of his experiments with many judicious reflections.

The alcohol he employed in these above mentioned, had a specific gravity of 0.840. Alcohol affords frequently a valuable agent for separating salts from each other. We shall therefore introduce the following additional table, derived from the experiments of Wenzel:—

100 parts of alcohol dissolve of

		Temp.	
Nitrate of Cobalt,	at	54°.5	100 parts
Copper,		54°.5	100
Alumina,		54°.5	100
Lime,			125
Magnesia,		180.5	290
Muriate of Zinc,		54°.5	100

Muriate of Alumina,	54.5 temp.	100 parts
Magnesia,	180.5	547
Iron,	180.5	100
Copper,	180.5	100
Acetate of Lead,	154°.5	100

At the boiling point, 100 parts of alcohol dissolve of muriate of lime 100 parts

Nitrate of ammonia,	89
Corrosive sublimate,	88.8
Succinic acid,	74.0
Acetate of soda,	46.5
Nitrate of silver,	41.7
Refined sugar,	24.6
Boracic acid,	20.0
Nitrate of soda,	9.6
Acetate of copper,	7.5
Muriate of ammonia,	7.1
Superarseniate of potash,	3.75
Oxalate of potash,	2.92
Nitrate of potash,	2.08
Muriate of potash,	2.08
Arseniate of soda,	1.58
Arsenious acid,	1.25
Tartrate of potash,	0.42

It appears from the experiments of Kirwan, that dried muriate of magnesia dissolves more abundantly in strong than in weak alcohol. 100 parts of specific gravity 0.900 dissolve 21.25; 0.848, 23.75; of 0.834, 36,25; and of 0.817, 50 parts. The same holds to a more limited extent with acetate of lime, 2.4 grains being soluble in 100 of the first alcohol, and 4.88 in 100 of the last. The other salts which he tried dissolved more sparingly in the stronger than in the weaker alcohol. The temperature of the spirit was generally 60°.

All deliquescent salts are soluble in alcohol. Alcohol holding the strontitic salts in solution, gives a flame of a rich purple. The cupreous salts and boracic acid give a green; the soluble calcareous, a reddish; the barytic, a yellowish. For the effect of other salts on the colour of flame, see a preceding table.

Kirwan also, with that accuracy which has distinguished him, has given a table of the solubility of certain salts, by means of alcohol of different densities. In these the temperature is properly noticed—

Salts employed, all deprived of their water of crystallization.	Soluble in 100 grains of Alcohol of different specific gravity.—Heat, from 50°. to 70°.				
	Sp. Gr. 0.9	Sp. Gr. 0.872	Sp. Gr. 0.848	Sp. Gr. 0.834	Sp. Gr. 0.817
	Grains.	Grains.	Grains.	Grains.	Grains.
Nitrated Potash	2.76	1.	0	0	0
——— Soda	10.5	6.	—	0.38	0
Muriated Potash	4.62	1.66	—	0.38	0
——— Soda	5.8	3.67	—	0.5	—
——— Ammonia	6.5	4.75	—	1.5	—
——— Magnesia (dried at 120°. by Kirwan)	21.25	—	23.75	36.25	50.
——— Barytes	1.	—	0.29	0.185	0.09
Ditto, ditto, crystallized	1.56	—	0.43	0.32	0.06
Acetated Lime	2.4	—	4.12	4.75	4.88

The alcohol of 0.825 has been subjected to a cold of — 91° without congealing. But Mr. Hutton has given, in the Edinburgh Encyclopædia, article Cold, an account of his having succeeded in solidifying it by a cold of — 110°. The alcohol he employed had a density of 0.798 at 60°. His process has been kept secret. The boiling point of alcohol of 0.825 is 176°. Alcohol of 0.810 boils at 173°.5. For the force of its vapour at different temperatures, and its specific heat, see CALORIC, and the Tables of VAPOUR.

When potassium and sodium are put in contact with the strongest alcohol, hydrogen is evolved. When chlorine is made to pass through alcohol in a Woolfe's apparatus, there is a mutual action. Water, an oily looking substance, muriatic acid, a little carbonic acid, and carbonaceous matter, are the products. This oily substance does not redden turnsole, though its analysis by heat shews it to contain muriatic acid. It is white, denser than water, has a cooling taste analogous to mint, and a peculiar, but not an ethereous odour. It is very soluble in alcohol, but scarcely in water. The strongest alkalis hardly operate on it

It was at one time maintained, that alcohol did not exist in wines, but was generated and evolved by the heat of distillation. On this subject M. Gay Lussac made some decisive experiments. He agitated wine with litharge in fine powder, till the liquid became as limpid as water, and then saturated it with subcarbonate of potash. The alcohol immediately separated and floated on the top. He distilled another portion of wine in vacuo, at 59° Fahr. a temperature

considerably below that of fermentation. Alcohol came over. Mr. Brande proved the same position by saturating wine with subacetate of lead, and adding potash.

MM. Adam and Duportal have substituted for the redistillations used in converting wine or beer into alcohol, a single process of great elegance. From the capital of the still a tube is led into a large copper recipient. This is joined by a second tube to a second recipient, and so on through a series of four vessels, arranged like a Woolfe's apparatus. The last vessel communicates with the worm of the first refrigeratory.—This, the body of the still, and the two recipients nearest it, are charged with the wine or fermented liquor. When ebullition takes place in the still, the vapour issuing from it soon communicates the boiling temperature to the liquor in the two recipients. From these the volatilized alcohol will rise and pass into the third vessel, which is empty. After communicating a certain heat to it, a portion of the finer or less condensable spirit will pass into the fourth, and thence, in a little, into the worm of the first refrigeratory. The wine round the worm will likewise acquire heat, but more slowly. The vapour that in that event may pass uncondensed through the first worm, is conducted into a second, surrounded with cold water. Whenever the still is worked off, it is replenished by a stop-cock from the nearest recipient, which, in its turn, is filled from the second, and the second from the first worm-tub. It is evident, from this arrangement, that by keeping the third and fourth recipients at a certain temperature, we may cause alcohol, of any degree of lightness, to form directly at the remote extremity of the apparatus. The utmost economy of fuel and time is also secured, and a better flavoured spirit is obtained. The arrière gout of bad spirit can scarcely be destroyed by infusion with charcoal and redistillation. In this mode of operating, the taste and smell are excellent from the first. Several stills on the above principle have been constructed at Glasgow, for the West India distillers, and have been found extremely advantageous. The excise laws do not permit their employment in the home trade.

If sulphur in sublimation meet with the vapour of alcohol, a very small portion combines with it, which communicates a hydro-sulphurous smell to the fluid. The increased surface of the two substances appears to favour the combination. It had been supposed, that this was the only way in which they could be united; but M. Favre has lately asserted, that having digested two drams of flower of sulphur in an ounce of alcohol, over a gentle fire not sufficient to make it boil, for twelve hours, he obtained a solution that gave twenty-three grains of precipitate. A similar mixture left to stand for a month in a place exposed to the solar rays, afforded sixteen grains of precipitate; and another, from which the light was excluded, gave thirteen grains. If alcohol be boiled with one-fourth of its weight of sulphur for an hour, and filtered hot, a small quantity of minute crystals will be deposited on cooling; and the clear fluid will assume an opaline hue on being diluted with an equal quantity of water, in which state it will pass the filter, nor will any sediment be deposited for several hours. The alcohol used in the last-mentioned experiment did not exceed .840.

Phosphorus is sparingly soluble in alcohol, but in greater quantity by heat than in cold. The addition of water to this solution affords an opaque milky fluid, which gradually becomes clear by the subsidence of the phosphorus.

Earths seem to have scarcely any action upon alcohol. Quicklime, however, produces some alteration in this fluid, by changing its flavour, and rendering it of a yellow colour. A small portion is probably taken up.

Soaps are dissolved with great facility in alcohol, with which they combine more readily than with water. None of the metals, or their oxides, are acted upon by this fluid. Resins, essential oils, camphor, bitumen, and various other substances, are dissolved with great facility in alcohol, from which they may be precipitated by the addition of water From its property of dissolving resins, it becomes the menstruum of one class of varnishes. See VARNISH.

Camphor is not only extremely soluble in alcohol, but assists the solution of resins in it. Fixed oils, when rendered drying by metallic oxides, are soluble in it, as well as when combined with alkalis.

Wax, spermaceti, biliary calculi, urea, and all the animal substances of a resinous nature, are soluble in alcohol; but it curdles milk, coagulates albumen, and hardens the muscular fibre and coagulum of the blood.

The uses of alcohol are various. As a solvent of resinous substances and essential oils, it is employed both in pharmacy and by the perfumer. When diluted with an equal quantity of water, constituting what is called proof spirit, it is used for extracting tinctures from vegetable and other substances, the alcohol dissolving the resinous parts, and the water the gummy. From giving a steady heat without smoke when burnt in a lamp, it was formerly much employed to keep water boiling on the tea-table. In thermometers for measuring great degrees of cold, it is preferable to mercury, as we cannot bring it to freeze. It is in common use for preserving many anatomical prepartions, and certain subjects in natural history; but to some it is injurious, the molluscæ for instance, the calcareous covering of which it in time corrodes. It is of considerable use too in chemical analysis, as appears under the different articles to which it is applicable.

From the great expansive power of alcohol, it has been made a question, whether it might not be applied with advantage in the working of steam-engines. From a series of experiments made by Betancourt, it appears, that the steam of alcohol has, in all cases of equal temperature, more than double the force of that of water; and that the steam of alcohol at 174° Fahr. is equal to that of water at 212°: thus there is a considerable diminution of the consumption of fuel, and where this is so expensive as to be an object of great importance, by contriving the machinery so as to prevent the alcohol from being lost, it may possibly at some future time be used with advantage, if some other fluid of great ex-

pansive power, and inferior price, be not found more economical.

It remains for us to mention the chemical nature of alcohol, and the appearances which attend its decomposition. The remarkable circumstance of a vegetable product burning away, without the smallest trace of smoke or fuliginous vapour of any kind, had long engaged the attention of chemists. Junker and Boerhaave threw much light on the subject by remarking, that the product of the combustion of alcohol was always a quantity of pure water; and this fact was more fully illustrated by the experiments of the illustrious Lavoisier. The ready evaporation of alcohol, and the ease with which its vapour will fill a large vessel, renders it a dangerous experiment to submit a considerable quantity at once to combustion, in oxygen gas confined in any vessel; but this difficulty was surmounted in an ingenious manner. His first experiment was simply to ascertain the quantity of water yielded by the combustion of a given weight of alcohol. This was performed in the following apparatus, contrived by M. Meusnier. See CHEMISTRY, plate I. fig. 1.

E F is a worm, contained in the cooler A B C D. To the upper part of the worm E, the chimney G H is fixed, which is composed of two tubes, one within the other, the inner of which is a continuation of the worm, the outer one is a case of tin plate, which surrounds it at about an inch distance, and the interval is filled with sand. At the inferior extremity K of the inner tube, a glass tube is fixed, to which is adapted the Argand lamp L M, for burning alcohol.

Things being thus disposed, and the lamp being filled with a determined quantity of alcohol, it is set on fire; the water which is formed during combustion rises in the chimney K E, and, being condensed in the worm, runs out at its extremity, F, into the bottle P. The use of the outer tube G H, and of the sand between it and the inner tube, is to prevent the latter, which proceeds from the worm, from being cooled during combustion, which would occasion the water, formed by the burning, to fall back on the lamp, instead of passing on into the worm.

This apparatus, though not perfect, has the advantage of enabling the chemist to operate with larger quantities than can be admitted in the more accurate experiments on combustion, and by it, the above mentioned chemists were able to establish the important fact, that the quantity of water collected by the combustion of alcohol very sensibly exceeds the quantity of the alcohol which is consumed. The product of water must vary according to the strength of the alcohol, and the care of conducting the experiment; but it is so considerable, that from sixteen ounces of ardent spirit, Lavoisier obtained eighteen ounces and a half of pure water.—There is besides, however, a large quantity of carbonic acid produced in this experiment which escapes, and cannot be estimated by this apparatus. Some of this gas unites with the water which is collected, and causes it to precipitate lime-water.

Having thus ascertained in a general way the products of the combustion of alcohol, Lavoisier proceeded to repeat the experiment, in vessels which might determine the result with accuracy He employed, for this purpose, a large bell glass, holding from 700 to 800 cubic inches, and inverted over a mercurial trough. A small lamp, filled with a known weight of alcohol, was introduced under the glass, swimming on the surface of the mercury, and the wick was armed with a very minute portion of phosphorus. The atmospherical air within the glass was sucked out by a syphon, till the mercury rose to a certain height which was noted; and the phosphorus on the wick being then kindled by a hot iron, the spirit soon took fire. As the air within the glass would be soon consumed, and the inflammation of the spirit stopped, a constant supply of oxygen gas was sent into the glass through a syphon tube, connected with a reservoir of this gas, and which passed under the mercury into the glass where the combustion was going on. Great precaution was required not to let in more oxygen than was barely necessary to keep up the combustion; otherwise the heat, volatilizing part of the spirit, would have filled the glass with vapour of alcohol, and this mixing with the oxygen, would have suddenly exploded by the combustion. In this, as in other respects, the combustion of alcohol strikingly resembles that of pure hydrogen gas. The experiment was at last stopped by the quantity of carbonic acid generated; and on examining the results, (proper corrections being made for pressure and temperature) it was found, that 93.5 grains of alcohol and 110.32 grains of oxygen had been consumed. The products of these were 93.8 grains of carbonic acid and 106.2 grains of water, which last, therefore, exceeded by 12.7 grains the quantity of alcohol employed. From these data, and from previous experiments (wherein Lavoisier estimated, that 100 grains of oxygen take up 38.88 grains of carbon, for the production of carbonic acid gas; and that the same quantity of oxygen takes up 17.64 grains of hydrogen for the production of water,) he concluded the composition of alcohol to be the following:

Carbon	28. 5 3
Hydrogen	7. 8 7
Water already existing in the alcohol	63. 6
	100

We may observe, however, that the result of this experiment can only be considered as an approximation towards the truth, since the estimation of the component parts of alcohol here given, does not agree with that which is deduced by the same chemist, from the result of vinous fermentation. Neither is there any light thrown on the mode of union between the component parts, and their degree of oxygenation as they exist in the spirit before combustion.

Alcohol has likewise been more directly decomposed without the accession of oxygen gas. Dr. Priestley procured inflammable air by passing the electric spark through spirit of wine. But the most striking experiments on this subject, performed by this excellent philosopher, were the decomposition of spirit by passing it through red-hot tubes, both of earth and metal. He first transmitted two ounce measures of al-

cohol, reduced to vapour by boiling, through an ignited porcelain tube, and procured 1900 ounce measures of air, 'which was all inflammable without any mixture of fixed air in it, and which burned with a blue lambent flame.' (We here quote the very words of the author, which the writer of the article ALCOOL, in the Encyclopedie Methodique, has made to correspond with the experiments of Lavoisier, by adopting the following singular translation:—M. Priestley, en faisant passer de l'alcoo dans un tube d'argile rougi au feu, en a retire du gas hydrogene mélé de gaz acide carbonique.) Dr. Priestley's next experiments are still more curious, as they determine the existence of carbonaceous matter in spirit of wine. Having found interesting results from the transmission of the vapour of water through a heated copper tube, he repeated the experiments, only substituting the vapour of spirit of wine for that of water. 'In this case,' he observes, 'the vapour of the spirit had no sooner entered the hot copper tube, than I was perfectly astonished at the rapid production of air. It resembled the blowing of bellows. But I had not used four ounces of the spirit of wine before I very unexpectedly found that the tube was perforated in several places, and presently afterwards it was so far destroyed, that in attempting to remove it from the fire, it actually fell in pieces. The inside was full of a black sooty matter, resembling lamp-black.' He then varied the experiment by using earthen tubes, placing within them copper filings, and transmitting the vapour of alcohol. The copper was, as before, converted into a black friable substance, obviously produced by the addition of carbonaceous matter furnished by one part of the spirit, whilst the other part appeared in the form of a copious stream of inflammable air. It is, however, by no means the whole of the charcoal of the alcohol which is detained by the copper, for much of it escapes mixed with the inflammable air in the form of fine soot, giving the gas the appearance of a dense black cloud; and when the tube is strongly heated, this volatilized charcoal will give an uniform black coating to any balloon or large vessel in which the gas is received. Dr. Priestley found some other metals to undergo a similar change by the vapour of alcohol, but none in so striking a manner as copper. On heating some of this charcoal of copper, as he calls it, in oxygen gas, he found it to burn very readily to a certain point, after which the remainder could not be again kindled. The gas produced by the combustion was pure fixed air or carbonic acid.

The excellent Dutch chemists, of the Teylerian institution, Van Marum and colleagues, repeated Dr. Priestley's experiments with great accuracy, and found the same results in every essential particular. They employed, as well as Dr. Priestley, Wedgwood's porcelain tubes, which they inclosed in iron tubes to prevent the sudden action of the fire which is apt to crack them. One extremity of the earthen tube received a small retort in which was put the alcohol, and the other entered a metallic serpentine tube, immersed in a refrigeratory, and provided at the further end with a bottle to receive the gaseous products. In the first experiment which was performed, an ounce and a half of alcohol in vapour had been transmitted through the heated copper, and had produced about six cubic feet of inflammable air.

In the second experiment the heat was greater, and the productions of the gas more rapid. In all, the copper was reduced to a black and very friable substance, which fell to pieces between the fingers. The proportion of charcoal added to the copper by the experiments, varied at different times, apparently owing to the greater or less rapidity with which the process was conducted. Dr. Priestley had united 446 grains of charcoal to twenty-eight of copper, in one instance; and 508 to nineteen, in another; but the Dutch chemists found a much less proportion of charcoal, being only an addition of 292 grains to 748 of copper in one case, and in another, 180 of charcoal to 612 of the metal. The great difference in the result is, however, of little consequence in attempting to ascertain by these experiments the exact proportion of the component parts of alcohol, since a large part of the carbonaceous ingredient escapes the copper, and passes over into the vessels which receive the inflammable air, where it either appears in the form of a fine black soot, or remains permanently united with the hydrogen gas. M. Van Marum likewise collected, in the bottle connected with the serpentine, a quantity of nearly pure water, about equal to half the weight of the alcohol evaporated by boiling, and of the specific gravity of .996. He does not inform us of the strength of the spirit which he used. He confirmed the other part of Dr. Priesley's experiment by burning the charcoal of copper in oxygen gas, and procuring pure carbonic acid, whilst the remaining copper still retained a small portion of carbon which could not be consumed. It is worthy of remark, that the inflammable air, produced in the experiments of both these eminent chemists, was found to be not more than twice as light as common air, and it probably bears a considerable resemblance to that species of gas, termed, with great propriety, by Mr. Cruikshank, gaseous oxyd of carbon.

The vapour of alcohol transmitted through earthen tubes, forms, in particular circumstances, that singular air which has been named olefiant gas. It possesses in the highest degree the cordial, stimulating, and intoxicating qualities, of all distilled spirits, and although the less powerful and more grateful of the spirituous liquors, such as rum, brandy, &c. are more peculiarly devoted to the use of the table, the purer ardent spirit, again sufficiently diluted with water, is employed as the basis of many of the artificial cordial spirits and liquors, to which a flavour and additional taste are given by particular admixtures. Its use in medicine as a solvent for the more active parts of vegetables, under the form of tinctures, has already been mentioned; it is also employed as an external application, often with considerable success.

The highly antiseptic power of alcohol which renders it so valuable in preserving particular parts of the body, as anatomical preparations, is of great importance; as also the gentle, steady,

and uniform heat which it gives during combustion, and the absence of smoke or fuliginous vapour, which make it often a most eligible material for burning in lamps. Its uses in these respects have already been mentioned; but as a fluid for thermometers, though it has the advantage over mercury in not freezing in any known degree of cold, yet from its ready volatility in a moderate heat it cannot be depended on with any accuracy, above ninety or 100 degrees.

We refer the reader to the articles FERMENTATION, (vinous and otherwise,) DISTILLATION, and the several species of distilled spirits; in which the formation of alcohol in its progressive stages will be more fully developed.

ALCOHOL, is also a fine, impalpable powder, used by the ladies of the East as a kind of fucus. Kohol is the generic name for a substance applied to the eye-ball, on the inside of the eye-lids, in the form of a finely levigated powder. That which is employed for ornament is called al kohol or isphahany; when other ingredients, as flowers of olibanum, amber, and the like, are added, on account of some particular disorders, the kohol is distinguished by some appropriate epithet. Dr. Shaw says, that none of the women in Barbary think themselves completely dressed, until they have tinged their hair and edges of their eye-lids with al-ka-hol, the powder of lead-ore. Lady Montague also takes notice of this custom among the Eastern women, Letters, vol. ii. p. 32. This ore used at Aleppo, is the stibium of the ancients, but very different from antimony, is brought from Persia, and prepared by roasting it in a quince, an apple or a truffle, then adding a few drops of oil of almonds, it is ground to a subtile powder on a marble. The quantity of kohol consumed in the East is incredibly great. It has been said by one of their poets, in allusion to the probe used for applying the powder, and the mountains where the mineral is found, 'that the mountains have been worn away by a bodkin.' This probe or bodkin, called meel, is made of ivory, silver, or wood; it is dipped in water, and when a little of the powder has been sprinkled on it, it is applied horizontally to the eye, and the eye-lids being shut upon it, the probe is drawn between them, leaving the inside tinged, and a black rim all round the eye. The Roman satirist alludes to this custom, as well as to blackening the eye-brows;

> 'Illa supercilium madida fuligine tactum
> Oblique producit acu, pingitque tremenes
> Attollens oculos.'
>
> *Juvenal*, Sat. ii. v. 67. and Casaubon's note

Kohol is used also by men for strengthening the sight, and preventing various disorders of the eye. It is applied also to the eyes of children as soon as they are born, and renewed at intervals of a few days through the several periods of their adolescence. The use of the kohol is of very ancient date. Passages relative to it, in sacred history, may be seen in Shaw, Travels, p. 22. Harmer, Observations. vol. ii. p. 405. and Lowth's Notes on Isaiah, c. iii. v. 16. Harmer conceives that the redness of the eyes, as it is in our version, which the dying patriarch mentions in blessing Judah, Gen. xlix. 12, is to be explained by this usage. Dr. Russel observes from a passage in Xenophon, referred to by Shaw, that blackening the eyes, though a custom among the Medes, was not at that time in use among the Persians; for Cyrus, among other things, seems to have been surprised at the painted eyes of his grand-father Astyages. Cyropæd. lib. i. p. 8. See Russell's Aleppo, vol. i, p. 111. 367. ed. 1794. Perhaps from this impalpable powder the name was transferred to other subtile powders, and afterwards to spirits of wine.

ALCORAN.

ALCORAN, or AL-KORAN, from the Arabic particle al, and coran or koran, derived from the verb caroa or karoa, to read; signifying the reading; or rather, that which ought to be read: amongst the Mahommedans, the name of the book which contains the revelations and doctrines of their pretended prophet, Mahomet. By this name they entitle not only the entire book or volume of the Koran, but also any particular chapter or section of it; just as the Jews call either the whole scripture, or any part of it, by the name of Karah, or Mikra, words of the same origin and import. Besides this peculiar name, the Koran is also honoured with several appellations common to other books of scripture; as, al Farkan, from the verb foraka, to divide, or distinguish; not, as the Mahommedan doctors say, because these books are divided into chapters or sections, or distinguish between good and evil; but in the same notion as the Jews use the word perek, or pirka, from the same root, to denote a section or portion of scripture. It is also called al Moshaf, the volume, and al Kitha, the book, by way of eminence, which answers to the Biblia of the Greeks; and al Dhikr, the admonition, which name is also given to the Pentateuch and Gospel.

The Alcoran is divided into 114 larger portions of very unequal length, which we call chapters, but the Arabians sowar, in the singular sura; a word rarely used on any other occasion, and properly signifying a row, or a regular series; as a course of bricks in building, or a rank of soldiers in an army, and is the same in use and import with the sura, or tora, of the Jews; who also called the fifty-three sections of the Pentateuch, Sedarim, a word of the same signification. These chapters are not in the manuscript copies distinguished by their numerical order, but by particular titles, which are taken sometimes from a peculiar subject treated of, or person mentioned therein; usually from the first word of note, exactly in the same manner as the Jews have named their Sedarim, though the word from which some chapters are denominated be very distant, towards the middle or perhaps the end of the chapter, which seems ridiculous. But the occasion of this appears to have been, that the verse or passage where such word occurs, was, in point of time

vealed and committed to writing before the other verses of the same chapter which precede it in order; and the title being given to the chapter before it was completed, or the passages reduced to their present order, the verse from whence such title was taken did not always happen to begin the chapter. Some chapters have two or more titles, occasioned by the difference of the copies. Some of them being pretended to have been revealed at Mecca, and others at Medina, the noting this difference makes a part of the title. Every chapter is divided into smaller portions, of very unequal length also, which we customarily call verse: but the Arabic word is ayat, the same with the Hebrew ototh, and signifies signs or wonders; such as the secrets of God, his attributes, works, judgments, and ordinances, delivered in those verses; many of which have their particular titles also imposed in the same manner as those of the chapters. Besides these unequal divisions, the Mahommedans have also divided their Koran into sixty equal portions, which they call Ahzab, in the singular, Hizb, each subdivided into four equal parts; which is likewise an imitation of the Jews, who have an ancient division of their Mishna into sixty portions called Massictoth. But the Koran is more usually divided into thirty sections only, named Ajza, from the singular, Joz, each of twice the length of the former, and in like manner subdivided into four parts. These divisions are for the use of the readers of the Koran in the royal temples, or in the adjoining chapels where the emperors and great men are interred; of whom there are thirty belonging to every chapel, and each reads his section every day; so that the whole Koran is read over once a day. Next after the title, at the name of every chapter, except only the ninth, is prefixed the following solemn form, by the Mahommedans, called the Bismallah, 'in the name of the most merciful God;' which form they constantly place at the beginning of all their books and writings in general, as a peculiar mark or distinguishing characteristic of their religion, it being counted a sort of impiety to omit it. The Jews, and eastern Christians, for the same purpose, make use of similar forms. But Mahomet probably took this form from the Persian Magi, who began their books in these words, 'Benam yezdam bakshaishgher dadar;' that is, In the name of the most merciful just God. There are twenty-nine chapters of the Koran, which have this peculiarity, that they begin with certain letters of the alphabet, some with a single one, others with more. These letters the Mahommedans believe to be the peculiar mark of the Koran, and to conceal several profound mysteries; the certain understanding of which, the more intelligent confess, has not been communicated to any mortal, their prophet only excepted: notwithstanding which, some take the liberty of guessing at their meaning, by that species of cabala, called by the Jews Notarikon. There are also abrogated passages classed under three divisions; the first, where both the letter and the sense are abrogated; the second, where this is the case with the letter only; the third, where the sense, and not the letter is abrogated.

The Koran is universally allowed to be written with the utmost elegance and purity of language, in the dialect of the tribe of Koreish, the most noble and polite of all the Arabians, but with some mixture, though very rarely, of other dialects.—It is confessedly the standard of the Arabic tongue, and, as the more orthodox believe, and are taught by the book itself, inimitable by any human pen, (though some sectaries have been of another opinion,) and therefore insisted on as a permanent miracle, greater than that of raising the dead, and alone sufficient to convince the world of its divine original. And to this miracle did Mahomet himself chiefly appeal for the confirmation of his mission, publicly challenging the most eloquent men in all Arabia, which was at that time stocked with thousands, whose sole study and ambition it was to excel in elegance of style and composition, to produce even a single chapter that might be compared with it. As the composition and arrangement of words, however, admit of infinite varieties, it can never be absolutely said, that any one is the best possible. In fact, Hamzah Benahmed wrote a book against the Alcoran, with at least equal elegance; and Moselema another, which even surpassed it, and occasioned a defection of a great part of the Mussulmans. To this pomp and harmony of expression, some ascribe all the force and effect of the Alcoran, which they consider as a sort of music, equally fitted with other species of that art to ravish and amaze. In this Mahomet succeeded so well, and so strangely captivated the minds of his audience, that several of his opponents thought it the effect of witchcraft and enchantment, as he himself complains. Others have attributed the effect of the Alcoran to the frequent mention of rewards and punishments; heaven and hell occurring almost in every page. Some suppose, that the sensual pleasures of paradise, so frequently set before the imaginations of the readers of the Alcoran, were what chiefly bewitched them.

The general design of the Koran was to unite the professors of the three different religions, then followed in the populous country of Arabia, (who, for the most part, wandered without guides, the far greater number being idolaters, and the rest Jews and Christians, mostly of erroneous opinions,) in the knowledge and worship of one God; under the sanction of certain laws and ceremonies, partly of ancient, and partly of novel institution, enforced by the consideration of rewards and punishments both temporal and eternal; and to bring them all to the obedience of Mahomet, as the prophet and ambassador of God; who, after the repeated admonitions, promises, and threats of former ages, was sent at last to establish and propagate God's religion on earth; and to be acknowledged chief pontiff in spiritual matters, as well as supreme prince in temporal. The great doctrine then of the Koran is the unity of God, to restore which, Mahomet pretended, was the chief end of his mission; it being laid down by him as a fundamental truth, That there never was, nor ever can be, more than one true orthodox religion: That, though the particular laws or ceremonies are only temporary, and subject to alteration, according to the divine direction, yet the substance of it being eternal

truth, is not liable to change, but continues immutably the same: And that, whenever this religion became neglected, or corrupted in essentials, God had the goodness to re-inform and re-admonish mankind thereof, by several prophets, of whom Moses and Jesus were the most distinguished, till the appearance of Mahomet, who is their seal, and no other to be expected after him. The more effectually to engage people to hearken to him, great part of the Koran is employed in relating examples of dreadful punishments formerly inflicted by God on those who rejected and abused his messengers; several of which stories, or some circumstances of them, are taken from the Old and New Testaments, but many more from the apocryphal books and traditions of the Jews and Christians of those ages, set up in the Koran as truths, in opposition to the Scriptures, which the Jews and Christians are charged with having altered; and indeed, few or none of the relations or circumstances in the Koran were invented by Mahomet, as is generally supposed, it being easy to trace the greatest part of them much higher, as the rest might be, were more of those books extant, and were it worth while to make the enquiry.—The rest of the Alcoran is taken up in prescribing necessary laws and directions, frequent admonitions to moral and divine virtues, the worship and reverence of the Supreme Being, and resignation to his will. One of their most learned commentators distinguishes the contents of the Alcoran into allegorical and literal; under the former are comprehended all the obscure, parabolical, and enigmatical passages, with such laws as are repealed, or abrogated; the latter such as are clear and in full force. The most excellent moral in the whole Alcoran, interpreters say, is that in the chapter *Al Alraf*, viz. 'Shew mercy, do good to all, and dispute not with the ignorant;' or, as Mr. Sale renders it, 'Use indulgence, command that which is just, and withdraw far from the ignorant.' Mahomet, according to the authors of the Keschaf, having begged of the angel Gabriel a more ample explication of this passage, received it in the following terms: 'Seek him who turns thee out, give to him who takes from thee, pardon him who injures thee; for God will have you plant in your souls the roots of his chief perfections.' It is easy to see that this commentary is borrowed from the gospel. In reality, the necessity of forgiving enemies, though frequently inculcated in the Alcoran, is of a later date among the Mahommedans, than among the Christians; among those later than among the heathens; and to be traced originally among the Jews. See Exodus xxxiii. 4, 5. But it matters not so much who had it first, as who observes it best. The caliph Hassan, son of Hali, being at table, a slave let fall a dish of meat reeking hot, which scalded him severely. The slave fell on his knees, rehearsing these words of the Alcoran, 'Paradise is for those who restrain their anger.' 'I am not angry with thee,' answered the caliph. 'And for those who forgive offences against them,' continues the slave. 'I forgive thee thine,' replies the caliph. 'But above all, for those who return good for evil,' adds the slave. 'I set thee at liberty,' rejoined the caliph, 'and I give thee ten dinars.'

There are also a great number of occasional passages in the Alcoran, relating only to particular emergencies. For this advantage Mahomet is by his piecemeal method of receiving and delivering his revelations, that whenever he happened to be perplexed with any thing, he had a certain resource in some new morsel of revelation. It was an admirable contrivance to bring down the whole Alcoran only to the lowest heaven, not to earth; since, had the whole been published at once, innumerable objections would have been made, which it would have been impossible for him to have solved; but as he received it by parcels, as God saw fit they should be published for the conversion and instruction of the people, he had a sure way to answer all emergencies, and to extricate himself with honour from any difficulty which might occur.

It is the common opinion, that Mahomet assisted by one Sergius, a monk, composed this book; but the Mussulmans believe, as an article of their faith, that the prophet, who, they say, was an illiterate man, had no concern in inditing it; but that it was given him by God, who, to that end, made use of the ministry of the angel Gabriel: that, however, it was communicated to him by little and little, a verse at a time and in different places, during the course of twenty-three years.—'And hence, say they, proceed that disorder and confusion visible in the work;' which in truth, are so great, that all the doctors have never been able to adjust them. For Mahomet, or rather his copyist, having put all the loose verses promiscuously in a heap together, it was impossible ever to retrieve the order wherein they were delivered.—Those twenty-three years, which the angel employed in conveying the Alcoran to Mahomet, are of wonderful service to his followers: inasmuch as they furnish them with an answer, to such as tax them with those glaring contradictions of which the book is full, and which they produce father upon God himself; alleging that in the course of so long a time, he repealed and altered several doctrines and precepts which the prophet had before received of him.—M. D'Herbelot thinks it probable, that when the heresies of the Nestorians, Eutychians, &c. had been condemned by œcumenical councils, many bishops, priests, monks, &c. being driven into the deserts of Arabia and Egypt, furnished the impostor with passages, and crude, ill-conceived doctrines, out of the Scriptures; and that it was hence that the Alcoran became so full of the wild and erroneous opinions of those heretics.—The Jews also, who were very numerous in Arabia, furnished materials for the Alcoran; nor is it without some reason, that they boast twelve of their chief doctors to have been the authors of this work.—The Alcoran, while Mahomet lived, was only kept in loose sheets; his successor, Abubeker, first collected them into a volume, and committed the keeping of it to Haphsa, the widow of Mahomet, in order to be consulted as an original; and there being a good deal of diversity between the several copies already dispersed throughout the provinces, Ottoman, successor of Abubeker, procured a great number of copies to be taken from that of Haphsa; at the same time suppressing all the others not conformable to the original.

The chief differences, in the present copies of this book, consist in the points, which were not in use in the time of Mahomet, and his immediate successors; but were added since, to ascertain the reading; after the example of the Massoretes, who added the like points to the Hebrew texts of Scripture. There are seven principal editions of the Alcoran; two at Medina, one at Mecca, one at Cusa, one at Bassora, one in Syria, and the common, or vulgate edition. The first contains 6000 verses, the others surpassing this number by 200 or 236 verses; but the number of words and letters is the same in all, viz. 77,639 words, and 323,015 letters. The following are the most beautiful manuscript copies found in Europe. One, supposed to have been used by Solyman the Great, in the Museum Kircherianum, at Rome; one in the library of Christiana of Sweden; one in the Imperial library at Vienna; one, with a commentary, by Abi Saidi Rades, obtained among the spoils at the defeat of the Turks, in 1683, by George, elector of Saxony. The first edition of the whole in Arabic, was published at Venice, in 1530, by Paganinus of Brescia, which was burnt by order of the pope. Afterwards, in 1684, it was printed at Hamburgh. In 1698, the original, with a Latin version, and a partial confutation, was published at Padua, by Father Lewis Maracci, by desire of pope Innocent XI. An edition of the Arabic, with Scholia, was printed in folio, at Petersburgh, by the empress Catharine, with a studious imitation of a manuscript character, in order to meet the prejudices of her Mahommedan subjects. The first Latin version by a Christian was in 1143, when an Englishman, with the aid of Hermannus Dalmata, performed the task. In 1550, it was published by Bibliande, and, about the close of the fifteenth century, was translated into the Arragonian language by Johannes Andreas, a convert from the Mahommedan faith. Reineccius published an edition of Maracci's translation, with notes, at Leipsic, in 1721. Sale's well-known translation was published in London, in 1734; a German translation, by Boysen, at Halle, in 1773, and a French one, by Savary, at Paris, 1782. The number of commentaries on the Alcoran is so large, that the bare titles would make a huge volume. Ben Oschair has written the history of them, entitled, Tarikh Ben Oschair. The principal among them are, Reidhaori, Thaalebi, Zamalchschari, and Bacai. The Mahommedans have a positive theology, built on the Alcoran and tradition; as well as a scholastical one, built on reason. They have likewise their casuists, and a kind of canon law; wherein they distinguish between what is of divine, and what of positive right. They have also their beneficiaries, chaplains, almoners, and canons, who read a chapter every day out of the Alcoran, in the mosques; and have prebends annexed to their office. The hatib of the mosque is what we call the parson of the parish; and the scheics are the preachers, who take their texts out of the Alcoran.

It is the general belief among the Mahommedans, that the Koran is of divine original; nay, that it is eternal and uncreated; remaining, as some express it, in the very essence of God; that the first transcript has been from everlasting by God's throne, written on a table of vast bigness, called the preserved table, in which are also recorded the divine decrees past and future: that a copy from this table, in one volume on paper, was by the ministry of the angel Gabriel sent down to the lowest heaven, in the month of Ramadan, on the night of power; from whence Gabriel revealed it to Mahomet by parcels, some at Mecca, and some at Medina, at different times during the space of twenty-three years, as the exigency of affairs required; giving him, however, the consolation to show him the whole, which they tell us was bound in silk, and adorned with gold and precious stones of paradise, once a year; but in the last year of his life he had the favour to see it twice. They say, that only ten chapters were delivered entire, the rest being revealed piecemeal, and written down from time to time by the prophet's amanuensis, in such a part of such and such a chapter, till they were completed, according to the directions of the angel. The first parcel that was revealed, is generally agreed to have been the first five verses of the ninety-sixth chapter.—In fine, the book of the Alcoran is held in the highest esteem and reverence among the Mussulmans. They dare not so much as touch it, without being first washed, or legally purified; to prevent which, an inscription is put on the cover or label, 'Let none touch but they who are clean.' Some Mahommedan sects, however, do not admit the Koran to be uncreated, and accuse the maintainers of this doctrine of infidelity, as asserting two eternal beings. This was particularly the case with the sect called the Motazalites, and the followers of Isa Ebn Sobeh Abu Musa, surnamed Al Mozdar. It is nevertheless read with great care and respect; being never held below the girdle. They swear by it; take omens from it on all weighty occasions; carry it with them to war: write sentences of it in their banners; adorn it with gold and precious stones; and, knowingly, suffer it not to be in the possession of any of a different religion. Some say that it is punishable even with death, in a Christian, to touch it; others, that the veneration of the Mussulmans leads them to condemn the translating it into any other language, as a profanation: but these seem to be exaggerations. The Mahommedans have taken care to have their scripture translated into the Persian, the Javan, the Malayan, and other languages; though, out of respect to the original, these versions are generally, if not always, interlineated.

With regard to that most prominent feature of the Koran, and which its admirers have ever represented as its grand excellence, the inculcation of the worship of the one God, as a being of infinite perfection and glory, it might easily be shewn, that whatever accurate descriptions are given of his attributes, they were borrowed from the Christian Scriptures: nor can it be imagined that they should be primarily communicated to the pretended prophet of Arabia, amidst such a mass of contradiction and absurdity. As to other representations, such especially as relate to paradise, nothing can be more completely in contrast than the Holy Scriptures and the Mahommedan Bible. The former exhibits to the

view of mortals a scene replenished with felicity, but felicity of the purest kind, such as sanctified spirits may be expected to relish, and such as a holy God might be believed to communicate; whereas the paradise of the Koran is neither moral nor rational. It is neither more nor less than an abode of selfishness and sensuality—degrading, instead of elevating to the pure and Infinite Spirit, and mean and sordid in all its arrangements.

The Koran, thus ill sustaining its own claims to inspiration, studiously acknowledges the missions both of Moses and Christ, though it charges their disciples with corrupting the Scriptures of each dispensation. Jesus is allowed to be the true Messias, and a worker of miracles, but his crucifixion is denied, the traitor Judas, it is asserted, being changed into his likeness, and put to death in his stead. Every circumstance, indeed, connected with the histories of the Holy Scriptures, is either distorted or blended with the fictions of Rabbinical tradition, or with spurious gospels. Its doctrinal principles are borrowed frequently from the Arianism of the Arabian Christians, and the notions of the Persian magi.

The author of the 'View of Christianity and Mahommedanism,' observes, that by the advocates of Mahommedanism, the Koran has always been held forth as the greatest of miracles, and equally stupendous with the act of raising the dead. The miracles of Moses and Jesus, they say, were transient and temporary; but that of the Koran is permanent and perpetual; and, therefore, far surpasses all the miraculous events of preceding ages. We will not detract from the real merit of the Koran: we allow it to be generally elegant and often sublime: but at the same time we reject with disdain its arrogant pretence to any thing supernatural; all the real excellence of the work being easily referrible to natural and visible causes.—In the language of Arabia, a language extremely loved and diligently cultivated by the people to whom it was vernacular, Mahomet found advantages which were never enjoyed by any former or succeeding impostor. It requires not the eye of a philosopher to discover in every soil and country a principle of national pride: and if we look back for many ages on the history of the Arabians, we shall easily perceive that pride, among them, invariably to have consisted in the knowledge and improvement of their native language. The Arabic, which has been justly esteemed the most copious of the Eastern tongues; which had existed from the remotest antiquity; which had been embellished by numberless poets, and refined by the constant exercise of the natives; was the most successful instrument which Mahomet employed in planting his new religion among them. Admirably adapted by its unrivalled harmony, and by its endless variety to add painting to expression, and to pursue the imagination in its unbounded flight, it became in the hands of Mahomet an irresistible charm to blind the judgment, and to captivate the fancy of his followers.—Of that description of men, who first composed the adherents of Mahomet, and to whom the Koran was addressed, few, probably, were able to pass a very accurate judgment on the propriety of the sentiments, or on the beauty of the diction: but all could judge of the military abilities of their leader; and in the midst of their admiration it is not difficult to conceive, that they would ascribe to his compositions every imaginary beauty of inspired language.—The shepherd and the soldier, though awake to the charms of those wild but beautiful compositions, in which were celebrated their favourite occupations of love or war, yet were little able to criticise any other works than those which were addressed to their imagination or their heart. To abstract reasonings on the attributes and the dispensations of the Deity, to the comparative excellencies of rival religions, to the consistency of any one religious system in all its parts, and to the force of its various proofs, they were quite inattentive. In such a situation, the appearance of a work, which possessed something like wisdom and consistency; which prescribed the rules, and illustrated the duties of life; and which contained the principles of a new and comparatively sublime theology, independently of its real and permanent merit, was likely to excite their astonishment, and to become the standard of future composition. In the first periods of the literature of every country, something of this kind has happened. The father of Grecian poetry very obviously influenced the taste and imitation of his country. The modern nations of Europe all possess some original author, who, rising from the darkness of former ages, has begun the career of composition, and tinctured with the character of his own imagination the stream which has flowed through his posterity. But the prophet of Arabia had, in this respect, advantages peculiar to himself. His compositions were not to his followers the works of man, but the genuine language of Heaven, which had sent him. They were not confined therefore to that admiration, which is so liberally bestowed on the earliest productions of genius, or to that fond attachment, with which men every where regard the original compositions of their country; but with their admiration they blended their piety. To know and to feel the beauties of the Koran, was in some respect to share in the temper of heaven; and he who was most affected with admiration in the perusal of its beauties, seemed fitly the object of that mercy which had given it to ignorant man. The Koran, therefore, became naturally and necessarily the standard of taste. With a language thus hallowed in their imaginations, they were too well satisfied, either to dispute its elegance or improve its structure. In succeeding ages, the additional sanction of antiquity, or prescription, was given to these compositions which their fathers had admired; and, while the belief of its divine original continues, that admiration, which has thus become the test and the duty of the faithful, can neither be altered nor diminished. When, therefore, we consider these peculiar advantages of the Koran, we have no reason to be surprised at the admiration in which it is held. But if, descending to a more minute investigation of it, we consider its perpetual inconsistence and absurdity, we shall indeed have cause for astonishment at that

weakness of humanity, which could ever have received such compositions as the work of the Deity.

'The first praise of all the productions of genius, (continues this author) is invention: that quality of the mind, which, by the extent and quickness of its views, is capable of the largest conceptions, and of forming new combinations of objects the most distant and unusual. But the Koran bears little impression of this transcendent character. Its materials are wholly borrowed from the Jewish and Christian Scriptures, from the Talmudical legends and apocryphal gospels then current in the east, and from the traditions and fables which abounded in Arabia. The materials collected from these several sources are here heaped together, with perpetual and needless repetitions, without any settled principle or visible connection. When a great part of the life of Mahomet had been spent in preparatory meditation on the system he was about to establish, its chapters were dealt out slowly and separately during the long period of twenty-three years. Yet thus defective in its structure, and no less exceptionable in its doctrines, was the work which Mahomet delivered to his followers as the oracles of God. The most prominent feature of the Koran, that point of excellence in which the partiality of its admirers has ever delighted to view it, is the sublime notion it generally impresses of the nature and attributes of God. If its author had really derived these just conceptions from the inspiration of that Being whom they attempt to describe, they would not have been surrounded, as they now are on every side, with error and absurdity. But it might easily be proved, that whatever it justly defines of the divine attributes, was borrowed from our holy Scripture; which even from its first promulgation, but especially from the completion of the New Testament, has extended the views, and enlightened the understandings of mankind; and thus furnished them with arms, which have too often been ineffectually turned against itself by its ungenerous enemies. In this instance particularly, the copy is far below the great original, both in the propriety of its images, and the force of its descriptions.'

As a specimen of the Alcoran, we may take the opening passages, which are solemn and imposing: 'In the name of the most merciful God! Praise be to God, the Lord of all creatures: the most merciful: the King of the day of judgment.—Thee do we worship, and of thee do we beg assistance. Direct us in the right way; in the way of those to whom thou hast been gracious; not of those against whom thou art incensed, nor of those who go astray.' This is the first chapter, and is entitled the preface, or introduction, revealed at Mecca. In Arabic it is called Al Fâtibat, and is esteemed the quintessence of the whole Koran, the Mahommedans often repeating it in their devotions, both public and private, as Christians do the Lord's prayer. One or two other specimens will serve to convey to the reader some general idea of this volume. 'Now hath God in truth verified unto his apostle the vision (or dream which Mahomet had at Medina,) wherein he said ye shall surely enter the holy temple of Mecca, if God please, in full security; having your heads shaved and your hair cut; ye shall not fear; for God knoweth that which ye know not; and he hath appointed you, besides this, a speedy victory. It is he who hath sent his apostle with the direction, and the religion of truth; that he may exalt the same above every religion; and God is a sufficient witness hereof. Mahomet is the apostle of God, and those who are with him are fierce against the unbelievers, but compassionate towards one another. Thou mayest see them bowing down prostrate, seeking a recompence from God and his good will. Their signs are in their faces, being marks of frequent prostration. This is their description in the Pentateuch, and their description in the gospel: they are as seed which putteth forth its stalk and strengtheneth it, and swelleth in the ear and riseth upon its stem, giving delight unto the sower. Such are the Moslems described to be, that the infidels may swell with indignation at them. God hath promised unto such of them as believe, and do good works, pardon and a great reward.'—Ch. xlviii.

The following is one of the smaller sections (ch. lxxii) entire,

'Entitled, the Genii; revealed at Mecca.

'In the name of the Most Merciful God,

'Say, it hath been revealed unto me, that a company of genii attentively heard me reading the Koran, and said, verily we have heard an admirable discourse, which directeth unto the right institution; wherefore we believe therein, and we will by no means associate any other with our Lord. He (may the majesty of our Lord be exalted!) hath taken no wife, nor hath he begotten any issue; yet the foolish among us have spoken that which is extremely false of God: but we verily thought that neither man nor genius would by any means have uttered a lie concerning God And there are certain men who fly for refuge unto certain of the genii; but they increase their folly and transgression; and they also thought as ye thought, that God would not raise any one to life. And we formerly attempted to pry into what was transacting in heaven; but we found the same filled with a strong guard of angels, and with flaming darts; and we sat on some of the seats thereof, to hear the discourse of its inhabitants: but whoever listeneth now, findeth a flame laid in ambush for him, to guard the celestial confines. And we know not whether evil be hereby intended against those who are on the earth, or whether their Lord intendeth to direct them aright. There are some among us who are upright; and there are some among us who are otherwise. We are of different ways. And we verily thought that we could by no means frustrate God in the earth; neither could we escape him by flight: wherefore, when we had heard the direction contained in the Koran, we believed therein. And whoever believeth in his Lord, need not fear any diminution of his reward, nor any injustice. There are some Moslems among us; and there are others of us who swerve from righteousness. And whoso embraceth Islam, they earnestly seek true direc-

tion: but those who swerve from righteousness shall be fuel for hell. If they tread in the way of truth, we will surely water them with abundant rain, that we may prove them thereby; but whoso turneth aside from the admonition of his Lord, him will he send into a severe torment. Verily the places of worship are set apart unto God; wherefore invoke not any other therein together with God. When the servant of God stood up to invoke him, it wanted little but that the genii had pressed on him in crowds, to hear him rehearse the Koran. Say, verily I call upon my Lord only, and I associate no other God with him. Say, verily I am not able, of myself, to procure you either hurt or a right institution. Say, verily none can protect me against God; neither shall I find any refuge besides him. I can do no more than publish what hath been revealed unto me from God, and his messages. And whosoever shall be disobedient unto God and his apostle, for him is the fire of hell prepared; they shall remain therein for ever. Until they see the vengeance with which they are threatened, they will not cease their opposition; but then shall they know who were the weaker in a protector and the fewer in number. Say, I know not whether the punishment with which ye are threatened be nigh, or whether my Lord will appoint for it a distant term. He knoweth the secrets of futurity; and he doth not communicate his secrets unto any, except an apostle in whom he is well pleased: and he causeth a guard of angels to march before him and behind him, that he may know that they have executed the commission of their Lord: he comprehendeth whatever is with them, and counteth all things by number.'

'Our holy Scriptures, continues our author, are the only compositions that can enable the dim sight of mortality to penetrate into the invisible world, and to behold a glimpse of the divine perfections. Accordingly, when they would represent to us the happiness of heaven, they describe it, not by any thing minute and particular, but by something general and great; something, that, without descending to any determinate object, may at once by its beauty and immensity, excite our wishes and elevate our affections. Though in the prophetical and evangelical writings, the joys that shall attend us in a future state, are often mentioned with ardent admiration, they are expressed rather by allusion than by similitude, rather by indefinite and figurative terms, than by any thing fixed and determinate. 'Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him.' 1 Cor. ii. 9. What a reverence and astonishment does this passage excite in every hearer of taste and piety! What energy, and at the same time what simplicity, in the expression! How sublime, and at the same time how obscure, is the imagery! Different was the conduct of Mahomet in his descriptions of heaven and paradise. Unassisted by the necessary influence of virtuous intentions and Divine inspiration, he was neither desirous, nor indeed able, to exalt the minds of men to sublime conceptions, or to rational expectations. By attempting to explain what is inconceivable, to describe what is ineffable, and to [illegible] what in itself is spiritual, he absurdly and [illegible] piously aimed to sensualize the purity of the Divine essence. Thus he fabricated a system of incoherence, a religion of depravity, totally repugnant to the nature of that Being, who, as pretended, was its object; but therefore more likely to accord with the appetites and [illegible] tions of a corrupt and sensual age. That may not appear to exalt our Scriptures [illegible] above the Koran by an unreasonable prefer[illegible] we shall produce a part of the second chap[illegible] of the latter, which is deservedly admired by Mahommedans, who wear it engraved on [illegible] ornaments, and recite it in their prayers. 'G[illegible] there is no God but he; the living, the self-[illegible] sisting: neither slumber nor sleep seizeth [illegible] to him belongeth whatsoever is in heaven, [illegible] on earth. Who is he that can intercede with [illegible] but through his good pleasure He know[illegible] that which is past, and that which is to [illegible] His throne is extended over heaven and [illegible] and the preservation of both is to him no burd[illegible] He is the high, the mighty.' Sale's Koran, p. 30. To this description who can refuse [illegible] praise of magnificence. Part of that magn[illegible] cence, however, is to be referred to that rem[illegible] the Psalmist, whence it was borrowed, 'He [illegible] keepeth Israel, shall neither slumber nor sle[illegible] Psal. cxxi. 4. But if we compare it with [illegible] other passage of the inspired Psalmist, [illegible] 24—27, all its boasted grandeur is at once [illegible] scured, and lost in the blaze of a greater li[illegible] 'O my God, take me not away in the midst [illegible] my days; thy years are throughout all gene[illegible] tions. Of old hast thou laid the foundation [illegible] the earth; and the heavens are the work of [illegible] hands. They shall perish, but thou shalt [illegible] dure; yea all of them shall wax old, like a g[illegible] ment; as a vesture shall thou change them, [illegible] they shall be changed. But thou art the sa[illegible] and thy years shall have no end.' The Koran, therefore, upon a fair examination, far from s[illegible] porting its arrogant claim to a supernatural wo[illegible] sinks below the level of many compositions confessedly of human original; and still low[illegible] does it fall in our estimation, when compared with that pure and perfect pattern, which we justly admire in the Scriptures of truth. It is therefore abundantly apparent, that no miracle either was externally performed for the support or is internally involved in the composition of the Mahommedan revelation.'

Alcoran, used figuratively, is applied to cer[illegible] tain other books full of impieties and impos[illegible] tures.—In this sense we meet with the Alcoran of the Cordeliers, which has made a great noise, wherein St. Francis is extravagantly magnified and put on a level with Jesus Christ. The Alcoran of the Cordeliers is properly an extract of a very scarce book, entitled, The Conformity of the Life of the Seraphic Father Francis, with the Life of Christ, published in 1510, 4to; since at Bologna, in folio. Erasmus Albertus, being by the elector of Brandenburg, appointed to visit a monastery of Franciscans, found this book; and, being struck with the extreme absurdity of it, collected a number of curiosities out of it, and published them under the title of the Al-

[illegible] to expqxe or [illegible]

oran of the Franciscans, with a preface by Martin Luther.

ALCORAN, in architecture, is used among the Persians, for a kind of tower, or steeple, very high, and narrow; surrounded without by two or three galleries, one over another: whence the Moravites, a sort of priests, repeat prayers from the Koran thrice a day, with a very loud voice; making the tour of the gallery all the while, that they may be the better heard around. Like the minarets of the Turks, these are the principal ornaments of the Mosques.

ALCORANISTS, among Mahommedans, those who adhere strictly to the letter or text of the Alcoran, from an opinion of its ultimate sufficiency and perfection. The Persians are generally Alcoranists. The Turks, Tartars, Arabs, &c. besides the Alcoran, admit a multitude of traditions.

ALCOVE, Spanish, *alcoba;* Danish, *alkove;* from the Arabic, *alkobba:* an arched or vaulted apartment, containing a bed of state, or seats for company: also a shady recess in gardens or pleasure grounds.

The weary'd champion lull'd in soft *alcoves,*
The noblest boast of thy romantic groves:
Oft, if the muse presage, shall he be seen
By Rosamonda fleeting o'er the green;
In dreams be hail'd by heroes' mighty shades,
And hear old Chaucer warble through the glades.
Tickell.

Deep in a rich *alcove* the prince was laid,
And slept beneath the pompous colonnade.
Pope's Odyssey

On mossy banks, beneath the citron grove,
The youthful wand'rers found a wild *alcove.*
Falconer's Shipwreck.

This gloomy *alcove* darkling to the sight,
Where meeting trees create eternal night;
Save when from yonder stream the sunny ray,
Reflected gives a dubious gleam of day.
Kirke White's Poems.

ALCOVE, in architecture, the recess or part of a chamber which is generally appropriated in magnificent houses to the state-bed. See the above lines of Pope. The word was adopted by the Spanish architects from the Arabic el-kauf, which bears the same meaning. But more ancient architects often made alcoves in the form of a niche, as in the ruins of Hadrian's villa, those of Trajan's villa, at Pompeii, at Trivoli, &c. The alcove of modern times is susceptible of great magnificence and elegance. It may be raised above the other part of the chamber and approached by steps, separated by columns, antæ and balusters, agreeing with the architecture of the apartments, and with dwarf doors in the balustrade for entrance. The interior may be embellished with basso-relievo, panelling, pictures, and tapestry, with a magnificent state bed, or throne, to complete the arrangement. If for a bed-chamber, at the sides of the alcove should be warm and cold baths, dressing and water-closets, &c. according to the magnificence of the mansion, and the rank and opulence of the owner; such are found in the palaces of Italy, and the mansions of the nobility in France and Spain. The alcove, of course, should correspond in every respect with the style of architecture and decoration used in the apartment.

ALCOVENDAS, a small town of Old Castile.

ALCOVES, from elcauf, Arab. a sleeping place, or elcoba, a tent, are frequent in Spain; and the bed is raised two or three ascents, with a rail at the foot. The word is often used for inclosed garden seats.

ALCOY, a town of Spain, in the province of Valencia, with flourishing manufactures of cloth, soap, and paper; fruitful environs, and nearly 10,000 inhabitants. Twenty miles north of Alicante.

ALCUDIA, a decayed city of the island of Majorca, situated between Port Major and Port Minor, and containing about 1000 inhabitants. Lon. 3°. 0′. E. Lat. 30°. 50′. N.

ALCUDIA DE CARLET, a town of Valencia, Spain, with about 2000 inhabitants, a parochial church, and a convent of Franciscans. It is five leagues south of the capital of the province.

ALCUINUS, (Flaccus,) or ALBINUS, an ecclesiastic of the eighth century, who is said to have been born in Yorkshire, and who certainly was educated there, under archbishop Egbert; as we learn from his own letters, in which he frequently calls that prelate his beloved master. He survived Bede about seventy years, and speaks of him with the highest veneration. It is said, that before he left England he was abbot of Canterbury. In 790 he was sent on an embassy, by Offa, king of Mercia, to the emperor Charlemagne: who contracted so great an esteem for him, that he prevailed upon him to settle in his court, and become his preceptor in the sciences. The courtiers called him, by way of eminence, the emperor's delight. Mr. Turner, in his excellent history of the Anglo-Saxons, speaks of him at this period, as in the enjoyment of imperial affection and confidence, to a degree which literature has never experienced in any other instance. Charlemagne employed him to write several books against the heretical opinions of Felix, bishop of Urgel, in Catalonia, and to defend the orthodox faith against him in the council of Frankfort, A. D. 794; which he performed, it is said, not only to the satisfaction of the emperor, but to the conviction of Felix and his followers. An academy was established in the imperial palace, over which Alcuinus presided, and in which the princes and nobility were educated; other academies were established in the chief towns of Italy and France, at his instigation, and under his inspection; and the whole of that kingdom became indebted to Alcuinus for its polite learning. The universities of Paris, Tours, Fulden, Soissons, &c. owe to him their origin or their increase; those of which he was not the superior and founder, being enlightened by his doctrine and example, and enriched by the substantial benefits he procured for them from Charlemagne. Camden cites a German poet who thus speaks of these philanthropic services of Alcuinus:—

'Quid non Alcuino, facunda Lutetia, debes!
Instaurare bonas ibi qui feliciter artes,
Barbariemque procul solus depellere, cæpit.'

'Let Gallia's sons, nurtur'd in ancient lore,
To Alcuin's name a grateful tribute pay;
'Twas his, the light of science to restore,
And bid Barbaric darkness flee away.'

We cannot forbear to subjoin an extract from this excellent prelate's letters to Charlemagne, exhibiting a picture of his mind and occupations, as creditable to himself as it is interesting and surprising, in so dark an age. They are dated from his beloved retreat.—'The employments of your Alcuinus in his retreat are suited to his humble sphere; but they are neither inglorious nor unprofitable. I spend my time in the halls of St. Martin, in teaching some of the noble youths under my care the intricacies of grammar, and inspiring them with a taste for the learning of the ancients; in describing to others the order and revolutions of those shining orbs, which adorn the azure vault of heaven; and in explaining to others the mysteries of divine wisdom, which are contained in the holy scriptures; suiting my instructions to the views and capacities of my scholars, that I may train up many to be ornaments to the church of God, and to the court of your imperial majesty.'

To the honour of old England he continues, 'In doing this, I find a great want of several things, particularly of those excellent books in all arts and sciences, which I enjoyed in my native country, through the expense and care of my great master Egbert. May it therefore please your majesty, animated with the most ardent love of learning, to permit me to send some of our young gentlemen into England, to procure for us those books which we want, and transplant the flowers of Britain into France, that their fragrance may no longer be confined to York, but may perfume the palaces of Tours. I need not put your majesty in mind, how earnestly we are exhorted in the holy scriptures to the pursuit of wisdom. —Learning and wisdom exalt the low, and give additional lustre to the honours of the great. 'By wisdom kings reign, and princes decree justice.' Cease not, then, O most gracious king! to press the young nobility of your court to the eager pursuit of wisdom and learning in their youth, that they may attain to an honourable old age, and a blessed immortality. For my own part, I will never cease, according to my abilities, to sow the seeds of learning in the minds of your subjects in these parts; mindful of the saying of the wisest man, 'In the morning sow thy seed, and in the evening withhold not thine hand; for thou knowest not whether shall prosper, either this or that.' To do this, hath been the most delightful employment of my whole life. In my youthful years I sowed the seeds of learning in the flourishing seminaries of my native soil of Britain; and in my old age, I am doing the same in France, praying to God, that they may spring up and flourish in both countries.' 'How few princes,' says Henry, 'enjoy the happiness of such a correspondence, or have the wisdom and virtue to encourage it!'

At length he wholly retired from court to his abbey of St. Martin's at Tours, where he maintained a regular correspondence with the emperor; from which it would seem that both were animated with the most ardent love to learning and religion. He wrote in a style much superior in elegance to that of his contemporaries. Charlemagne often solicited Alcuin to return to court, but he excused himself; and died A. D. 804, in his retirement. His works were collected and published, by Andrew Du Chesne, in one volume folio, Paris 1617. They consist of, 1. Tracts upon Scripture doctrine, discipline, and morality. 2. Historical treatises, letters, poems, &c.

ALCYON, in ornithology, the trivial name of a species of alcedo. See ALCEDO.

ALCYONE, in entomology, a species of the papilio nymphalis, with dentated brown wings and yellow bands, the interior having two ocelli on both sides, and the posterior marbled below; it is found in the mountains of the southern parts of Russia.

ALCYONE, a town in Thessaly.

ALCYONE, in mythology, the daughter of Neptune, and wife of Ceyx, king of Thrace, who hearing of her husband's death at sea, cast herself into it, whereupon they were both metamorphosed into kingsfishers.

ALCYONIUM, in natural history, a peculiar kind of fossil coral of the astroites kind, found in Wales, where it is very plentiful, and has the appearance of a sort of marble.

ALCYONIUM, in the Linnæan system of zoology, a genus of zoophytes; the characters of which are, that the animal grows in the form of a plant: the stem or root being fixed, fleshy, gelatinous, spongy, or coriaceous; with a cellular epidermis, penetrated with stellated pores, and shooting out tentaculated oviparous hydræ. The number of species, mentioned and characterized by Gmelin, is twenty-eight; viz. 1. A. arboreum, with woody stem, obtuse branches, and pores in the form of pimples, found in Norway, White, and Indian seas, sometimes of the human height. 2. A. exos, with stem arborescent, coriaceous, crimson-coloured, above ramous, and with stellated papillæ; called by several authors the sea-hand, and found at the bottom of the Mediterranean sea. 3. A. epipatrum, with stem cavated, fleshy, and reddish: the finger-shaped sea-pen of Ellis, and sea mad-apple of Rondeletius, found in the Mediterranean, about four inches long, and of the thickness of the finger. 4. A. agaricum, with stem filiform, and reniform; pileus kidney-shaped, purple, sea-pen of Ellis, found in the sea, washing the coast of Carolina. 5. A. digitatum, stemless, oblong, coriaceous, and rugose; dead-man's hand, or dead-man's toes of Ellis; the tethya of Rumphius, and fucus palma marinus of C. Bauhin, found in the European sea, encrusting testaceous fish and stones. 6. A. schlosseri, roundish and stupose, penetrated with ray-like stars; the alcyonium ramosum lividum, &c. of Solander and Ellis, the uva marina of Gesner, the botryllus stellatus of Gærtner, found on the coast of Cornwall, brown or ashy, and covering other bodies. 7. A. lyncurium, globose, fibrous, yellow and warty; the tethya sphærica of Donat, found in the Mediterranean, and at the Cape of Good Hope, about the size of an orange, and cartilaginous. 8. A.

sub-globose, pulpous and green; the sea- of Marsilli, found in the English and erranean seas, about the size of a middling and coriaceous. 9. A. cydonium, round- ongy, yellow and smooth; found in the n, Mediterranean, and Northern seas, af- o rocks and corals, and sometimes loosened e agitation of the waves. 10. A. ficus, ted, pulpous and livid; the sea-fig of Ellis, a-lungs of Ray, the alcyonium tuberosum Bauhin, found in the Mediterranean and sh seas, very rarely among fossils, of an colour, and within granulose. 11. A ge- sum, polymorphous and gelatinous; the ium luteum gelatinosum polymorphum of der and Ellis, spongia ramosa, &c. of Par- , fucus gelatinosus of Hudson, and fucus us and spongiosus of Ray, found in the ean ocean and the Icy sea, adhering to the stones, shell-fish, &c. 12. A. manus li, polymorphous, perforated with obtuse berances, found in Iceland. 13. A. massa, w, spongy, patulous, with five radiated stars, and black centre, found in the sea of ay. 14. A. cranium, tuberiform, white bristly, found in the Norway sea. 15. A. m, crustaceous, soft, sprinkled with reddish red spots, found in the Norway sea. 16. ammillosum, whitish, coriaceous, with con- mammillæ, and the centre hollowed and ellated, found in the American sea. 17. ocellatum, ferruginous, coriaceous, with se subcylindric cellules, and radiated ocel- apices, found adhering to rocks, with e rays of stars, in the island of St. Dominica. A. tuberosum, yellowish and tuberous, with pices frequently subdivided, and tubulous s, found adhering to rocks in the island of ritius. 19. A. gorgonoides, cinereous, y-fleshy, with radiated watery cellules, d, with twelve rays of cellules, adhering to ls and rocks, in the island of Curassoa. A. asbestinum, with a roundish stem, and ng pores scattered over every part of it, d in the sea washing the American coast, porous, whitish, and within rose-coloured. A. alburnum, white, very ramous, attenuated subdivided, with tubulous terminal pores, d in the Indian sea. 22. A. papillosum, taceous, with large papillæ thickly set, and vex, the boletus marinus of Marsigli. 23. conglomoratum, gelatinous, convex, with con- nerated fingers, and terminal mouths without h, found in the Cornish seas. 24. A. as- oides, crustaceous, coriaceous, with dispersed illæ, and two subdentated mouths, found in Cornish seas. 25. A. synoicum, with many indric fleshy stems, and an orifice stellated at apex, found on the northern shore of Spitz- gen. 26. A. vermiculare, green, ramous, h cylindric, obtuse, pyramidal branches, found the rocks of the island of Nisita, opposite to apolis. 27. A. stellatum, with two stellated minal mouths. 28. A. corniculatum, with r stellated mouths, encompassing a papilla, d four small erect terminal horns, found in the of Holland. From experiments made by r. Hatchett, on a few species of alcyonium, viz. bestinum, sicus, and arboreum, he was led to conclude that they were all composed of a soft, flexible, membranaceous substance, slightly hardened by carbonate, mixed with a small portion of phosphate of lime. *Phil. Trans.* for 1800. P. ii. p. 364.

ALCYONIUM MARE, in ancient geography, a name given to that part of the gulph of Corinth, which stretched itself between the western coast of Bœotia, the northern coast of Megaris, and a small part of Corinth, as far as the promontory of Olmia.

ALCYONIUM STAGNUM, in ancient geography, a lake in the territory of Corinth, whose depth was unfathomable, and in vain attempted to be discovered by Nero. Through this lake Bacchus is said to have descended to hell, to bring back Semele; and near it was a temple to the honour of Amphiarus, a sorcerer.

ALCYONIUS, (Peter,) a learned Italian printer, who flourished in the sixteenth century. He was well versed in Greek and Latin, and wrote some pieces which met with great approbation. He was corrector of the press a considerable time for Aldus Manutius, and is entitled to a share in the praises given to the editions of that learned printer. Paulus Manutius charges Alcyonius with the plagiarism of several fragments of a treatise of Cicero de Gloria; and that afterwards, in order to save himself from being detected, he had burnt the manuscript of Cicero, the only one extant. Be that as it may, Alcyonius was certainly capable of writing well: for the two orations he made after the taking of Rome, wherein he represented very strongly the injustice of Charles V. and the barbarity of his soldiers, were excellent pieces.

ALD, from *Eald*, Sax. or *alt*, Teut. prefixed to the names of places, signifies antiquity, as Aldborough, Aldgate, &c.

ALDABARAM, in osteology, a name given by some writers to the sesamoide bones in the great toe.

ALDAN, a river of Siberia, which, rising on the confines of China, in long. 125°. E. lat. 55°. 50′. N.; and taking a north-east course to lat. 63°. N. changes its direction to west north-west, and joins the Lena in long. 128°. 20′. E. lat. 63°. 25′. N. On the banks of this river, in the province of Yakutzk, the finest sables are obtained. When the frost breaks up, about the month of May, an inundation takes place, and the stream drifts down vast masses of ice with extraordinary impetuosity.

ALDARU, in botany, a name given by Avicenna, Serapion, and other authors, to the Lentisk tree.

AL'DAY. All day.

> Withinne fyf-zer aftur pis kyng so prout bi com,
> For pe grete tresour nameliche pat he *alday* nom,
> Đat he nas not ene y paid to habbe pis kyndom.
> *R. of Gloucester*, p. 93.

ALDBOROUGH, or ALDEBURGH, a sea-port, borough, and market-town of Suffolk, in the hundred of Plomsgate, ninety-four miles from London, and three miles north of Orford. Being a commodious harbour, it is chiefly inhabited by seamen and fishermen; and, although meanly built, is clean, and pleasantly situated in the valley of Slaughton. The Ald, from which this

town derives its name, runs on the south, and forms an excellent quay. The harbour is well defended by cannon, and the regular declivity of the shore affords every convenience for bathing. From the healthiness and convenience of the situation, connected with the patronage of several families of distinction, this place has of late become one of considerable resort. The encroachments of the sea having swept away one of the principal streets, Aldborough was until lately, fast falling to decay, but is now considerably improved. The church on the west of the town is a neat ancient edifice, although much intermixed with modern work. The manor of this name was originally the property of the monastery of Snape, and was afterwards granted to Cardinal Woolsey. It is governed by two bailiffs, ten burgesses, and twenty-four petty officers, and sends two members to parliament. Sprats are caught here in great quantities, and pickled for the Dutch market; as are also soles, lobsters, &c. The church is a rectory. Market-days, Wednesday and Saturday.

ALDBOROUGH, a town in the West Riding of Yorkshire, seated on the river Ouse, fifteen miles north-west of York, and 207 north by west of London. It sends two members to parliament. It was anciently a Roman city, called Isurium Brigantium; and several coins and monuments of the Saxons and Romans have been discovered there. Few places have afforded such numerous relics of the Roman dominion in Britain. Here have been discovered the fragments of aqueducts cut in great stones, and covered with tiles; a vault, which it is thought led to the river Ouse, near whose banks the present town is seated, and supposed to have been a dormitory; vast quantities of Roman coins, mostly of brass, from the reign of Augustus to Constantine; together with several signets, urns, and other utensils of red earth, wrought with a variety of figures, knots, and flowers. Some beautiful Mosaic pavement, consisting of small stones, of about a quarter of an inch square, with a border nearly four times that size, were discovered in 1770; and in the year 1808, a great number of urns, containing calcined bones, with a lachrymatory, a fibula vestaria, and eighteen human skeletons. These remains, which, there is little doubt, had been in the ground upwards of 1400 years, were all in a high degree of preservation; and a thin stratum of black earth, which surrounded them, affords a strong presumption that the bodies of those whose ashes were contained in the urns, had been burned on the place where they were deposited. On the south side of the town are the reliques of a Roman encampment, containing about two acres of ground. The Roman Isurium was, in all probability, built about the year 80; after Julius Agricola had completed the reduction of the Brigantines, one of the most powerful of all the British tribes, and possessing the entire districts, now forming the counties of York, Lancaster, Westmoreland, Cumberland, and Durham. Before the foundation of Eboracum, now the city of York, it appears to have been the principal city of the district. Some have supposed that it was burnt by the Danes; others, that it was more gradually destroyed, and afterwards rebuilt by the Saxons, who [illegible] it the name of Aldburgh, or the Old Town. The market is on Wednesday.

ALDEBAC, in the materia medica of the ancient Arabian physicians, the name by which they have called bird-lime, which they [illegible] among the vegetable poisons.

ALDEBARAN, or the bull's eye, in astronomy, a star of the first magnitude in the [illegible] eye of the constellation Taurus. Ptolemy [illegible] it ὁ λαμπρὸς τῶν υαδῶν, i. e. the bright [illegible] the Hyades. The right ascension for 18[illegible] 66°. 17′. 4″: Declination, 16°. 7′. 31″ N. [illegible] nual variation in right ascension 51″ [illegible] declination 8″ 16. *Ptolem. Almagest.* [illegible] &c.

ALDENHOVEN, a bailiwick and town [illegible] grand duchy of the Lower Rhine, in the [illegible] duchy of Juliers, with 1050 inhabitants. [illegible] three miles west south-west of Juliers. [illegible] 7°. 12′. E. lat. 50°. 53′. N.

AL'DER, or ALLER. } Aller, or allder, alle, [illegible] The ancient genitive case [illegible] ral of all. It was used much in composition in connection with adjectives in the superlative degree; as aller best, best of all; aller worst of all; alder lieve, most beloved, [illegible] dear.

Grete townes in Engelond he amendede y [illegible]
And London *aller* most for per to hys herte [illegible]
R. of Gloucester, [illegible]

Sex and twenty baners of Inglond *alder* best,
Of armes pat knewe pe maners, to werre were [illegible] prest. *R. Brunne*, v. ii. p. [illegible]

Wel coude he rede a lesson or a storie,
But *alderbest* he sang an offertorie.
Chaucer. The Prologue, v. i. p. [illegible]

QUEEN. Great king of England, and my [illegible] lord,
The mutuall conference that my minde hath had,
By day, by night; waking, and in my dreames,
In courtly company, or at my beads,
With you mine *alder liefest* soueraigne,
Makes me the bolder to salute my king.
Shakspeare's 2d. part of King Henry IV. [illegible]

ALDER, in botany, the betula alnus of Linnæus, a well-known tree which thrives in [illegible] places. It is the Greek κλήθρα, in Lat. [illegible] German eller, Danish ell, and Swedish [illegible] &c. The principal sorts of alder are, the [illegible] leaved, or common alder, the long-leaved, [illegible] the dwarf. The wood is valuable for fences, [illegible] pumps, and all other works which remain [illegible] water; it is also much used by turners. The bark is employed in tanning. The black [illegible] is the ramnus frangula of Linnæus.

ALDERAIMIN in astronomy, a star of the third magnitude, on the right shoulder of the constellation Cepheus, marked *α* by Bayer.

ALDERHOLM, a pleasant island of Sweden formed by three arms of the river Gefle. [illegible] has a wharf, and a repository for planks and deals, in which a considerable traffic is carried on. It is eighty miles north of Stockholm. N. lat. 6°. 40′.

ALD'ERMAN, *n.* } A. S. Ealdorman [illegible]
ALD'ERMANITY, } Ælð, Ælðor, old, [illegible]
ALD'ERMANLIKE, } and man. Corresp[illegible]
ALD'ERMANLY, } in origin and signific[illegible]
ALD'ERMANSHIP. } with the word senator [illegible]

Latin; and a title of high distinction in Anglo-Saxon times. It is now well known as the official title of a superior member of a municipal corporation, chosen for his supposed age and experience.

The which Symōde be haued hym so well after, that he was admytted for an *alderman*; but in short processe after, he demeanyed hym so ille, and so cōtraryouslye vnto the weale and good ordre of the citie, that he was dyscharged of his *aldermanshyp*, and dyscharged from all rule and counceyll of the citie.
Fabian, p. 331.

By the lawes of king Ina, 100 yeares before Alfred, as they are extant in the Saxon tongue, and by the lawes of Rennethus, king of Scots, there is mention made of shyres and of the shyreman or *elderman*, whom we nowe call shireeue or sheriffe.

Tell him, 'Myself, the mayor, and *alderman*,
Are come to have some conf'rence with his grace.'
Shakspeare.

Though my own *aldermen* conferr'd my bays,
To me committing their eternal praise;
Their full-fed heroes, their pacifick may'rs,
Their annual trophies, and their monthly wars.
Pope's Dunciad.

These, and many more, suffered death, in envy to their virtues and superior genius; which emboldened them, in exigencies wanting an *aldermanly* discretion, to attempt service out of the common forms.
Swift's Miscellanies.

ALDERMAN, among our Saxon ancestors, was a degree of nobility answering to earl or count at present. Alderman, in process of time was also used for a justice of the peace, or judge of various degrees of authority. Thus we meet with the titles of Aldermannus totius Angliæ; Aldermannus regis, comitatis, civitatis, burgi, castelli, hundredi sive wapensachii, et novem decimorum. According to Spelman, the Aldermannus totius Angliæ seems to have been the same officer who was afterwards styled capitalis justiciarius Angliæ, or chief justice of England; the aldermannus regis seems to have been an occasional magistrate, answering to our justice of assize; and the aldermannus comitatis, a magistrate who held a middle rank, between what was afterwards called the earl and the sheriff.—He sat at the trial of causes with the bishop; the latter proceeding according to the ecclesiastical law, and the former declaring and expounding the common law of the land. 'The alderman of the county,' says Spelman of the ancient government of England, 'whom confusedly they call an earl, was in parallel equal with the bishop, and therefore both their estimations valued alike in the laws of Ethelstane at eight thousand thrymses, (worth about three shillings each.) He was a man learned in the laws, and had the government of the whole shire, and cognizance over all the inferior courts and persons, both in civil matters and criminal; for which purpose he held his ordinary court by the shreve once every month, and there resorted as suitors, and bound by duty, all the lords of manors, and principal men of the county, with the rest of the freeholders, who were not only assistants, but judges with him of all matters there depending, whether entered there originally, or coming thither by appeal or provocation from the inferior courts.

'The Ealdorman,' says Mr. Turner, was the highest officer in the kingdom. In rank, he was inferior to an etheling; for when an ethelings were-geld was fifteen thousand thrymses, an ealdorman's was but eight thousand. He was the chief of a shire, and he lost this dignity if he connived at the escape of a robber, unless the king pardoned him. He was one of the witans, who attended the witena-gemot. He presided with the bishop at the scire-gemot, which he was ordered to attend, and the fole-gemot. He ranked with a bishop, but was superior to the thane. He had great civil powers in administering justice, and also enjoyed high military authority; he is mentioned as leading the shire to battle against the enemy. To draw weapons before him, incurred a penalty of one hundred shillings; and to fight before him in a gemot, incurred a fine to him of one hundred and twenty shillings, besides other punishments. The ealdorman is a title which occurs perpetually in the Saxon Chronicle.'

ALDERMAN, in modern British policy, is a magistrate subordinate to the lord mayor of a city or town corporate. The number of these magistrates is not limited, but is greater or less according to the magnitude of the place. In London they are twenty-six; each having one of the wards of the city committed to his care, except the twenty-sixth, erected in 1550, according to Maitland, which serves only to dignify the senior Alderman, as *father of the city*. This office is for life. When one dies, or resigns, a wardmote is called, who elect another and return him to the court of aldermen, who are obliged to admit him to supply the vacancy. All the aldermen are justices of the peace, by a charter of 15 Geo. II. They are exempted from serving in inferior offices; nor can they be put upon assizes, or serve on juries, so long as they continue in office. They may be called the peers of the city, which much resembles in its government the three estates of the kingdom. In the wardmote the alderman presides over the election of the common councilmen; and from the court of aldermen, of which the lord mayor is the official chairman, the latter officer is annually chosen.—The livery nominate, in common-hall, two aldermen to this dignity, one of whom, generally the senior, is finally elected by the court of aldermen. Those aldermen who have passed the civic chair are justices of the quorum; and the lord mayor, recorder, common serjeant, and aldermen, are judges of oyer and terminer for the city of London and county of Middlesex. The aldermen attend, or should attend, daily at the public offices, to dispose of all charges and breaches of the public peace within the city.

ALDERNEY, an island on the coast of Normandy, about eight miles in circumference, and though much nearer the French than the British coast, being within seven miles of Cape La Hogue, it is subject to the crown of Great Britain. With Guernsey, Jersey, and Sark, it forms the only part of the possessions of William the Conqueror that now remain in our possession. Alderney is about thirty miles from the nearest part of the English coast, and about eighteen from Guernsey. The Race of Alderney is a

name given to the strait running between the coast of France and this island. The town of this name, about two miles from the harbour, is but poorly built; though it has a handsome church, and contains about 1000 inhabitants. In stormy weather the whole coast is dangerous, more particularly from a ridge of rocks, called the Caskets, which, from the numerous eddies, have often proved fatal to mariners. The air is salubrious, and the soil fertile, and in the highest state of cultivation; but the custom of parting their lands into small parts by gavel-kind, keeps the people in a state of poverty. They send a considerable quantity of corn to England, but their trade is small, and they receive their goods from Guernsey. In 1119, Henry, duke of Normandy, son of king Henry I., with many of the nobility, were overtaken by a dreadful storm, and lost, near this island; and off the same rocks, in 1744, the Victory of 116 guns, admiral Sir John Balchen, with 1100 marines and sailors, foundered, and all on board perished.

ALDHAFERA, in the Arabian astronomy, denotes a fixed star of the third magnitude, in the Lion's mane, marked γ.

ALDHELM. (St.) See ADELME.

ALDHUN, ALFHUNUS, or ALDWINUS, was presented to the see of Lindisfarne, or Holy Island, in the year 990, the twelfth of the reign of king Ethelred. He was admonished, in a dream, as the legends of the times say, to quit the island with his brethren, and take with him the body of saint Cuthbert, which had been buried there 113 years: he obeyed, it is added, and founded the city and bishopric of Durham. Alfred and Edward, the sons of king Ethelred, were educated by this bishop, and were conducted by him, together with queen Emma, to her brother Richard, after the defeat of their father by Swain, king of Denmark, in 1017. He died in 1719.

ALDII, in antiquity, servants who attended their masters in expeditions to the wars. These were otherwise called aldiones, aldionii, and aldionarii.

ALDRED, abbot of Tavistock, was made bishop of Worcester in 1046. He was so much in favour with king Edward the Confessor, that he induced that monarch to be reconciled with the worst of his enemies, particularly with Swaine, son of earl Godwin, who had revolted against him, and came with an army to invade the kingdom. Aldred also restored the union between king Edward and Griffin, king of Wales. He afterwards went to Rome, and in 1054, was sent ambassador to the emperor Henry II. He staid a whole year in Germany, and was very honourably entertained by Herman, archbishop of Cologne, from whom he adopted much of the ecclesiastical discipline, which, on his return, he established in his own diocese. In 1058, he went to Jerusalem, which no English prelate had ever done before him. Two years after he returned to England; and Kinsius, archbishop of York, dying in 1060, he was elected to that see, which he thought fit to hold with his bishopric of Worcester, as some of his predecessors had done. Aldred went soon after to Rome, to receive the pallium from the pope, attended by the earl of Northumberland, and two other bishops, who were well received; but Aldred, it is said, being found ignorant, and guilty of simony, the pope refused to confirm his new appointment. On his way home, he and his fellow-travellers being attacked by robbers, they were compelled to return to Rome; and the pope, either out of compassion, or from the threatenings of the earl of Northumberland, gave Aldred the pallium, but obliged him to resign his bishopric of Worcester. However, as the archbishopric of York had been almost ruined by the many invasions of foreigners, king Edward gave the new archbishop leave to keep twelve villages, which belonged to the disputed see. Edward dying in 1066, Aldred, according to the Saxon Chronicle, crowned Harold his successor. He is also said to have crowned William the Conqueror, to whom he had made him swear to protect the holy churches of God and their leaders; to establish and observe righteous laws; and that he would entirely prohibit and suppress all rapine and unjust judgments. Some writers, however, dispute the fact of his having crowned the Norman monarch. It was certainly the right of the archbishop of Canterbury. With William, Aldred soon became a favourite; and, though imperious to every body else, he submitted implicitly to this prelate; of which Brompton gives a remarkable instance. It happened, when Aldred was at York, that the deputy-governor, or lord-lieutenant, going out of the city with his attendants, met the archbishop's servants, who came to town with several carts and horses loaded with provisions. The governor asked them to whom they belonged; and they having answered that they were Aldred's servants, he ordered that all the provisions should be carried to the king's use-house. On this the archbishop sent some of the clergy to the governor, commanding him to deliver the property back, and to make satisfaction to St. Peter, and to him his vicar, for the injury he had done them. But the governor returned an answer as haughty as the message. Aldred then upon went to London, to make his complaint to the king; and, meeting him in the church of St. Peter, at Westminster, addressed him thus: 'Hearken, O William! when thou wert a foreigner and God, to punish the sins of this nation, permitted thee to become master of it, (after having shed a great deal of blood,) I consecrated thee and put the crown upon thy head with blessings; but now because thou hast deserved it, I pronounce a curse on thee, instead of a blessing, since thou art become the persecutor of God's church, and of his ministers, and hast broken the promises and oaths which thou madest to me before St. Peter's altar.' Terrified at this discourse, the king fell upon his knees, it is said, and humbly begged the prelate to tell him, by what crime he had deserved so severe a sentence. While the noblemen present, enraged against the archbishop, cried out, that he deserved death, or at least banishment, for having offered such an insult to his sovereign; and pressed him with threatenings, to raise the king from the ground. But the prelate, unmoved, answered calmly, 'Good men, let him lie there; he is not at Aldred's, but at St. Peter's feet; and must feel

St. Peter's power, since he has dared to injure his vice-gerent.' He now vouchsafed to take the king by the hand, and to tell him the ground of his complaint. The king, in reply, pleaded ignorance of the whole matter; but it was not without much entreaty, aided by promises and presents, that the archiepiscopal wrath was appeased. The Danes having invaded the north of England, in the year 1068, under the conduct of Harold and Canute, the sons of Swane; Aldred is said to have died of the afflictions it caused him, on the 11th of September, in that year.

ALDRICH, (Dr. Henry,) an eminent English divine, born at London in 1647, was educated at Westminster school, under the famous Dr. Busby, and admitted of Christ-church college, Oxford. He had a great share in the controversy with the papists, in the reign of James II.; and bishop Burnet ranks him among those who had examined all the points in dispute, with a solidity of judgment, clearness of argument, and depth of learning, far beyond any who had preceded him. He rendered himself so conspicuous, that at the revolution, when Massey, the popish dean of Christ-church fled, his deanry was conferred on him. In this station he behaved in an exemplary manner, and that fabric owes to him much of its beauty. He published a System of Logic, with some other pieces; and the revising Clarendon's History of the Rebellion is said to have been entrusted to him and bishop Spratt. Dr. Aldrich was also rector of Wem in Shropshire, and prolocutor of the convocation in 1702. He died at Christ-church, on the 14th of December 1710. Dr. Aldrich had considerable taste as a musician, and composed many services, and about twenty anthems for the church; he also produced some compositions of a lighter kind. Two catches of his are still esteemed; viz. the bonny Christ-church bells, and a smoking catch, to be sung by four. His own love of smoking it seems was excessive. He is of some note as a Latin poet. In the Musæ Anglicanæ, we find two elegant copies of his verses, one on the accession of king William III. and the other on the death of the duke of Gloucester. Sir John Hawkins has preserved a humorous translation by him of the well-known English ballad, a soldier and a sailor, &c.; and an epigram, entitled Causæ Bibendi.

'Si bene quid memini, causæ sunt quinque bibendi;
Hospitis adventus, presens sitis, atque futura,
Aut vini bonitas, aut quælibet altera causa.'

'If on thy theme I rightly think,
There are five reasons why men drink:
Good wine, a friend, because I'm dry,
Or lest I shall be by and bye;
Or any other reason why.'

ALDROVANDA, in botany, a genus of the pentandria order, belonging to the pentagynia class of plants; of which there is but one species: CAL. divided into five parts; the petals five; and the capsule having five valves, with ten seeds. It is a native of Italy, and the Indies; and has no English name.

ALDROVANDUS, (Ulysses,) professor of philosophy and physic at Bologna, the place of his nativity. He was a most curious enquirer into natural history, and travelled into the most distant countries on purpose to inform himself of their productions. Minerals, metals, plants, and animals, were alike the objects of his indefatigable researches; but he applied himself chiefly to birds, and was at great expense to have figures of them drawn from the life. Aubert le Mire says, that he gave a painter a yearly salary of 200 crowns, for thirty years and upwards; and employed, at his own expense, Lorenzo Bennini and Cornelius Swintus, as well as the famous engraver Christopher Coriolanus. These expenses ruined his fortune, and at length reduced him to the utmost necessity; so that he died blind, it is said, in an hospital at Bologna, at a great age, in 1605. Bayle observes, that antiquity does not furnish us with an instance of a design so extensive and laborious as that of Aldrovandus, with regard to natural history; that Pliny has treated of more kinds of subjects, but only touches lightly on any thing; whereas Aldrovandus has collected all he could meet with. The compilation, upon his plan, consists of seventeen volumes in folio, several of which were printed after his death. He himself published his History of Birds, in three folio volumes, in 1599; and seven books of insects, which make another volume of the same size.

ALDRUDE, countess of Bertinoro, in Romagna, in the twelfth century. She was celebrated for her magnanimity. In conjunction with William degli Adelardi of Ferrara, she compelled the Venetians and Imperialists to raise the siege of Ancona. The citizens made a brave resistance, but being driven to extreme exigency for want of provisions, they applied to William degli Adelardi and the countess of Bertinoro, who assembled troops, and marched to their relief. Aldrude, by her presence and exhortations, inspired the troops with courage; and on their arrival, the besiegers fled in confusion. On her return she encountered several parties of the enemy, and came off victorious in every action. William, having disbanded his troops, went to Constantinople, where he was received by the emperor with great honour.

ALDSTON-MOOR, a market town and parish of Cumberland, in the ward of Leath, 302 miles from London, and eleven from Hexham. The town is beautifully situated on the side of the hill, at the bottom of which runs the river Tyne, over which is a fine stone bridge. The neighbourhood abounds with lead mines, and is one of the most romantic parts of the border towards Northumberland. The church is a curacy. Market on Saturday.

ALDUABIS, or ALDUASDUBIS, in ancient geography, a river of Celtic Gaul, which, rising from Mount Jura, separated the Sequani from the Helvetii, and running through the county of Burgundy, or Franche Comte, environed almost on every side the city of Besançon; and falls into the Soare. It was also called Dubis: now le Doux.

ALDULPH, from *eald*, old, and *ulph*, help, Sax. an archbishop of Litchfield, in the end of the eighth century.

ALDUS, (Manutius,) a learned printer of the fifteenth century, to whom the world is indebted for numerous accurate and elegant im-

pressions of the classics. He was born at Bassaro, and by his indefatigable and judicious pursuit of his profession, became the restorer of the Greek and Latin languages to Europe: he invented what is called, after his country, the *Italic* letter, and published an excellent Greek Grammar, besides abundant notes and commentaries on the principal ancient authors. He died at Venice in 1516. See MARUTIUS.

ALDWINKLE, ALL SAINTS, a small town of Northamptonshire, in the hundred of Huxloe, eighty miles from London, and the birth-place of the poet Dryden.

ALDWINKLE, ST. PETER, a town of Northamptonshire, in the Huxloe hundred, seventy-two miles from London, where the antiquary Fuller was born.

A L E.

ALE. Eale, from ælaw, to kindle and enflame. A liquor made by infusing malt and hops in hot water, and then fermenting the liquor.

Wel coude he knowe a draught of London *ale*.
Chaucer. The Prologue, v. i. p. 16.

For as siue keepeth *ale*,
Right so can Cheste kepe a tale,
All that he wote, he woll disclose,
And speke er any man oppose.
Gower, Con. A. book iii.

You must be seeing christenings. Do you look for *ale* and cakes here, you rude rascals?
Shakspeare's Henry VIII.

The fertility of the soil in grain, and its being not proper for vines, put the Egyptians upon drinking *ale*, of which they were the inventors. *Arbuth.*

Where village statesmen talk'd with looks profound,
And news much older than their *ale* went round.
Goldsmith's Deserted Village.

ALE, *ol*, Swedish: both, perhaps, being derived from the A. S. verb, as above, ælaw, to inflame, that well known fermented liquor, which in this country is obtained by fermentation from the malt of barley, a due mixture of hops, &c.

Countries to which nature has denied the richer juice of the grape, as a natural production, have in all ages cultivated some kind of substitute of this description. Hence from Egypt is said originally to have been derived *barley-wine*, and Herodotus attributes the first discovery of the art of brewing it to Isis, the wife of Osiris. Pelusium, situated on one of the mouths of the Nile, was particularly celebrated for its manufacture of malt liquors, of which there were two kinds, answerable very remarkably to our own popular liquors of ale and porter; the one called *carmi*, being sweet and glutinous, the other, named *zythum*, seems to have been analogous to modern beer. Dioscorides, the friend of Mark Antony and Galen, who flourished in the reign of Antonius Pius, were both well acquainted with ale: and from the testimony of Tacitus, it appears that the Germans were capable of preparing a liquor similar to wine, (quandam vini speciem), from barley, by fermentation. Julian, Strabo, and Polybius, show, that the same art was known to the Spaniards, the Gauls, the inhabitants of the British Islands, and the north of Europe. Our Anglo-Saxon ancestors placed one of their chief future felicities, in quaffing noble draughts of fermented malt liquors in the hall of Odin. But all the ancient malt liquors seem to have been made entirely of barley, or some other farinaceous grain, and therefore were not generally calculated for long keeping, as this quality depends considerably, though not entirely, on the bitter extract of hops, or other vegetables, with which the liquor is mingled.

A beverage of this kind is well known to English law, and is to be traced in every record of ancient customs and festivities from the earliest periods. Lands were held on a rental in the ninth century, which included two tuns full of clear ale—a hundred loaves—ten mittan of Welch ale, &c. A cumb full of a third sort of ale, called *lithes*, or mild ale, is mentioned in Dugdale's Monasticon, as reserved in a grant of Offa; and a Saxon youth in Ælfric's Colloquies, when asked what he drank, expresses a choice, not yet obsolete—'Ale if I have it, and water if I have it not.' (M.S. Tab. 3, in the Cotton Library.) Ale is mentioned by Buchan as drank in Scotland at a very early period, and called vinum ex frugibus corruptis. For modern laws respecting it, see the close of this article, ALE-HOUSES, EXCISE, &c.

The brewing of ale and beer of all kinds, is conducted by the same general process: the difference between them arising solely, in the first instance, from the different colour of the malt employed.

Good ale is commonly expected to be a light amber colour, brisk, and sweetish, or at least, not bitter to the taste; beer, in which we may include porter, is dark-coloured, much less brisk, and having a bitter taste, of a very peculiar nature. This last peculiarity, in fact, seems to render porter at once more agreeable to the palate, and more nutritive to persons who take strong exercise: it also renders it capable of being longer and better kept. Under the article BREWING, we shall enter more at large into the commercial and scientific relations of this subject; and the history of the astonishing increase of brewing-concerns in this country, especially in London: our present object is to treat it more familiarly; and, while exhibiting the real principles of the process, to assist their application to private and small concerns, rather than to those of the public and opulent brewers.

Ale is a wine of grain, distinguished, however, by containing a larger portion of mucilage and saccharine matter, and by the absence of super-tartrate of potash, a salt found in all wines expressed from the grape. As distinct from porter, ale contains also its farinaceous matter and saccharine mucilage in a more undecomposed state, which gives that clammy consis-

tency to the one, which we do not find in the other: and hence strong new ale becomes muddy by a mixture of alcohol which effects no perceptible change in porter.

As produced by a common process, all malt liquors contain a common chemical alcohol, or spirit. Professor Brande (Phil. Trans. 1811. p. 345.) found in the best Burton ale, 8.88 per cent of alcohol; in good home-brewed ale, 8.30; in three samples of Burton ale, 6.25; in Edinburgh ale, 6.70; in six samples of London ale, 5.82; in three of Scotch, 5.75; in Dorchester ale, 5.50. The best brown-stout, or London porter, yielded only 6.80, according to this celebrated chemist.

A fermented liquor of the ale kind is commonly made in America from Indian corn. In the interior of Africa, according to Mungo Park, from the seed of the holcus spicatus, (which yielded beer, says this traveller, equal to the best and strongest of our malt liquors), we have seen wheat and oat malts, and they have been occasionally tried in considerable breweries; in some countries in the north of Europe, a mixture of rye and barley is said to be used. But the grain which is unquestionably best adapted for malting and brewing purposes, is barley; (hordeum vulgare) and its Scottish variety big, or bear, (hordeum hexasticton) its germination being more easily effected, and its farinaceous matter more abundant and more readily convertible into saccharine than that of any other seed. The only ingredients of all good malt liquor, then, are malted corn, water, and hops. For MALTING, see that article.

We suppose a brewer, whether for public or domestic purposes, to possess himself of good malt and hops. Of the former, there are three different kinds in general use, namely, pale, brown, and amber, names derived from the colour, which depend on the mode of drying the malt. Pale malt differs little in colour from barley, it being dried by a very gentle heat, just so far as to put a stop to the vegetation of the grain.

Amber-coloured malt is, in all its properties, intermediate between pale and brown, and is so rendered by being dried with a greater heat. Brown malt differs from both in having been exposed to a still greater temperature; so that the outside of the flower is in a measure charred. Pale, and amber-coloured malt, not only affect the colour of the liquor brewed; but, in consequence of the chemical operations of the heat, applied on the principles that are developed in the grain, during the process of malting, materially alter the quality of the beer, especially with regard to the properties of becoming fit for drinking, and growing fine. The quality of malt differs according as it is more or less soaked, drained, germinated, dried, or baked, and the quality of the barley from which it is obtained. High dried malt contains a less quantity of matter capable of producing a vinous fluid, than the same quantity of pale malt. Hence the great breweries, even for porter, prefer the pale malt of Hertfordshire, and use a patent burnt malt in small quantities for colouring. If colour be wanted in domestic brewing, it may be more economically given by burnt sugar.

Hops, it is well known, are the seed, or flower-pods of the humulus lupulus, or hop-plant, which is cultivated in considerable quantities in the south of England, especially in Kent and Hampshire. They are collected when ripe, and dried on a kiln; then packed up in bags, and sold to the public. The peculiar bitter taste of hops, and a weak aromatic odour, possessing sedative qualities to a considerable extent, are their recommendations for brewing. A pillow, filled with hops, has often been found to induce sleep, when every thing else has failed. If they are distilled with alcohol, in a retort, there remains behind a solid green-coloured oil, of a sharp taste, and scarcely bitter, but putting one in mind of the peculiar flavour of good ale. This oil is the part of the hops which gives them their characteristic smell, and beer its distinguishing flavour. It is apt to be dissipated by long boiling. It does not appear, according to the opinion of some brewers, that the intoxicating qualities of ale are to be ascribed to the oil of the hop. The bitter principle of hops is easily extracted by water, and in no part of nature does it exist in greater perfection. 'No re-agent,' says Dr. Thompson, 'is capable of throwing it down excepting acetate of lead.' This taste, in all its peculiarities, is communicated to the wort of beer and ale, and the stronger the liquor, the more, of course, it will bear of this valuable addition. In brewing the best mild Edinburgh ale with sixty bushels of malt, yielding 11¾ barrels of wort (measured when boiled completely) 40 lbs. of hops have been used; with 47½ bushels, yielding 10.83 barrels of wort, 36 lbs. of hops; with 60 bushels of malt from *big.*=14.7 barrels of wort, 40 lbs. of hops. A common rule is to employ a pound of hops with every bushel of malt.

Let our brewer be now further provided with either a malt-mill, (the best of which is that in which the malt is bruised between iron rollers), or ground malt, and consider the whole of that valuable domestic and public art to be comprised under an attentive observation of this five-fold process, viz.: 1. Mashing. 2. Boiling. 3. Cooling. 4. Fermenting. 5. Cleansing.

I. OF MASHING.—He grinds his malt, say fifty bushels, and uses a copper boiler, whose solid contents amount to 382 ale gallons, being rather more than 107,521 cubic inches or, 62½ cubic feet. This boiler must be placed over brick work upon a furnace, and there must be conveniences for filling it with water and for letting the water off, when sufficiently heated, into the mash-tun.

He must be provided also with a mash-tun, or wooden vessel composed of staves properly fixed by means of iron hoops, and generally placed in the middle of the brew-house. It usually has a false bottom full of holes at some little height above the true bottom, and to be capable of mashing fifty bushels of malt, must be at least one-third larger than the bulk of the malt, or capable of containing seventy-five bushels.

Into the boiler is to be put a quantity of water equal, at least, in bulk to that of the malt, and heated up to 190°, or 180°, according to the judgment of the brewer and the quality of the malt. But the best brewers employ the lower temperature. This water is then to be let into

the mash-tun, and the malt, previously ground, to be let down into it immediately after. All the clots are now carefully broken, and mixed with the water by narrow wooden shovels, or, when the capacity of the mash-tun is great, by machinery. Great care must be taken to break all the clots, because the whole of the malt within them would otherwise escape the action of the water, and be lost to the brewer. When the water and malt are sufficiently mixed, the mash-tun is covered and left in this state about three hours. But the time varies according to circumstances. To what degree the temperature of the water is lowered when thus mixed with the malt, it is difficult to ascertain, from the impossibility of inserting a thermometer into the centre of the mash-tun. But fifty-one bushels of water at the temperature of 192°, mixed with 47¼ bushels of malt, have afterwards given the temperature at the surface of the mash 140°. When the wort began to run off, two hours and a half after, its temperature was 156°; and at that time the surface of the mash was at 136°. Thus, perhaps, the whole mash lost four degrees as well as the surface, and the mean between the bottom and top, will give for the mean heat of the whole after the mashing, 150°: so that the water has lost thirty-two degrees of heat, while the malt (its temperature before mixture was 48°) gained 102°; which makes the specific heat of the malt, 0.69, rather above, probably, than under the truth. The mash having continued for about three hours, longer or shorter according to circumstances, a stop-cock, placed below the false bottom in the mash-tun, is opened, and the wort allowed to run out into a vessel prepared to receive it, known by the name of the underbeck. At the same time the cover is taken off the mash-tun, and quantities of water, of the temperature of 180°, are occasionally sprinkled over it from the boiler, which had been again filled with water to be heated, as soon as the water for mashing was drawn off. No specific directions can be given respecting the quantity of hot-water added in this manner by sprinkling, because that must depend upon the views of the brewer. If he wishes to have ale of great strength, he will of course add less water; if the ale is to be weak he will add more. The best way is to determine the strength of the liquor as it flows into the underbeck by means of a saccharometer, or by taking its specific gravity. When the specific gravity (at sixty degrees) sinks to 1.04 or 1.05, or when it contains only 36½ or 46½ lbs. per barrel of solid matter in solution, it would be useless or injurious to draw any more off for making strong ale. But an additional portion may still be drawn off and converted into small beer.

No general rule can be laid down for the specific gravity or strength of the wort, when it begins to flow from the mash. It will depend upon the goodness of the malt, and upon the quantity of mashing water employed, when compared with the quantity of malt. The following gravities have been taken at this period of the process: 1.084, 1.0805, 1.0815, 1.0835, 1.091, 1.094; or containing respectively 78¼, 74, 75½, 78, 85, and 87¾ lbs. per barrel. When it first flows from the mash-tun, the wort is a transparent liquid of a fine amber colour, a peculiar smell, and a rich, luscious, sweet taste. If it is cloudy, it is a proof that the water used for mashing was of too high a temperature. We have seen the wort run cloudy from the mash-tun, when the temperature of the water had been as high as 200°, or 191°, but never when it was no higher than 180°. This affords an additional reason with the brewers for keeping the temperature of the mashing-water low. But we have doubts about the accuracy of the reason; and it must be acknowledged, that some obscurity hangs upon this part of the process of brewing. For worts will sometimes continue opaque during the whole process of boiling, cooling, and fermenting, and require ultimately to be clarified, or fined, as the brewers term it, by means of isinglass. The substance which renders ale in this case turbid, seemed to be a variety of starch, or some particular form of that substance; for it has been completely precipitated by infusion of nutgalls, and the precipitate redissolved by the application of a moderate heat. A quantity of wort like that of which we have been treating, takes from six to eight hours in flowing from the mash-tun. As it flows on its colour diminishes to a light yellow, the smell is less pleasing, and the taste not so sweet. The wort which first comes off, evaporated to dryness, leaves a yellow-coloured residuum, of a sweet taste, which dissolves readily in water, absorbs water from the atmosphere, and becomes clammy, and similar in appearance to treacle. Its specific gravity is 1.552. There can be no doubt that this residue contains a good deal of sugar, to which it nearly approximates in gravity, and is precisely the same in its properties with the sugar into which starch is converted by a very dilute acid. But it is mixed likewise with a considerable portion of starch. The chemical constitution of wort is in fact threefold: 1. Saccharine matter, which is perhaps the base or essential constituent. 2. Starch, which is instantly detected by dropping in a solution of iodine, that produces a blue precipitate. 3 Mucilage, which is precipitated in flakes when the wort is poured into alcohol. This abounds more in the last drawn off wort than the first; and readily passes into the acetous fermentation; consequently the flavour of our malt-liquor is improved, if we take only for the best ale, the wort that runs off first.

II. We now arrive at another important step in our process, Boiling the wort. Being raised by means of pumps from the underbeck into the copper boiler, the wort is boiled for several hours, till it has acquired a strength of which the brewer judges according to his views, and by scientific instruments. Thus from fifty bushels of malt 13.444 barrels of wort are to be obtained, of the specific gravity 1.068, or of 63.125 lbs. of saccharine matter per barrel: and it may be boiled down to 11.083 barrels of the specific gravity 1.1015, or of 94½ lbs. per barrel. From 60 bushels of malt, 23.465 barrels of wort, of the strength of 64.37 lbs. per barrel, or of the specific gravity 1.0683: and it may be boiled down to 19.736 barrels of the strength of 82.7 lbs. per barrel, or of the specific gravity

1.089. From sixty bushels of big malt 23.8193 barrels of the specific gravity 1.0648, or of 58.75 lbs. per barrel of saccharine matter; boiling down to 19.736 barrels of the specific gravity 1.078, or of 72½ lbs. per barrel of saccharine matter.

The hops are added while the wort is in the boiler, according to the strength of the wort, and the time it is designed to keep the beer, which is sometimes called *hopping* the wort. The hop coagulates the excess of mucilage and glutinous matter which is extracted from the malt in mashing, for if this were suffered to remain in solution in the beer, it would never become fine, but would always be cloudy: the boiling hardens this substance in the same manner as the white of an egg acquires solidity by boiling. This coagulation is called the *breaking* or curdling of the wort. The boiling must therefore always continue till the breaking appears. Another object is attained by the hops in the operation of boiling, namely, the concentration of the wort. Its bulk becoming reduced by evaporation, which merely carries off a portion of water, the original quantity of fermentable matter remains concentrated in a smaller space.

III. The wort having been boiled down to the requisite strength, it is let down into the COOLERS, or shallow floors of wood, surrounded with a wooden ledge, and water-tight, placed in the most airy and exposed situation in the brewery; to hold the whole of the wort at a depth not exceeding three or four inches. The object is to cool down the wort, as rapidly as possible, to the temperature of the atmosphere; because, if it were allowed to remain long hot, it would run the risk of becoming sour, and spoil the whole process. The superiority of many breweries consists in the construction of the coolers, or, upon their being as well adapted as possible for speedily reducing the temperature of the wort. They must be kept perfectly clean, and a free current of air should pass over them.

Rather more than one-fourth of the whole wort is dissipated by evaporation during the cooling. When the wort is let out of the boiler into the cooler, the hops still remain, and, as they are soaked with wort, a considerable loss would be sustained if they were thrown away. Thus 45 lbs. of hops have retained half a barrel of wort after they were drained so completely that no more wort would drop out. In another case, 35 lbs. of hops, retained in the same way, 0.3666 of a barrel, which is rather more than one-third of a barrel. To recover this wort it is proper to subject the hops to pressure. By some brewers this circumstance is too much neglected.

Where the brewery is small, and, from the weather or otherwise, the apartment in which the fermenting vessels are placed is cold, it is proper not to reduce the temperature of the wort lower than 56°. When the apartment in which fermentation is carried on is warm, 51° or 52° is a very good temperature. If a brewer is obliged to make ale in warm summer weather, it is material to reduce the temperature as low as possible.

IV. The wort being now sufficiently cooled down by exposure, it is let down into the FERMENTING TUNS, or, as the brewers call them, the gyle-tuns, in order to be fermented; by which process, it is converted from the luscious sweet-tasted liquor called wort, to the brisk intoxicating liquor which constitutes ale. The gyle-tuns are cylindrical wooden vessels, varying in size, according to the extent of the brewery. In London breweries and distilleries, they are of prodigious size; but in private houses they often do not exceed the size of a wine hogshead, or even of a beer barrel. The fermentation is perhaps conducted with the greatest economy in larger vessels; but good ale may be made in comparatively small quantities. Good porter has scarcely ever been made, except by those who manufacture it upon a large scale. The fermenting tuns are never filled by the wort; because a considerable increase in bulk takes place during the fermentation, in consequence of which the liquor would run over, unless allowance were made for it: and the fermentation of ale or beer is never carried to any great length. The object is, to retain the flavour and good qualities of the ale or beer, not to develope the greatest quantity of spirit, which can hardly be done without allowing the wort to run into acidity.

The strength of the fermentation depends upon the quantity of yeast used. This is a frothy substance, of a brownish-grey colour, and bitter taste, formed on the surface of ale or wine while fermenting. If it be put into sacks, the moisture gradually drops out, and the yeast remains behind in a solid form, of the flavour and taste of cheese, but darker in its colour.

Mr. Westrumb is the only chemist who has subjected yeast to an analysis; and this is so far back as the year 1796. He obtained from 15,360 parts of fresh beer,

Of	Potash	13
	Carbonic acid	15
	Acetic acid	10
	Malic acid	45
	Lime	69
	Alcohol	240
	Extractive	120
	Mucilage	240
	Saccharine matter	315
	Gluten	480
	Water	13,595
		15,142
	Loss	218
	Total	15,360

A gallon of yeast is generally allowed to about three barrels of wort: 'one gallon to every sixteen barrels of ale or porter,' says a London brewer. In about five or six hours after the yeast has been added, the fermentation begins. Its first appearance is a white line or border on the surface of the liquor, commencing at the sides of the tun, and gradually covering the surface of the liquor with a white scum.

Air bubbles separate from it, and a froth, of a yellowish-grey colour, collects slowly. In a few days, especially if the weather be warm, it collects in considerable quantities. At the same time, the temperature of the wort increases, and

it yields a very considerable quantity of carbonic acid gas. The increase of temperature which takes place during the fermentation of ale may be stated, at an average, to amount to twelve or fifteen degrees. Sometimes it amounts to twenty, and sometimes does not exceed five degrees; though in such cases, there is generally some deficiency in the skill of the brewer.

Fermentation, indeed, is the great secret of the brewer's art, and the true theory of it, has occupied the attention of chemists ever since the manufacture of ale began to be attended to by men of science. Lavoisier was the first person who attempted to offer any thing like a theory of this intricate process. He endeavoured to determine the composition of common sugar, a substance which may be fermented just as well as the soluble part of malt, and which yields similar products, and ascertained the constituents of alcohol, the substance formed by fermentation. On the whole, he formed a plausible theory, but valuable chiefly as a first approximation, though there can be little doubt that it was erroneous in every particular. Since that time, several expreiments on the subject have been made by Thenard, Gay Lussac, and Berzelius, which have more accurately determined the constituents of sugar; and Theodore de Saussure has made very elaborate, and, we believe, accurate, experiments on the composition of alcohol. The general theory, as resulting from experiments on common sugar, and on the saccharine matter of malt, may be thus stated.

A weak solution of sugar in water kept in a warm place will ferment of itself. The solution of sugar of grapes in water ferments still more speedily; as also does sugar of starch; and the saccharine matter of malt. In a general view of fermentation, therefore, we may leave out the small quantity of yeast; because it is not absolutely necessary, but seems merely to render the effect more rapid, and thus to prevent the change of the liquid into acidity

In complete fermentation the sugar disappears altogether, and two new substances are found in its place, carbonic acid and alcohol. According to Lavoisier's experiments, 100 parts of sugar yielded, when fermented,

Alcohol	57.70
Carbonic acid	35.34

The specific gravity of his alcohol could scarcely be less than 0.825 such alcohol contains at least eleven per cent. of water; for that quantity has been actually extracted from it. From Saussure's experiments, it is probable that the real quantity of water contained in alcohol of the specific gravity 0.825, is 18.387 per cent. or almost a fifth. On this supposition, sugar, according to Lavoisier's experiments, yields

Alcohol	47.1
Carbonic acid	35.34
	82.44

or per cent.

Alcohol	57.1
Carbonic acid	42.9
	100.0

Thenard mixed sixty parts of yeast with 300 of sugar, and fermented the mixture at the temperature of fifty-nine degrees. He informs us that in four or five days all the saccharine matter had disappeared The quantity of carbonic acid evolved amounted by weight to 94.6 parts. It was perfectly pure, being completely absorbed by water. The fermented liquid being distilled, yielded 171.5 parts of alcohol, of the specific gravity 0.822. When the residue of the distillation was evaporated, twelve parts of a nauseous acid substance remained, and forty parts of the yeast still continued unaltered in appearance, though Thenard assures us that it had lost the whole of its azote. Thus the products of the fermentations were

Alcohol of 0.822	171.5
Carbonic acid	94.6
Nauseous residue	12.0
Residual yeast	40.0
	318.1
Loss	41.9
Total	360.0

But the nauseous residue and residual yeast, making up nearly the quantity of yeast employed, we need only consider the products of decomposed sugar, supposing the loss to be proportionally divided between the carbonic acid and alcohol. Now alcohol, of the specific gravity 0.822, contains one-tenth of its weight of water, which can be separated from it; and if we suppose with Saussure, that absolute alcohol contains 8.3 per cent. of water, then the products of sugar decomposed by fermentation, according to this philosopher's experiments, are

Alcohol	47.70
Carbonic acid	35.34
	83.04

or, in 100 parts

Alcohol	57.44
Carbonic acid	42.56
	100.00

A result approaching so near to that of Lavoisier, as decidedly to confirm the general truth of both calculations. Dr. Thompson, of Edinburgh, from comparing the foregoing experiments, with additional ones of his own, on the saccharine of malt, concludes that the alcohol, or pure spirit, yielded therefrom, when fermentation is properly conducted, is almost exactly one half.

Languid fermentation is to be accelerated by *rousing*, as it is called, or beating in the yeast, which is formed on the top of the liquor, by raising the temperature, &c. If the fermentation is suddenly checked, the beer becomes what is called grey, or never fine. Worts made with water too highly heated, are particularly liable to this malady.

At the completion of the fermentation, which may be taken at about forty or forty-five hours in general cases, (but it depends greatly on the temperature of the atmosphere and the strength of the liquor,) the saccharometer swims deeper on the wort, from the decomposition of the saccharine matter and the production of alcohol being carried

to their height. In the brewing of porter, the fermentation is suffered to proceed until the head of yeast that floats on the surface of the liquor assumes an uniform and compact appearance, and does not float any higher. In the brewing of ale, it is seldom suffered to advance to quite such a degree. In ale, of which the specific gravity amounts to 17.25, or eighteen pounds per barrel, it is stopped by most brewers when the gravity is reduced from seven to nine pounds per barrel. If the beer is meant to be full bodied or hard, the fermentation must be conducted slowly, that is so far as consistent with the richness of the wort; if it is intended to be brisk, the fermentation is stopped the earlier.

If now the wort were allowed to remain in the gyle-tun, the yeast would again mix with it; and the consequence would first be, a disagreeable bitter taste, known among brewers by the name of *yeast bitter;* the fermentation would proceed, though in a languid manner, and the ale would soon run into acidity. These accidents are prevented by drawing off the ale into small casks. This is called

V. Cleansing. The casks are to be filled quite full, and left with their bungs open. The drawing off of the ale from the gyle-tun lowers its temperature, and, of course, checks the fermentation. Sometimes, therefore, the cleansing is practised in summer, when the elevation of temperature in the wort is at its height. The ale continuing to ferment after it is put into casks, the yeast, as it comes to the surface, flows out at the bung, and thus separates altogether from the beer. It is this separation that has induced brewers to distinguish it by the name of cleansing. In these casks, then, the yeast divides itself into two portions. The greatest part rises up with the carbonic acid evolved, and flows out at the bung-hole; while another portion subsides to the bottom, and constitutes what is called the dregs of the beer. It is essential to the cleansing, that the casks should be always full, otherwise the yeast will not run off, and the beer will not become transparent. This object is accomplished in small breweries by a man constantly going round, and filling up the casks as they work down; but in large breweries, by mechanical contrivances, according to their scale of business. When the fermentation has subsided, the beer will in general be found transparent: is bunged up in the cask, and preserved for sale or use.

The filling up of the casks, if the beer works briskly, should be attended to every two or three hours at least, for the first fourteen or fifteen hours, after which the fermentation will subside, in a great degree, and therefore less attention becomes requisite; but, until the fermentation appears wholly to have ceased, yeast should be added according to the strength of the beer, the state of the weather, &c. This will generally be in about forty or sixty hours. Well-fermented beer, especially that designed for private use, generally becomes fine of itself; but the various changes of place, &c. that attend beer brewed for the public, have induced the general use of isinglass as a *fining* or assistance to the depositing of the portions of flocculent glutinous matter remaining in it. They are prepared as follows, and will be seen to be perfectly innocuous: The pickings of book, or leaf-isinglass, are thrown into a wooden tub, and when the tub is about one-third full, it is filled up with good stale small beer, which soon dissolves the isinglass. It is then rubbed through a sieve, and all the hard lumps picked out, the mass is reduced to a proper consistence for use by the addition of a further quantity of good sharp beer. When used for fining, it must be well stirred, and in the course of a few hours, the liquor may be drawn off clear and bright; one pint is the usual proportion to a barrel of beer, but sometimes two and even three, are necessary.

The age at which ale is drank, will depend upon a private person's stock; the size of his cellar, &c. but more frequently upon his family habits, and the pecuniary means he chooses to devote to this beverage. Good mellow ale, soft and fine, may be had at a year old; and it is, perhaps, never better than from one year old to two. Some persons never reckon ale to be old, unless it drinks a little hard, or with some, approaches to sharpness, or acidity; but this is a false taste: old ale in this sense, it has been well said, is old ale spoiled.

After all, a hogshead or pipe of ale, that has been properly brewed and carefully managed, will not always be fine when tapped. Suppose it be a year old, or what is more common, suppose it to be brewed in October (the best month in which to brew good ale for keeping), and tapped at the Christmas twelve-month following; if when tapped it be not fine, it may be corked up again, and stand another twelve-month, when it will probably be found not only fine, but greatly improved in flavour; but if it be wanted, it may be fined as follows: draw off a gallon or two, if the cask be a pipe, and take a quarter of a pound of isinglass, and some fresh hops, and scald them in a clean copper pan, dissolving the isinglass therewith; pour the quantity into a dry pail, and when cool put it into the barrel, and stir the whole together well with a long stick, or such an one as you have head-way to introduce; bung down the cask a few hours afterwards, and in a fortnight the ale will become fine. If the ale drink thin, and incline to be hard, let a pound or two, or more if required, of sugar-candy, bruised, be put into the pan with the hops, &c.

The method called *marrying* ale, we have often seen tried upon a private person's stock with success. It seems to increase its strength, but especially its mellowness and the fulness of its flavour, and consists in tapping a pipe or hogshead of ale in the middle, and when it is drawn as low as the tap, to fill up the cask with another brewing of wort. The particulars to be observed are: to begin upon a sound stock, such as is approved as to colour and flavour; for if there be any approach to acidity it will not do. The next point is to tun the newly-fermented wort upon the old stock, when it has fermented about twelve hours. The third particular, of great importance, seems to be, not to marry your ale in winter, but in autumn (October), for

if your cellar be not a vault, the old stock is too chill, and the fermentation may suddenly stop: if this should happen, as in cellars that are not vaults, the heat may increase considerably in spring, the fermentation may be renewed, and the ale may spoil, or mischief happen to the cask by bursting. Ale that is brewed in the usual way will sometimes ferment in summer, and throw up the bungs of the barrels; especially if the fermentation have been hastily conducted, and little or no cleansing have taken place in the barrels after tunning (which is likely to be the case when brewing is performed in frosty weather); where this happens, the danger is that acidity will follow, and therefore the beer should be speedily used. When ale is married, the fermentation will bring away all the old hops, and it is not to be overlooked that the cork will rise that had been driven in with the tap. It is, therefore, requisite to work it out at the bung-hole, skimming away the hops, &c. till they and the cork are discharged; then fill up the cask, and take out the top cork for cleansing, as before. It may be filled up several times with fresh wort, as in other cases, until the fermentation stops, and then the cork and bung put in (the latter very lightly) and left so until it is necessary to hop it down. The writer has refilled a cask in this manner five years successively, and had the ale always superior, and always alike in colour and flavour; in continuing this practice for a long period it is necessary to remove the casks for fear of accidents. The excellence of this ale is, that you can never guess at its age; it drinks always soft and mild, without any resemblance to ale recently brewed, and is equally remote from hardness or acidity.

Although we have pursued a train of reasoning and observations in this article which will apply to brewing on any scale, we cannot close it without particularly urging on the small farmer and cottager, even the labouring cottager, to endeavour to furnish himself with the beverage of his ancestors, home-brewed beer. 'In former times,' says Mr. Cobbett, in the most useful of his works we have seen, 'to set about to show to Englishmen that it was good for them to brew beer in their own houses, would have been as impertinent as gravely to insist that they ought to endeavour not to lose their breath; for, in those times, only forty years ago, to have a house and not to brew was a rare thing indeed. Mr. Ellman, an old man and a large farmer, in Sussex, has recently given in evidence before a committee of the House of Commons this fact, that forty years ago, there was not a labourer in his parish that did not brew his own beer; and that now, there is not one that does it, except by chance the malt be given him. The cause of this change has been the lowering of the wages of labour, compared with the present price of provisions, by the means of the paper money, the enormous tax upon the barley when made into malt, and the increased tax upon hops. These have quite changed the customs of the English people as to their drink. They still drink beer, but, in general, it is of the brewing of common brewers, and in public houses, of which the common brewers have become the owners, and have thus, by the aid of paper-money, obtained a monopoly in the supplying of the great body of the people with one of those things, which to the hard-working man, is almost a necessary of life.

'At present prices of malt and hops,' continues this powerful writer, 'home brewed beer is the cheapest drink that a family can use, except milk, and that can be applied only in certain cases. The drink, which has come to supply the place of beer has, in general, been tea. It is notorious, that tea has no useful strength in it; that it contains nothing nutritious; that it, besides being good for nothing, has badness in it, because it is well known to produce want of sleep in many cases, and, in all cases, to shake and weaken the nerves. It is, in fact, a weaker kind of laudanum, which enlivens for the moment and deadens afterwards. At any rate it communicates no strength to the body; it does not, in any degree, assist in affording what labour demands. It is, then, of no use. And, now, as to its cost, compared with that of beer, I shall make my comparison applicable to a year, or three hundred and sixty five days. I shall suppose the tea to be only five shillings the pound; the sugar only seven-pence; the milk, only two-pence a quart. The prices are at the very lowest. I shall suppose a tea-pot to cost a shilling, six cups and saucers two shillings and six-pence, and six pewter spoons eighteen-pence. How to estimate the firing I hardly know; but certainly there must, in the course of the year, be two hundred fires made that would not be made, were it not for tea drinking. Then comes the great article of all, the time employed in this tea-making affair. It is impossible to make a fire, boil water, make the tea, drink it, wash up the things, sweep up the fire place, and put all to rights again in a less space of time, upon an average, than two hours. However, let us allow one hour; and here we have a woman occupied no less than three hundred and sixty-five hours in the year, or, thirty whole days, at twelve hours in the day; that is to say, one month out of the twelve in the year, besides the waste of the man's time in hanging about waiting for the tea! Needs there any thing more to make us cease to wonder at seeing labourers' children with dirty linen and holes in the heels of their stockings? Observe, too, that the time thus spent, is one half of it the best time of the day. It is the top of the morning, which, in every calling of life, contains an hour worth two or three hours of the afternoon. By the time that the clattering tea tackle is out of the way, the morning is spoiled; its prime is gone; and any work that is to be done afterward lags heavily along. If the mother has to go out to work, the tea affair must all first be over. She comes into the field, in summer time, when the sun has gone a third part of his course. She has the heat of the day to encounter, instead of having her work done, and being ready to return home at an early hour. Yet early she must go, too; for, there is the fire again to be made, the clattering tea tackle again to come forward; and even in the longest day she must have candle light, which never ought to be seen in a cottage (except in cases of illness) from March to September.

Now, then, let us take the bare cost of the use of tea. I suppose a pound of tea to last twenty days, which is not nearly half an ounce every morning and evening. I allow for each mess half a pint of milk. And I allow three pounds of the red dirty sugar to each pound of tea. The account of expenditure would then stand very high; but to these must be added the amount of the tea tackle, one set of which, will, upon an average, be demolished every year. To these out-goings must be added the cost of beer at the public house; for some the man will have after all, and the woman, too, unless they be upon the point of actual starvation. Two pots a week is as little as will serve in this way; and here is a dead loss of ninepence a week, seeing that two pots of beer, full as strong, and a great deal better, can be brewed at home for three pence. The account of the year's tea drinking will then stand thus:

18lbs. of Tea	£4	10	0
54lbs. of Sugar	1	11	6
365 Pints of Milk . . .	1	10	6
Tea tackle	0	5	0
200 Fires	0	16	0
30 Day's works	0	16	0
Loss by going to public-house	1	18	0
	£11	7	2

I have here estimated every thing at its very lowest. The entertainment which I have here provided is as poor, as mean, as miserable, as any thing short of starvation can set forth; and yet the wretched thing amounts to a good third part of a good and able labourer's wages. For this money, he and his family may drink good and wholesome beer; and, in a short time, out of the mere savings from this waste, may drink it out of silver cups and tankards. In a labourer's family, wholesome beer, that has a little life in it, is all that is wanted in general. Little children, that do not work, should not have beer. Broth, porridge, or something in that way, is the thing for them. However, I shall suppose, in order to make my comparison as little complicated as possible, that he brews nothing but beer as strong as the generality of beer to be had at the public house, and divested of the poisonous drugs which that beer but too often contains; and I shall further suppose that he uses in his family two quarts of this beer every day from the first of October to the last day of March inclusive; three quarts a day during the months of April and May; four quarts a day during the months of June and September; and five quarts a day during the months of July and August; and if this be not enough it must be a family of drunkards. Here are 1097 quarts, or 274 gallons. Now, a bushel of malt will make eighteen gallons of better beer than that which is sold at the public houses. And this is precisely a gallon for the price of a quart. People should bear in mind, that the beer bought at the public house is loaded with a beer tax, with the tax on the public house keeper, in the shape of license, with all the taxes and expenses of the brewer, with all the taxes, rent, and other expenses of the publican, and with all the profits of both brewer and publican; so that when a man swallows a pot of beer at the public house, he has all these expenses to help to defray, besides the mere tax on the malt and on the hops.

Well, then, to brew this ample supply of good beer for a labourer's family; these 274 gallons require fifteen bushels of malt, and, (for let us do the thing well) fifteen pounds of hops. The malt is now eight shillings a bushel, and very good hops may be bought for less than a shilling a pound. The grains and yeast will amply pay for the labour and fuel employed in the brewing; seeing that there will be pigs to eat the grains, and bread to be baked with the yeast. The account will then stand thus:

15 bushels of Malt	£6	0	0
15 pounds of Hops	0	15	0
Wear of Utensils	0	10	0
	£7	5	0

Here, then, is four pounds, two shillings and two pence, saved every year. The utensils for brewing are, a brass kettle, a mashing tub, coolers, (for which washing tubs may serve), a half hogshead, with one end taken out for a tun tub, about four nine gallon casks, and a couple of eighteen gallon casks. This is an ample supply of utensils, each of which will last, with proper care, a good long life time or two, and the whole of which, even if purchased new from the shop, will only exceed by a few shillings, if they exceed at all, the amount of the saving arising the very first year, from quitting the troublesome and pernicious practice of drinking tea. The saving of each succeeding year would, if you choose it, purchase a silver mug to hold half a pint at least. However, the saving would naturally be applied to purposes more conducive to the well being and happiness of a family.

'It is not, however, the mere saving to which I look,' adds Mr. Cobbet, 'this is, indeed, a matter of great importance, whether we look at the amount itself, or at the ultimate consequences of a judicious application of it; for, four pounds makes a great *hole* in a man's wages for the year; and when we consider all the advantages that would arise to a family of children from having these four pounds, now so miserably wasted, laid out upon their backs in the shape of decent dress, it is impossible to look at this waste without feelings of sorrow, not wholly unmixed with those of a harsher description. But, I look upon the thing in a still more serious light. I view the tea drinking as a destroyer of health, an enfeebler of the frame, an engenderer of effeminacy and laziness, a debaucher of youth, and a maker of misery for old age. In the fifteen bushels of malt, there are 570 pounds weight of sweet; that is to say of nutritious matter, unmixed with any thing injurious to health. In the 730 tea messes of the year, there are fifty-four pounds of sweet in the sugar, and about thirty pounds of matter equal to sugar in the milk. Here are eighty-four pounds, instead of 570, and even the good effect of these eighty-four pounds is more than over balanced by the corrosive, gnawing, and poisonous powers, of the tea.

It is impossible for any one to deny the truth of this statement. Put it to the test with a lean HOG: give him the fifteen bushels of malt, and

he will repay you in ten score of bacon or thereabouts. But give him the 730 tea messes, or rather begin to give them to him, and give him nothing else, and he is dead with hunger, and bequeaths you his skeleton at the end of about seven days. It is impossible to doubt in such a case.' COBBETT's *Cottage Economy, containing Information relative to the brewing of beer, making of bread, keeping of cows, pigs, bees, ewes, goats, poultry, and rabbits; and relative to other matters deemed useful in the conducting of the affairs of a labourer's family.*' We have cited the whole of his title, for this little work is really described by it, and cannot be too widely circulated among the classes for whom it is designed. Of course it must be read with due allowance for Mr. Cobbett's occasionally wild and ever-varying political doctrines.

The following method for preserving ale from turning sour in long voyages, was first published by Dr. Stubbs in his Phil. Trans. No. 27. To every runlet of five gallons, after being placed in a cask on ship-board not to be stirred any more, put in two new-laid eggs whole, and let them lie in it. In a fortnight, or a little more, the egg shells will be entirely dissolved, and the eggs become like wind-eggs enclosed only in a thin skin; after this the white is preyed on, but the yolks are not touched or corrupted; and by these means the ale has been so well preserved, that it was found better in Jamaica than at Deal.

To give the reader an opportunity of comparing the quantity of ale and porter drank in London, we subjoin

A table exhibiting the quantity of strong ale and porter brewed by the seven principal houses in London, in the year ending the 5th of July, 1815.

PORTER.	Barrels.	ALE.	Barrels.
Barclay and Perkins	337,621	Wyatt	27,094
Meux, Reid, and Co.	282,104	Charrington and Co.	22,146
Trueman, Hanbury, and Co.	272,162	Goding and Co.	20,444
F. Calvert, and Co.	219,333	Stretton and Co.	14,491
Whitbread, and Co.	261,018	Hale and Co.	10,134
H. Meux and Co.	223,100	Ball and Co.	7,985
Combe	105,081	Thorpe and Co.	5,433
	1700,419		107,727

Giving the great difference of 1592,692 barrels in the consumption of these two descriptions of malt liquor in and about the metropolis.

THE FOLLOWING ARE THE LAST YEARS' RETURNS.

A table exhibiting the quantity of strong ale and porter brewed by the six principal houses in London, in the year ending the 5th of July, 1825.

PORTER.	Barrels.	ALE.	Barrels.
Barclay and Perkins	337,446	Goding and Co.	28,272
Trueman, Hanbury, and Co.	223,766	Wyatt and Co.	20,193
Whitbread and Co.	203,842	Charrington and Co.	16,795
Meux, Reid, and Co.	190,252	Goding Thomas	15,423
Combe	146,743	Ball and Co.	12,245
H. Meux and Co.	108,948	Hale and Co.	8,006
	1230,997		100,953

Giving the difference of 1130,044 barrels in the consumption of these two descriptions of malt liquor in and about the metropolis.

ALES, in church history and ancient customs, were variously denominated. From the predominance of this old English beverage in the feasts of the people, the entertainments given passed by the names of the bridal-ale, leet-ale, lamb-ale, Whitsun-ale, &c. denoting respectively a wedding feast, an entertainment at the court-leet of a manor, at lamb-shearing, &c.

CHURCH-ALES were feasts established by custom or authority in the neighbourhood of a church, for the double purpose of regaling the people, and gathering from them contributions to its repair, the honour of the patron-saint, &c. They are described by Pierce, bishop of Bath and Wells, in his answer to the enquiries of archbishop Laud, as celebrated when the people go from after-noon prayers on Sundays to their lawful sports and pastimes in the church-yard, or in the neighbourhood, or in some public-house where they drink and make merry. By the benevolence of the people at these pastimes, many poor parishes are said to have cast their bells and beautified their churches, and raised stock for the poor. See *Warton's English Poetry*, vol. iii. &c.

CLERK-ALES, or lesser church-ales, were so called because they were for the better maintenance of the parish-clerk; 'and there is great reason for them,' says his lordship, 'for in poor country parishes, where the wages of the clerk are but small, the people thinking it unfit that the clerk should duly attend at church, and not gain by his office, send him in provision, and then come on Sundays and feast with him, by which means he sells more ale, and tastes more of the liberality of the people, than their quarterly payment would amount to in many years; and since these have been put down, many ministers have complained to me,' he adds, 'that they are afraid they shall have no parish-clerks!'

A BID-ALE was held on behalf of poor men, decayed in substance, and set up again by the liberal benevolence and contribution of friends at a Sunday's feast. The people were fond of these recreations, and the above-mentioned prelate recommended them, as bringing the people more willingly to church, tending to civilize them, to compose differences among them, &c. But the justices of the peace were of a different opinion, and signed a petition to the king, in which they declare that these revels had not only introduced a great profanation of the Lord's day, but riotous tippling, contempt of authority, quarrels, murders, &c., and were very prejudicial to the peace, plenty, and good government of the country, and therefore they pray that they might be suppressed. Two judges in the western circuit, in 1653, made an order for suppressing them; but archbishop Laud complained to king Charles I. of their invading the episcopal jurisdiction, and they were summoned before the council, reprimanded, and enjoined to revoke this order at the next assizes.

ALE-CONNER, an officer of the city of London, appointed by common-hall, whose duty it is to taste and judge of the quality of the ale sold within the jurisdiction of the city, and to regulate the ale-measures of the public-houses. There are four of these officers chosen every Midsummer day.

ALE AND BEER DUTIES make a considerable branch of the revenue in England. They were imposed in 1643, at the first establishment of the excise, again by Car. II. and have been continued by several subsequent acts of parliament. By 43 Geo. III. c. 69, for every barrel of beer or ale brewed for sale, above sixteen shillings a barrel, exclusive of the duty hereby imposed, and not being two-penny ale, nor table-beer, the brewer shall pay ten-shillings; and for every barrel of table-beer, or beer or ale of sixteen shillings the barrel, or under (exclusive of the duty), two-shillings; and for every barrel of two-penny ale, (described in the seventh article of the Union with Scotland) four shillings and two-pence. The allowance for waste shall be three gallons out of thirty-six gallons, which shall be reckoned a barrel of beer or ale made by common brewers. These duties the private brewer for his own consumption, entirely escapes.

ALE-HOUSES are licensed yearly by the justices of peace of a county, or supreme magistrates of a city, for the sale of ale or beer. The occupiers of such houses are bound in recognizances that no riot or disorderly conduct shall take place in them; and their licences, upon misconduct, or the forfeiture of such recognizances, may be taken away at the pleasure of the magistrates granting them. By 26 Geo. II. c. 41, justices on granting licences, are to take recognizances in £10, with sureties in the like amount, for the maintaining good order. Certificates of good character are to be given before any new licence is granted; and the penalty for selling ale, &c. without licence is, by this and subsequent acts, fixed at forty shillings for the first offence; for the second, four pounds; and the third, six pounds. For suffering tippling in such houses, they are to be fined ten shillings. At wakes or fairs, however, ale may still be sold indiscriminately, and without a licence. No persons, otherwise than as above mentioned, are to sell wine to be drank in their own houses without an ale licence as well as a wine licence. But persons who sell ale or beer in casks not less than five gallons, and in bottles (reputed quarts) not less than two dozen, and not to be drank in their own houses, are exempted from the penalties of retailing without a licence. By 48 Geo. III. c. 143, the stamp duties on ale licences are repealed, and excise duties, to be paid annually, granted on them in lieu thereof.

ALE MEASURES are to be regulated by the standard quart and pint preserved in his majesty's exchequer; sub-commissioners and collectors of excise are to provide full and substantial ale quarts and pints in every town of their division, and the mayors or chief magistrates to mark the measures from the standard, or forfeit five pounds by stat. 1 Jac. I. c. 9. Ale-house keepers selling in short measures are exposed to a penalty of not less than ten shillings, and not more than forty shillings.

ALE-SILVER, a rent, or tribute, yearly paid to the lord mayor of London, by those who sell ale within the city.

ALE-TASTER, is an officer appointed and sworn, in certain court-leets, to take heed that there be a due size, and goodness of bread, ale, and beer, sold within the jurisdiction of the leet.

ALE MEDICATED, in pharmacy, ale wherein medicinal herbs have been infused, or added during the fermentation.

ALEA, in antiquity, denotes in general all kinds of games of chance; but, in a more restricted sense, was used for a particular game played with dice and tables, not unlike our backgammon, and wherein black and white stones were used instead of wooden men. The Greeks called these games pettia and chivia, and the Romans, tabula, tessera, duodecim scripta, &c. Some writers on Roman Antiquity observe, that, in games of hazard, two sorts of dice were used; the tessera, or cube, having its six sides marked from one to six; and the talus of an oblong form, of which the four long sides only were marked; one side having one point on it, the opposite six points, and the other two sides four and three. In playing, three tesseræ, or four tali were used, which, after being shaken in the dice-box, called fritillus, were, to guard the better against fraud, thrown through another box, the pyrgus or turricula, in the form of a tower,placed on the middle of the board. The fritillus and the pyrgus have been considered, however, as the same box The highest cast of the tesseræ was three sixes, and of the tali, when all four came up different. It was named Venus, or Venereus Jactus. The Cornelian, Publician, and Titian laws were passed to prohibit all games of chance (which in them seem to be comprehended under the general title of alea), except in the month of December, when the Saturnalia were celebrated. But it is supposed, by some authors, that they were designed only to restrain the cupidity of professed gamesters, who were held in infamy; or these laws do not seem to have been generally regarded; and the Roman emperors countenanced dice-playing by their own example. All gaming was expressly forbidden in the army. *Cicero de Senect.* cap. 16; *de Divinat.* l. i. c. 13; *Suet. Vit. Aug.* cap. 17; *Dion. Cass.* l. lix. c. 22; *Mart.* lib. xiv. ep. 14; and lib. v. ep. 85; *Hor.* l. iii. od. 24; *Juv. Sat.* xiv. v. 4.

ALEA, in mythology, an epithet of Minerva. Also a town of Arcadia, on the east border, named after its founder Aleus, whose inhabitants were always members of the councils of Argolis. Both Bacchus and Minerva, surnamed ALEA, see above, had temples here; where the women, it is said, were scourged at the public festivals by command of the Delphic oracle. Augustus conveyed the ivory statue of the goddess from this place to Rome.

ALEANDER, (Jerome,) cardinal and archbishop of Brindisi, was born in 1480: and distinguished at the beginning of the reformation by his opposition to Luther. Being sent into Germany as the pope's nuncio in 1519, he declaimed for three hours against the reformed doctrine before the diet of Worms, but could not prevent Luther from being heard. He published several works, and died at Rome in 1541.

ALEANDER, (Jerome,) a learned divine of the seventeenth century, of the same family with the preceding, was born in Priuli. He was employed at Rome as secretary under cardinal Bandini, and discharged this office with great honour for almost twenty years. He afterwards, at the particular wish of Urban VIII. became secretary to cardinal F. Barberini, whom he accompanied to France in the character of legate a latere, in whose service he died in 1631. He was one of the first members of the academy of Lincei, see ACADEMY; and wrote, 1. Psalmi Poenitentiales, Versibus Elegiacis expressi, 4to. —2. Caii, Veteris Jurisconsulti, Institutionum Fragmenta cum Commentario, 4to. Venet.—3. Explicatio Antiquæ Tabulæ Amoreæ, &c. 4to. Venet. 1627.—4. Carmina Varia.—5. Le Lagrime di Penitenza, ad imitazione di sette Salmi Penitenziali, 8vo. 1623.—6. Difesa dell'Adone, Poema del Cavalier Marino, pt. i. 12mo. Venet. 1629; pt. ii. 1630; besides other smaller works mentioned by Mazzuchelli.

ALEATORIUM, in Roman antiquity, was the place where they played at alea. The aleatorium was near the sphæristerium; that the sportsmen, when tired with the pila, or other robust exercises, might refresh themselves in the aleatorium.

ALEC, in ichthyology, a name given by Gaza, in his commentaries on Aristotle, to a fish called mainis, and by Ovid *menenda*. It is of the sparus kind.

ALECTO, in mythology, from *a* priv. and ληγω, to rest, one of the three furies; the daughter of Acheron and Night, or, as others have it, of Pluto and Proserpine. Virgil, Æn. lib. vii. v. 324, introduces Alecto exciting the flames of war, at the instigation of the implacable Juno, between the Latins and the Trojans. He describes her as having her hair and her dark wings covered with wreathing snakes, whose poison she infuses into her victims, till she infects them with ungovernable rage. So malignant was this divinity that she was the abhorrence of Pluto, her father, and of her sister furies. From Cocytus, the river of hell, she is called Cocytia Virgo. Claudian, Ruf. l. 1. v. 25. speaks of her as atrox, black,

> Invidiæ quondam stimulis incanduit atræ
> Alecto, plac'das late cum cerneret urbes.

ALECTORIA, from *αλεκτωρ*, a cock, a concretion said to be formed in the gall-bladders of old cocks, to which the ancients ascribed many fabulous virtues. It was called alectoria-stone and alectorolithos. Modern naturalists have called alectorius lapis to be swallowed, and not generated in the stomach or gizzard of cocks and capons.

ALECTORICARDITES, from *αλεκτωρ* and *καρδια*, the heart, in natural history, a name given by Plot, to a figured stone resembling a pullet's heart, with the fat near the basis of it, and the coronary vessels descending from it.

ALECTOROLITHOS. See ALECTORIA.

ALECTOROMANTIA. See PENDICULUM.

ALECTOROMANTIA. in antiquity, a kind of divination performed by means of a cock; and thus effected: a circle being described on the ground, and divided into twenty-four equal portions, in each of these spaces was written one of the letters of the alphabet, and on each of the letters was laid a grain of wheat; after which a cock being turned loose in the circle, particular notice was taken of the grains which he pecked

up, because the letters under them, being formed into a word, made the answer desired. It was thus, according to Zonaras, that Libanius and Jamblicus sought who should succeed the emperor Valens; and the cock, eating the grains answering to the spaces ΘΕΟΔ, several whose names began with these letters, as Theodotus, Theodistes, Theodolus, &c. were put to death; which did not hinder, but promote, the succession of Theodosius. This story, however, has been called in question, from the silence of Marcellinus, Socrates, and other historians of the time. Another species of augury was taken from the crowing of the cock, wherein regard was had to the time of day, whether before noon or after; to which some added the consideration of the sign the sun was in, and the motion of the moon.

ALECTRA, in botany, a genus of the didynamia angio-spermia class and order; its characters are: CAL. a one-leafed, two-lipped, perianthium, upper lip two-cleft, lower three-cleft; the clefts ovate, obtuse, shorter than the tube: COR. one-petalled, tubular, the tube gradually widened; the border expanding, five-parted; the parts broad, lanceolate, obtuse: STAM. four filaments, inserted into the tube, filiform, bearded, of the length of the tube, two of them a little shorter; antheræ twin: PIST. a germ ovate; style filiform, of the length of the filaments; stigma incurved, a little thicker than the style, and of the same length, striated on both sides: PERICARP. a capsule, ovate, obtuse, twin, smooth, two-celled, and two-valved; the seeds solitary and ovate. There is one species, viz. A. Capensis, a native of the Cape of Good Hope, growing in grassy places near rivers, and flowering in November and December, and growing black in drying. *Martyn.*

ALECTRUONURUS. See FESTUCA.

ALECTRYOMANCY, from αλεκτωρ, a cock, and μαχη, a fight, cock-fighting.

ALECTRYON, a youth whom Mars, in an amour with Venus, stationed at the door to watch the approach of the sun. He however fell asleep, and Apollo came and discovered the lovers, who were exposed in each other's arms before all the gods. The incensed Mars changed Alectryon into a cock, which, mindful of his neglect, was said ever after to announce early the approach of the sun.

A-LEE, in the sea-language, a term only used when the wind, crossing or flanking the line of a ship's course, presses upon the masts and sails so as to make her incline to one side, which is called the lee-side: hence, when the helm is moved over to this side, it is said to be a-lee, or hard a-lee.

ALEGAMBE, (Philip,) a celebrated Jesuit, born at Brussels, 1592, distinguished himself by publishing, 1. Bibliotheca Scriptorum Societatis Jesu, folio, Antw. 1643. 2. Vita P. Joannis Cardin Lusitani ex Societate Jesu, 12mo. Rom, 1649. 3. Heroes et Victimæ Charitatis Societatis Jesu, quarto, Rom. 1658. 4. Mortes Illustres et Gesta eorum de Societate Jesu, qui in Odium Fidei ab Hæreticis vel aliis occisi sunt, fol. Rom. 1657. He died at Rome in 1652.

ALE'GER, or ALE'GAR. *Ale, aigre,* Fr. sour. Sour ale, a kind of acid liquor made with ale or malt. Power has given a description of the eels in aleger.

ALE'GER. *Allegro,* Ital. Gay, cheerful.—Obsolete.

Coffee, the root and leaf-beetle, and leaf-tobacco, of which the Turks are great takers, do all condense the spirits, and make them strong and *aleger*.
Bacon's Nat. Hist.

ALEGGE', ALEGE'ANCE, ALEGE'MENT. A. S. Alecgan, Lecgan, to lay, to lay down—whence, or from a similiar origin, the old Fr. *alleger, aleger*.

The modern word is allay. To lay, to put down, to ease, sooth, or alleviate.

po he was ycrouned kyng at Westmynstre y wys,
He byhet God and pat folc an byheste, pat was pys.
To *alegge* alle luper lawes, pat yholde were bynore,
And betere mak pan were supp he was ybore.
R. Gloucester, p. 422.

It would have brought my life againe
For certes euenly, I dare well saine
The sight only and the sauour
Alegged much of my langour.
Chaucer. The Romaunt of the Rose.

His feeling wordes her feeble sence much pleased,
And softly sunck into her molten hart;
Hart, that is inly hurt, is greatly eased
With hope of thing that may *allegge* his smart.
Spenser's Faerie Queene, b. iii. c. ii.

ALEGRE, a town of France, in Auvergne, intendancy of Riom, with the title of a marquisate; now in the department of the Upper Loire, arrondissement of Le Puy. The number of houses is about 200, that of inhabitants 900. Eighteen leagues south-south-east of Clermont Ferrand.

ALEGRETTE, a fortified town of Portugal, in the province of Alentejo, on the Spanish frontier, seven miles and a half south-east of Portalegre, on the river Caja, a branch of the Guadiana.

ALEIPHA, from αλειφω, I anoint, in the materia medica of the ancients, a word used for all fatty bodies whatever; as the oils of vegetables, the fat of animals, any sort of medicated oil impregnated with aromatic vegetables, &c. Its general meaning was such compositions as were intended to anoint the body, or fats impregnated with the lighter parts of plants, and not clogged with an addition of powders, wax, or any thing which might have given them the consistence of ointments. The ancient physicians were very fond of these compositions, which they applied both to a diseased part, and to the whole body, after they had made the patient use the warm bath to relax and open the pores.

ALEIUS CAMPUS, in ancient geography, a plain in Cilicia, on this side the river Pyramus, near the mountain Chimera, famous for Bellerophon's wandering and perishing there, after being thrown off Pegasus; from which it obtained the appellation.

ALEMANNI, or ALEMANS, in ancient history, a body of Suevi, who appeared on the banks of the Mein, and in the neighbourhood of the Roman provinces, in quest either of food or plunder, early in the third century of the

Christian era. Asinius Quadratus, an original Roman historian, cited by Agathias, lib. i. c. 5, informs us, that their hasty army, which coalesced into a great and permanent nation, was composed of many different tribes, and on this account assumed the name of Allemanni, or All-men, i. e. men of all nations, and perhaps to denote their common bravery. They were chiefly Suevi, however, who were joined by several other German nations and some Gauls. Aurelius Victor, St. Jerome, and other writers, place them between the Danube, the Upper Rhine, and the Mein, in the present duchy of Wirtemberg. They were numerous and warlike, and were chiefly celebrated for fighting with great dexterity and bravery on horseback. Their abhorrence of slavery was so great, that those taken prisoners chose rather to die than to endure captivity; and when they were actually sold, they not only destroyed themselves, but some of them dispatched also their children. The government of their tribes was monarchical; and the objects of their worship were the same with those of the other German nations. Caracalla, in consequence of a victory which he gained over them in the year 214, was distinguished by the surname of Alemannicus. In the thirteenth year of Alexander Severus, the Alemanni, accompanied with other German nations, passed the Rhine, took possession of the forts on the banks of that river, and ravaged Gaul. The emperor returning from Persia, hastened to the banks of the Rhine, and as the Alemanni had re-passed the river upon the news of his approach, he ordered a bridge to be thrown over, proposing to attack them in their own country: but being assassinated at this juncture by his soldiery, this business devolved upon his successor. Accordingly Maximinus pursued them with great slaughter, took many of them prisoners, and great spoil of corn and cattle; in commemoration of which, the senate conferred upon him and his son the title of Germanicus. In the year 256, the fourth of Valerian's reign, the Alemanni made an unexpected irruption into Gaul, and laid waste the country; whilst those who dwelt on the banks of the Danube, penetrated the Rhætian Alps into the plains of Lombardy, advanced as far as Ravenna, and displayed their victorious banners almost in sight of Rome. A large army being suddenly convened, the Alemanni were intimidated, and retired into Germany. On another occasion 300,000 of this warlike people are said to have been vanquished in a battle near Milan, by Gallienus, at the head of only 10,000 Romans; after which Gallienus seems to have formed an alliance with the Alemanni, and to have protected Italy from their fury, by marrying Pipa, the daughter of a king of the Marcomanni. A party of them was defeated by Claudius in 268, and compelled to save themselves by a precipitate flight into their own country. As soon, however, as they heard of the death of Claudius, they prepared for again invading Italy; 40,000 horse appeared in the field, and the number of the infantry doubled that of the cavalry. Their first objects were a few cities on the Rhætian frontier; but as they proceeded they enlarged their views, and traced a line of devastation from the Danube to the Po.

Aurelian, A.D. 270, having collected an active body of troops, marched with silence and celerity along the skirts of the Hercynian forest; and when the Alemanni, laden with the spoils of Italy, arrived at the Danube, the Roman army, which lay concealed, intercepted their return. The dismayed barbarians, enclosed by the Roman legions, and reduced to a condition abject and distressed, now sued for peace. Their ambassadors were received by Aurelian with every appendage of dignity; and when they were ordered to rise and allowed to speak, they attempted to extenuate their conduct, and demanded a large subsidy, as the price of the alliance which they offered to the Romans. The emperor's reply was stern and imperious. He treated their offer with contempt, and their demand with indignation; and dismissed them with the choice only of submitting to his unconditional mercy, or awaiting the utmost severity of his resentment. Aurelian, being suddenly called away into Pannonia, committed the destruction of the Alemanni, either by sword or by famine, to his lieutenants. But the barbarians once more made their escape, and returned towards the mountains of Italy. As soon as the emperor heard of this, and that they were ravaging the territory of Milan, he hastened to march to its relief. The Alemanni, in the mean while, had spread themselves from the Alps to the Apennines; and, by a desultory war, the force of the enemy remained unsubdued. Three considerable battles are mentioned, in which the principal force of both armies was obstinately engaged. In the first battle, fought near Placentia, the Romans received so severe a blow, that the immediate dissolution of the empire was apprehended. But the firmness of the emperor restored in some degree the honour of his arms. The second battle was fought near Fano, in Umbria; and here the Alemanni were totally and irretrievably defeated. The flying remnant of their host was exterminated in a third and last battle near Pavia; and Italy was rescued from the inroads of these barbarians. During the alarm which preceded the decisive battle of Fano, the Sibylline books were consulted, A.D. 271; and the ceremonies which were enjoined were punctiliously observed. 'These superstitious arts,' says Mr. Gibbon, 'however peurile in themselves, were subservient to the success of the war; and if, in the decisive battle of Fano, the Alemanni fancied they saw an army of spectres combating on the side of Aurelian, he received a real and effectual aid from this imaginary reinforcement.'

They are still to be traced as the assailants of Rome, for nearly two centuries onward. The emperor Probus, A.D. 277, delivered Gaul from the invasion of these tribes, and recovered seventy flourishing cities, which had been oppressed by them. He passed the Rhine, compelled nine of the most considerable princes of Germany to repair to his camp, to fall prostrate at his feet, and to accept such conditions as he thought proper to dictate: and, in order to raise a bulwark

against their future inroads, he constructed a stone wall of considerable height, and strengthened it by towers at convenient distances. It stretched from the neighbourhood of Newstadt and Ratisbon, on the Danube, across hills, valleys, rivers, and morasses, as far as Wimpsen, on the Necker, and at length terminated on the banks of the Rhine, after a winding course of near 200 miles. Within a few years after the death of Probus, this wall was overthrown by the Alemanni. In 287, they made another incursion into Gaul, but were defeated by Maximian, who, in the following year, laid their country waste wherever he came, with fire and sword. Diocletian also, at the same time, entered Germany through Rhætia; and is said to have extended the confines of the empire to the source of the Danube. In the year 291 the Burgundians seized on part of the country belonging to the Alemanni; and in 301 Constantius Chlorus, the father of Constantine, gained a signal victory over them, on which occasion the Alemanni are said to have lost 60,000 men. Notwithstanding this loss, they did not long remain quiet; for in 310, they crossed the Rhine and ravaged the neighbouring provinces: but the emperor himself marching against them, defeated them in a battle, and obliged them to quit their booty and repass the Rhine. Some say he was called Maximus on account of this victory. In the 18th year of Constantius's reign, the Alemanni again attempted to make an incursion into Italy; and having advanced as far as the lake of Constance, that prince marched against them, and put them to flight. In the course of the same year, another body breaking into Gaul, with the Franks and Saxons, took and plundered above 40 towns on the banks of the Rhine, among which was the city of Cologne, which they almost entirely ruined. They were at length driven out of Gaul by Julian; but assembling near Strasburg, A.D. 357, a battle ensued; and after victory had remained for some time in suspense, the Alemanni were defeated, and driven completely out of Gaul. Julian now granted them a truce for ten months. When the truce expired, he passed the Rhine on a bridge of boats, entered their country, and compelled them to sue for peace. Upon his death they again ravaged Gaul; defeated the Romans in a pitched battle, but were afterwards defeated by Jovinus in three battles, A. D. 366. In the close of the following year they again rally, and pass the Rhine; but Valentinian gains a signal victory over them: invades their country; and in 374 concludes a peace with their king Macrianus. In 387 they are again in arms, and waste the neighbouring provinces, but are defeated with great slaughter by Gratian; in 388 submit to Maximus, who usurped the empire in Gaul, and agree to pay him a yearly tribute.

In the reign of Honorius a colony of the Alemanni was allowed to settle in that part of the present Switzerland, which is separated by mount Jura from the Franche Comtè, and by the lake of Geneva and the Rhine from the present Savoy and province of Vienne. In 477 Audoacrius, king of the Saxons, and Childeric, king of the Franks, marched against those who had settled among the Alps, and put many of them to death. Upon the destruction of the western empire, the Alemanni subdued that part of Gaul which is now known by the name of Alsace, where they settled. These were joined by their countrymen in Germany, and those who dwelt between mount Jura and the lake of Geneva; and in 496 entered Germania Secunda, and wasted the country; but they were overcome by Clovis, king of the Salian Franks, and dispersed. Those who settled in Alsace, and near the lake of Geneva, acknowledged him for their king. Others took refuge in Rhætia and Noricum, where they were allowed by Theodoric, king of Italy, to reside. Many of them were transplanted by the same prince into Italy, and the rest were permitted to settle between the Alps and the Danube. From this time the Alemanni had no king of their own; but continued, as they were dispersed in several countries, subject partly to the Ostrogoths, who were masters of Italy, and partly to the Franks, who had dominion in Gaul. When the Ostrogoths ceded their territories out of Italy to the children of Clovis, the Alemanni, those excepted whom Theodoric had transplanted into that country, submitted to the Franks. *Gibbon's History*, &c. vol. i. p. 417, &c. Vol. ii. p. 21, &c. *Un. Hist.* vol. xvii. p. 288—299.

ALEMANNIA, or ALEMANIA, in ancient geography, a name given to Germany, which was not known before the time of the Antonines, and then applied only to part of it. The appellation is derived from the Alemanni.

ALEMBDAR, or ALEMDAR, an officer in the court of the grand seignior, who bears the green standard of Mahomet, when the sultan appears in public upon any solemn occasion.

ALEMBERT, (John le Rond d'), an eminent French philosopher, born at Paris in 1717. He derived the name of John le Rond, from that of the church, near which, after his birth, he was exposed as a foundling. His father, Destouches Canon, informed of this circumstance, and listening to the voice of nature and duty, took measures for the proper education of his child, and for his future subsistence in a state of ease and independence. He received his first education among the Jansenists, where he gave early marks of capacity and genius. In the first year of his philosophical studies, he composed a Commentary on the Epistle to the Romans. The Jansenists considered this production as an omen that portended to the party of Port Royal, a restoration of some part of their ancient splendour; and hoped to find, one day, in M. d'Alembert, a second Pascal. They now, therefore, engaged their rising pupil in theology and mathematics; but soon perceived, that his enthusiastic attachment to science, was likely to disappoint the hopes they had formed with respect to his future destination. On his leaving college, he found himself alone and unconnected in the world: and sought an asylum in the house of his nurse, the wife of a glazier, comforting himself with the hope, that his fortune, though not ample, would better the condition and subsistence of a family,

which was the only one he could consider as his own. Here he lived, during the space of 30 years, with the greatest simplicity, discovering the augmentation of his means only by increasing displays of his beneficence. His growing reputation and celebrity, were entirely unknown to these honest people, and their plain and uncouth manners, were the daily subject of his good-natured pleasantry, and philosophical observation. His nurse perceived his ardent activity; and heard him mentioned as the writer of many books; but never supposed him the great man he was, and beheld his conduct with regret and compassion. 'You will never,' said she to him one day, 'be any thing but a philosopher—and what is a philosopher?—A fool, who toils and plagues himself during his life, that people may talk of him when he is no more.' M. d'Alembert's fortune not much exceeding the demands of necessity, his friends advised him to think of a profession that might enable him to augment it. He accordingly turned his views to the law, and took his degrees, but soon abandoned this for the study of medicine. His passion for mathematical studies, however, was always drawing him back to his former pursuits, and after many ineffectual efforts to overcome it, he renounced all views of a lucrative profession, and gave himself over entirely to the pursuit of science and to poverty. In 1741, he was admitted member of the Academy of Sciences; having attracted universal attention and admiration, by correcting the errors of a celebrated work, the Analyse demontrée of F. Beinau, which was deemed classical in France, as a treatise on geometry. He, after this, set himself to examine, with great assiduity, the motion of a body which passes from one fluid into another more dense, in a direction not perpendicular to the surface separating the two fluids. Every one knows the phenomenon which happens in this case; but M. d'Alembert was the first who explained it in a satisfactory and philosophical manner. Two years after his election to a place in the academy, he published his Treatise on Dynamics, and established the principle of the equality, at each instant, between the changes that the motion of a body has undergone, and the powers which have been employed to produce them. So early as 1744, M. d'Alembert had applied this principle to the theory of the equilibrium, and the motion of fluids; and all the problems before solved by geometricians, became, in some measure, its corollaries. The discovery of this new principle, was followed by that of a new calculus, the first trials of which were published in a Discourse on the general theory of the Winds; to which the prize medal was adjudged, by the academy of Berlin, in 1746; and which was a brilliant addition to the fame of d'Alembert. This new calculus of partial differences, he applied to the problem of vibrating chords, whose solution, as well as the theory of the oscillations of the air and the propagation of sound, had been given but incompletely by the geometricians who preceded him. In 1749, he applied his principle to the motion of any body of a given figure; and solved the problem of the procession of the equinoxes; determined its quantity; and explained the nutation of the terrestrial axis discovered by Dr. Bradley. In 1752, he published a treatise on the Resistance of Fluids, to which he gave the modest title of an Essay; but which contains a multitude of original ideas, and new observations. He also published, in the Memoirs of the Academy of Berlin, Researches concerning the integral calculus, which is indebted to him for the progress it has made in the present century.

While the studies of M. d'Alembert were confined to geometry, he was little known or celebrated in his native country. His connections were limited to a small society of select friends: and he had made no acquaintance with men in power. Satisfied with an income which furnished him with the necessaries of life, he did not aspire after opulence or honours; nor had they been hitherto bestowed upon him, as it is easier to confer them on the forward, than to look out for the deserving. But his cheerful conversation, and a singular mixture of delicate wit with simplicity of manners, rendered him a pleasant companion, and he was now much sought after in the fashionable circles. His reputation, at length, reached the throne. He received a pension from the French government of 1200 livres, which he owed to the friendship of Count d'Argenson. This accession to his pecuniary resources, is said, however, to have but little increased his happiness. His eulogist, the celebrated Condorcet, ascribes to envy, detraction, and other ungenerous motives, all the opposition and censure that M. d'Alembert met with on account of the famous Encyclopedical Dictionary of Arts and Sciences. None can fairly refuse the tribute of applause to the eminent genius, judgment, and literary taste, displayed by our author in his contributions to this great work. The preliminary discourse which he affixed to it, on the rise, progress, and connection of all the branches of human knowledge, is perhaps one of the most capital productions of which the philosophy of the present age can boast. Nor will it be disputed, that the master builders of this new and stupendous temple of science, for the worship of Nature, had also really in view the advancement of human knowledge, and the improvement of the arts and sciences. This, no candid philosopher will call in question. But that in the inner court of this temple, there was a confederacy formed against all who looked higher than Nature, for the object of their veneration and confidence, is a fact too palpable, nay, too boldly avowed, to stand in need of any proof. Some time after, d'Alembert published his Philosophical, Historical, and Philological Miscellanies; and his memoirs of Christina, queen of Sweden; in which last work he proved that he was well acquainted with the natural rights of mankind, and was bold enough to assert them. His Essay on the Intercourse of Men of Letters with Persons high in Rank and Office, wounded the former to the quick, as it exposed to the eyes of the public the ignominy of those servile chains, which they feared to shake off, or were proud to wear. This work was dedicated to the king of Prussia, who was at this time terminating a glorious campaign by

an honourable peace, in the three following Latin verses:

'Hæc ego de ventis, dum ventorum ocyor alis
Palantes agit Austriacos Fredericus, et orbi,
Insignis lauro, ramum prætendit olivæ.'

Swifter than wind, while of the winds I write,
The foes of conquering Frederic speed their flight;
While laurel o'er the hero's temple bends,
To the tir'd world the olive branch he sends.'

M. d'Alembert also gave decided proofs of his classical taste, in his translations of some select pieces of Tacitus. About the same time he enriched the Encyclopèdia with a multitude of excellent mathematical articles, and composed his Researches on several important Points of the System of the World, in which he carried to a higher degree of perfection, the solution of the problem of the perturbation of the planets.

M. d' Alembert, in 1759, published his Elements of Philosophy; a work remarkable for its precision and perspicuity; but containing many questionable tenets, in metaphysics and moral science. The resentment that was kindled, and the disputes that followed upon the publication of the article Geneva, inserted in the Encyclopedia, are well known. M. d'Alembert did not leave the field of controversy with triumph. His attacks upon the religious orders and the priesthood, if in many respects just, were often indiscriminating and violent. Voltaire was an auxiliary in the contest: but as, in the point of candour, he had no reputation to lose, and as he weakened the blows of his enemies, only by throwing both them and the spectators into laughter, the issue of the war gave him little uneasiness. It fell more heavily on d'Alembert; and exposed him, even at home, to much contradiction and opposition. It was on this occasion that the king of Prussia offered him an honourable asylum at Berlin, and the presidency of the academy; and was not offended at his refusal, but cultivated an intimate friendship with him during the rest of his life. He had, some time before this, refused a proposal made by the empress of Russia to intrust him with the education of the Grand Duke:—a proposal accompanied with all the flattering offers that could tempt a man ambitious of titles, or desirous of making a fortune; but tranquillity and study, not ambition or avarice, were the objects of our philosopher's affection. In 1765, he published his Dissertation on the Destruction of the Jesuits. This piece drew upon him a host of adversaries, who confirmed the credit of his work, by their manner of attacking it. Besides the works already mentioned, he published Opuscules, 9 vols.; in which he has solved a multitude of problems relative to astronomy, mathematics, and natural philosophy; and Elements of Music; rendering at length, the system of Reaumeur intelligible; but he did not think the mathematical theory of the sonorous body sufficient to account for the rules of that art. He was always fond of music; which he felt to be connected with the most subtile researches of mechanics; while, on the other hand, its power over the soul exhibited to him phenomena, perhaps still more inexplicable. In 1772, he was chosen secretary to the French academy, and soon after formed the design of writing the lives of all the deceased academicians from 1700 to 1772; which he executed in the space of three years, composing seventy eulogies. M. d'Alembert died in 1783. There were many amiable lines of candour, modesty, disinterestedness, and beneficence, in his moral character; which are described, with diffusive detail, in his eulogium, by M. Condorcet.

Many young persons, who discovered talents for science and learning, found in him a patron and a guide. To worthy men, in adversity or under persecution, he was a firm and courageous friend: and to those who had shewn him kindness, he never ceased to be grateful. Two of his works were dedicated to ministers in disgrace, the Count d'Argenson, to whom he owed his pension, and the Marquis d'Argenson, who had given him many proofs of respect and esteem. When in early life, Mad. de Tencin, informed of his singular talents, came to him, and fondly caressing him, discovered to him the secret of his birth: 'What do you tell me!' he cried out: 'Ah! you are but a step-mother; it is the glazier's wife who is my mother;' and through life he retained for his nurse the affectionate sensibility of a grateful son.

Much of pernicious influence on the morals and politics of France, has been attributed to the writings of d'Alembert: and to him and his friends has been assigned the odium of bringing on the disasters of the Revolution. We are not indifferent to the dangerous spirit of infidelity that breathes throughout his works; nor to the unphilosophical manner, so common in modern times, of *insinuating* sceptical principles in works of science. But that France needed *a* revolution, both in church and state, it is too late to deny; and if she effected it without the moderation of our own happy change in 1688, the immediate actors in the scene are perhaps more justly blameable, than an individual writer, so remotely connected with it as our philosopher.

ALEMBICS, from the Arabic particle *al*, and *αμβιξ*, Gr. an earthen vessel, were made of glass or of copper, and used for distillation. The bottom which contained the subject for distillation, was called, from its shape, the *cucurbit*; the upper part, which received and condensed the steam, was called the *head*, the beak being fitted into the neck of a receiver. Retorts, and the common worm still, are now more generally employed.

Dioscorides and Pliny mention the *αμβιξ*, (ambix) which is described by the latter of these writers, as a hemispherical iron cover, luted upon the earthen pots in which mercury was procured by the distillation of cinnabar: it is probable, however, that the ambix was in the time of Pliny a mere plain still, without any beak or gutter, since he mentions the mercury being wiped off in small drops from the inside of the vessel, the necessity of which would be superseded by the invention of a beak. When the alchemists adopted the alembic, their object being to separate, as much as possible, the most volatile products from those that are less so, they imagined that the greater distance which the vapour had to pass through, in its passage from the boiler to the condenser, the more perfectly would the spirit or quintessence be dephlegmated; for this pur-

pose the body of the alembic was made of a globular form, terminating above in a long narrow neck, to the end of which was luted the capital; sometimes for the purpose of more effectually keeping down the impure particles, the neck was bent in a zig-zag or spiral direction. The characteristic difference between an alembic and a still seems to be in the construction of the head or capital, which in the alembic is contrived not merely to collect, but to condense the vapour; whereas, the corresponding part of a still serves merely to collect the vapour, which is transmitted in an elastic state through the beak, and condensed in the worm. In the figure already referred to, the distance between the body and the capital is so great, that much of the heat must be given off from the vapour before it arrives in this part; the mere refrigerating power, therefore, of the atmosphere is amply sufficient to condense the vapour into drops on the inner surface of the capital, which, trickling down into the channel or gutter at the bottom, are delivered by the beak into any vessel placed to receive them. The length and narrowness, and convolution of the neck, were, however, found to condense so much of the vapour before it reached the capital, as to render all processes, in which it was employed, insufferably tedious; besides requiring so high a heat as to alter and injure the products very considerably; the neck was therefore shortened and made wider, and as, in consequence of this, the vapour came into the capital more heated than before, it was necessary to substitute a more powerful refrigerating cause to the casual and varying action of the external air; with this intention, the capital of the metallic alembics was inserted into a vessel of water, called a refrigeratory, and thus the alembic, as far as concerned the number and general disposition of its parts, was completed.

The glass and earthen-ware alembics soon received all the perfection of form which their materials would allow: the body, instead of being a globe with a long neck, was altered into a cucurbit; and the capital assumed a more conical shape, the two parts of the apparatus were also fitted closely into each other, by grinding with emery. The irregular expansion and contraction of glass by heat, rendered the use of a refrigeratory impossible, so that when distilling briskly, it is necessary to cover the capital with cloth, soaked in cold water and frequently renewed: thus requiring a constant attention, besides running the risk of cracking the cucurbit, by a drop of cold water falling upon it from the head. On this account the glass alembic is but little employed, although capable, when skilfully managed, of distilling a much larger quantity in a given time, than a retort of equal capacity.

The metallic alembics being formed of more manageable substances, and being appropriated to large processes, in which economy of time and fuel was of great importance, invited and obtained a number of valuable improvements. The most considerable of these are due to M. Beaumé. The French brandies are generally prepared in alembics, whereas all British spirits are manufactured in stills; the advantage of the alembic is that less fuel is required, and the spirit is but little exposed to the risk of becoming empyreumatic. Its disadvantage consists in being less expeditious, and in requiring greater accuracy in the temperature of the refrigeratory; if too cold, the vapour is in part condensed before it touches the inside of the capital, and falls back into the boiler; if too hot, a portion of vapour, escapes into the air; a greater proportion also of water is required for the condensation of a given quantity of vapour, than where a worm and still is made use of. *Encycloped. Method. Art. Alembic.—Beaumé Elemens de Pharmacie, &c.*

ALEMETH, or ALMON, a city of Judea, in the tribe of Benjamin, situated near Anatboth.

ALEMBROTH, from a Chaldean word signifying the key of art, in the writings of the alchemists, a word used for a sort of fixed alkaline salt, which had the power of the famous alcahest, in dissolving bodies, opening the pores of most or all known substances, and thence, as well as by destroying sulphurs, promoting the separation of metals from their ores. It is also used for a compound of sal ammoniac and corrosive sublimate. Some use the term alembroth desiccatum, for salt of tartar. 'Corrosive muriate of mercury,' says Dr. Ure, 'is rendered much more soluble in water by the addition of muriate of ammonia. From this solution crystals are separated by cooling, called sal-alembroth by the earlier chemists, consisting of ammonia, muriatic acid, and mercury.'

ALEMPARVE, or ALLAMPARVA, a fortress of Hindostan, on the sea-coast of the Carnatic, which was transferred, by the native powers, to the French in 1750, and taken from them by the British in 1760. Distant sixty-seven miles south-west of Madras. Long. 80°. 7'. E. Lat. 12°. 10'. N.

ALENÇON, or ALENZON, a large and populous town of France, the capital of the department of Orne, seated on the Sarte, in an open fertile country, abounding in corn and fruits. It is situated twenty miles north of Mons, sixty-three south by west of Rouen, and eighty-seven south-west of Paris. It was formerly surrounded with good walls, and flanked with towers; and the castle was a place of great consequence, having sustained several long sieges. A square tower 150 feet high still remains. Near it there are quarries of stone of the Bristol kind, &c. Lon. 0°. 10'. E. Lat. 48°. 25'. N. Inhabitants 13,000. Alençon has a linen trade of some extent, but is particularly famous for its point-lace, a manufactory of which was established under M. Colbert's administration in 1665, by letters patent; and a grant from government to the proprietors of 26,000 livres as a capital. Here are also glass-houses, smelting-houses, and tanneries, in a flourishing state.

ALENIO, (Julius) a Jesuit, born at Brescia, in the republic of Venice. He travelled into the eastern countries; and arrived at Macao in 1610, where he taught the mathematics. From thence he went to the empire of China, where he continued to propagate the Christian religion for thirty-six years. He was the first who planted the faith in the province of Xanfi, and built

several churches in that of Fokien. He died in 1649, leaving behind him several works in the Chinese language.

ALENON, a word used by old medical writers, for the oil of sweet almonds.

ALENTEJO, one of the largest provinces of Portugal, seated between the Tagus and the Guadiana, and watered by both. It is bounded on the north by Estremadura and Beira; on the east by Spain; on the south by Algarve; and on the west by the sea; extending from north to south about forty miles, and from east to west between thirty and thirty-four. The soil is very fertile. It takes its name from its situation, lying, with regard to the other provinces, on the farther side of the Tajo, or Tajus. Its superficial extent is 883 French leagues, and the population, in 1800, was 380,480. Evora is the capital. Alentejo contains four cities, 105 towns, and 358 parishes. It is divided into the eight jurisdictions of Evora, Beja, Elvas, Portalegre, Ourique, Villa Viciosa, Crato, and Aviz.

ALENZON. See ALENÇON.

ALEORE, *αλεωρη*, a word used by the old medical writers, for the intermission of ease from the raging pains of any violent acute distemper.

ALEPPO.

ALEPPO, OLD, the Kinnasreen of the Arabians, an ancient town of Syria, supposed to have been Calchis, the capital of the district Chalcidone. It gives its Arabian name to the northern part of Syria, and is fifteen miles south of the modern Aleppo. The ruins, (for the whole place is scarcely any thing beside,) are surrounded by the foundations of walls, about a mile in compass, ten feet thick, and fortified by equidistant square towers. On the top of a high hill, west of the city, on which the castle stood, surrounded by a double wall, are three or four very fine large cisterns excavated from the rock. The district around the city was reckoned one of the most fruitful provinces of Syria, and was seized by Ptolemy, the son of Mennæus, during the troubles of Syria, and by him made a separate kingdom. Ptolemy himself is styled by Josephus and Hegesippus, prince of Chalchis, and his son Lysanias is honoured both by Josephus and Dio with the title of king. The place is frequently mentioned by authors of the middle ages, or even later. It capitulated to the Saracens in the year 630.

ALEPPO, BASHALICK or PACHALIC of, one of the five pachalics of Syria, was a province extending eastward from the bay of Scanderoon to the banks of the Euphrates, and from forty miles north of the city, extending about fifty miles to the south-east. But it is not now nearly so extensive. Khillis, formerly dependent on Aleppo, is erected into a separate district on account of the frequent depredations of the Kurdeens, who inhabit the neighbouring mountains; and since the year 1752, an alteration has taken place with respect to Bylan, which, together with Caramoot, Scanderoon, Byas, and the adjacent mountains, has been also placed under a distinct government. At present the pachalic on the north is bounded by the village of Bailik, situated in the road to Aintab, eastward by the Desert, Bab at the distance of ten hours east-north-east, and Haglab, about the same distance to the south-south-east, being among the last inhabited villages: on the south it is bounded by the Great Desert, between the skirts of which and the west, or west-north-west, are situated the most fertile and populous parts of the forest. Sirmeen is the last town southward; and Antioch, with its dependencies, may be reckoned the western boundary, which, till a late period, reached to the sea: Scanderoon and Byas being then the two frontier maritime towns. About one half of the villages formerly on the borders of the province, are said to be totally deserted. Many of the inhabitants of this mountainous tract acknowledge scarcely any authority but that of their own chieftains; and the champaign, in many places, is either desert, or only occupied transiently by the wandering tribes of Turkmans, Begdelees, and Rushwans, from the north, or by the Bedowens and Chingana; who, though they pay an annual tribute, can in other respects, scarcely be considered subjects of the province. The oppression of the agas, the destructive marches of the grandees through the province, and the roving of the ruffian troops of Levands out of pay, oblige the peasant tenants to remove; so that vast tracks of the beautiful plains in the bashalick are shamefully overrun with thistles, whilst the mountainous parts, better secured from oppression, are finely cultivated, full of people, and present on every side thriving hamlets.

Such is the account given of this pachalic by Dr. Russel. Volney describes it, as extending from the Euphrates to the Mediterranean, between two lines, one drawn from Scanderoon to Beer, along the mountains, the other from Beleo to the sea by Mare and the bridge of Shogar, and as consisting of two plains, that of Antioch to the west, and that of Aleppo to the east; the north and sea coast being occupied by lofty mountains, known to the ancients by the names of Amanus and Rhosus. The soil of this pachalic is generally fat and loamy; the greatest part of the land lies waste, and the traces of cultivation are scarcely discernible in the environs of the town and villages.

The traveller sees nothing in this and other pachalics of Syria, but houses in ruins, cisterns rendered useless, and fields abandoned. Its principal produce consists in wheat, barley, and cotton, which are found in the flat country: in the mountains, the vine, mulberry, olive, and fig-trees are cultivated. The sides of the hills, towards the sea-coast, are appropriated to tobacco, and the territory of Aleppo to pistachios. The pasturage is abandoned to the wandering Turkmans and Curds. See ALEPPO. *Russel's Hist.* vol. i. p. 314. 339. *Volney's Travels* vol. ii. p. 130, &c.

ALEPPO, the capital of the above pachalic,

is situated on eight small hills, and is watered by the river Kowick, which in winter sometimes swells into a formidable stream, overflowing its bridges and the neighbouring gardens, wherewith the banks are covered. The wall, supposed to have been built by the Mameluke princes, is flanked by frequent towers, but the fosse is partly filled up with rubbish, or occupied by kitchen gardens, and the city being commanded by heights, is not defensible as a military post. It is inferior to Constantinople, Cairo, and Damascus, with regard to situation, magnitude, population, opulence, and courtly splendour, but may be reckoned superior to these cities in the salubrity of its air, the solidity and elegance of its private buildings, and also the neatness and convenience of its streets. In Arabic, Aleppo is called Haleb, to which is usually added the epithet Al Shahba. The Arabian writers, some of them, trace the origin of this city to the migration of the patriarch Abraham into the land of Canaan, who rested for some time on the hill, where the castle of Aleppo is now situated, the appellation Haleb is derived from the circumstance of distributing milk to the poor of a neighbouring village. Their frequent repetition of the words 'Ibraheem haleb,' or 'Abraham has milked,' gave occasion, as it is said, to the name Haleb, which was conferred on the town that was afterwards built on this spot. The epithet Al Shahba is referred to a pied cow, distinguished by its lowing in the herd of the above patriarch. Golius and others, however, with much greater probability, deduce this term, which denotes a variegated grey and white colour, from the colour of the soil, and of the buildings. Some have supposed that Aleppo was the Zobah of Scripture; but it was, more probably, the Berœa of the Greeks. Aleppo is situated, according to celestial observations, (see *Conn. des Temps*, 1792,) in N. lat. 36°. 11′. 25″. and E. long. 37°. 9′. at a considerable height above the level of the sea. Its distance from Scanderoon or Alexandretta, the nearest sea-port, is in a straight line, between sixty and seventy miles; but in the caravan road, between ninety and one hundred miles. It is encompassed at the distance of a few miles, by a circle of hills, which are in general rocky, scantily provided with springs, and totally destitute of trees, but affording good pasture for sheep and goats. Within this circle, there are hills and hillocks, which are intersected by plants and little valleys; the soil of which is in some parts of a reddish or black colour, rich and fertile, but in general whitish, shallow, and mixed with many small stones. This city, including its extensive suburbs, occupies eight small hills, the intermediate valleys, and a considerable extent of flat ground, comprehending in the whole a circuit of about seven miles. It has nine gates, two to the east, three to the west, two to the north, and two to the south. One of the northern gates, formerly called the Jews' gate, which the son of Saladin changed into Bab al Naser, or Gate of Victory, was once, according to the missionaries, the residence of the prophet Elisha, and it has lamps which are kept constantly burning in commemoration of him. The castle, which stands on a hill near the north-east corner of the city, and which is encompassed by a broad deep ditch, about half a mile in circumference, partly wet, and partly planted with trees, may be distinguished at a considerable distance; it is deemed impregnable, and is entered from the south by a bridge of seven lofty narrow arches thrown over the ditch, on which are two gates fortified by turrets, and two more still higher on the hill. Near the summit is a reservoir of immense depth, from which the water, supposed to be derived from a spring five miles distant, is raised by a wheel. A numerous garrison is kept here, but the privates are allowed to follow their trade in the city, and return before sun-set. The castle, in reality, is of no use but as a great magazine for military stores, and in serving to overawe the citizens; but a traveller, approaching from the west, can see scarcely any other part of the city, till he gains the brow of one of the hills within two or three miles of the gates; and thus it becomes an extensive and striking object.—The mosques, the minarets, and the numerous cupolas, form a splendid spectacle, and the flat roofs of the houses which are situated on the hills, rising one behind another, present a succession of hanging terraces, interspersed with cypress and poplar trees. Although at a distance this city, like many others in the east, assumes a fine appearance, and from the very great splendour of the buildings, already enumerated, excites an unparalleled interest in the eye of the spectator, nevertheless the traveller is disappointed on his entrance, for the streets are gloomy, and appear narrower than they are in reality, in consequence of the disproportionate height of the stone walls on both sides, which exhibit but a few windows, and these guarded with lattices. Some of the streets are spacious, and well paved with bricks in the middle, the ends being placed uppermost for the convenience of the horses. There are two raised footpaths on the sides, and sometimes a beautiful vista is opened, by looking through several arches in succession. They are defended from the sun by mats spread on wooden rafters, projecting from each side. The bazar gates are regularly shut at sun-set, and watchmen, provided with a pole and lamp, are stationed for the night within them. There are also gates and watchmen in the principal streets. The natives, who are for the most part sober and regular, retire to their habitations early. The houses are spacious, and clothed with terraces and sky-lights, those that have domes excepted. During the summer, the inhabitants sleep on these terraces, which are separated by parapet walls. From their equal elevation, and doors of communication, which the Franks have made, a considerable circuit may be made without descending into the streets. The natives, however, have no intercourse by the terrace, and guard, by high walls, against being overlooked.

The mosques in Aleppo are numerous; and are built of free-stone, with domes in the centre covered with lead. Of these, seven or eight are considered magnificent, though none have more

than a single minaret, or steeple, whence the people are summoned to prayers. These minarets are said to have been first annexed to the mosques by Al Waleed, who succeeded to the caliphate, in the eighty-sixth year of the Hegira. Into these mosques none but Moslems are permitted to enter; and at Aleppo, it is only one of them into the court-yard of which Jews and Christians are allowed admission. The Greeks, Syrians, Armenians, and Maronites, have each a church. The public edifices, next in importance to the mosques, are the khans or caravansaries, intended principally for the accommodation of strangers, and goods. These are of a quadrangular form, one story in height, having rooms, which serve as chambers, warehouses, and stables. The bazars, or markets, are lofty stone edifices, arranged in the form of a long gallery arched above, or roofed with wood, where small shops are replenished with goods, each different kind of business having a distinct bazar, which is always locked at sunset. The public baths, or hummums, do not contribute much to the embellishment of the city, as their fronts to the street are very simple; but the coffee-houses, which are spacious and handsome, and dispersed through all quarters of the town, attract the notice of strangers. They are gaudily painted, and furnished with matted platforms and benches; and those of the better sort have a fountain in the middle, with a gallery for musicians. At certain hours of the day the coffee-houses are full of company, though they are not frequented by persons of the first rank. The dwelling-houses of Aleppo comprehend the seraglios, or palaces, the houses of the opulent merchants, and the habitations of the middling and ordinary people. The seraglio, in which the bashaw of Aleppo usually resides, is situated near the castle, and is a very ancient and extensive building, surrounded by a strong and lofty wall. The gates of this edifice lead to several interior courts, which are destined for barracks, stables, an hippodrome, and various other offices. The principal building contains apartments for the bashaw, his harem, household officers, and pages. It consists of three courts, one of which is the divan, where the bashaw gives public audience. The whole of this building is much neglected, and if it had not been originally a very substantial edifice, it would long ago have been in ruins. There are five or six other seraglios of more modern date, that are much smaller, well built, and gaudily decorated; they were erected at different periods by former bashaws, and belong to their heirs. They are now occasionally let to such governors as do not choose to reside in the old seraglio, and to other officers of the Porte, who visit Aleppo on public business. Other buildings, constructed on the same plan with these, though not denominated seraglios, are occupied by the principal agas and effendees.

To the lower class of strangers, as Arabs, Kurds, and other Turks of foreign extraction, and Armenian Christians, there is appropriated a kind of accommodation, called Keisaria, which is a large area, surrounded by a number of mean, low houses, each consisting of two or three rooms. Other buildings, in the form of a close or court, allotted to weaving and other manufactures, are called by the same name.

The castle of Aleppo is in a bad state, and were it not for its importance as a magazine for military stores in times of war with Persia, for the awe of the city, and an asylum to the magistrates in case of insurrection; as a prison for state criminals, and a place of execution for the Janissaries, when condemned to die, it would scarcely be preserved. The Aga of the castle is immediately dependent upon the Porte, and subject, only in certain cases, to the bashaw, he commands a numerous garrison; and the private men, with their families, lodge in the castle.

The fuel used at Aleppo is wood and charcoal, the former of which is brought on camels from the mountains. Little fuel is made use of, except in the kitchens. The mode of heating the bagnios renders them an absolute nuisance; the dung of animals, the parings of fruit, the refuse of stables, and offals of every description being employed for the purpose Camels, and sheep's dung, with brushwood, or the stalks of different kinds of plants which grow in the desert, are more commonly used for fuel. Cow-dung is resorted to by the peasants, not only for fuel, but for forming a sort of pan, in which they and the Arabs frequently fry their eggs. At Aleppo, in one of the suburbs called Mashirka, they have a glass manufactory, and a tannery to the south-west of the town near the river. Their slaughter-houses are situated in an airy field, in the skirts of the suburbs, towards Bankusa, and their principal flesh market is in the suburb called Iideida.—They have several lime-kilns near the walls, on the south-west of the city, and a manufactory of catgut half a mile to the south, which occasionally emits a very offensive stench. Within the walls, they have only one public burial ground, besides several private cemeteries; but without the walls the burial grounds are of wide extent round the town, whose white tombs and grave-stones, viewed at a distance, forcibly strike the attention.

The city is supplied with water by means of an aqueduct from two springs, near a village called Heylan, at the distance of about eight miles to the north. This aqueduct, which is said to be coeval with the city, was repaired by the empress Helena, the mother of Constantine, and again repaired and enlarged by the son of Saladin, in 1218. It is mostly open, but partly subterraneous, and distributes the water by earthen or leaden pipes to the gardens of Babullah, to the fountains, baths, and private houses. The gardens of Babullah extend about twelve miles, and generally belong to some effendee or aga, possessing sufficient authority for the protection of his tenants, or forms a part of some religious estate. Those also on the banks of the river Kowick, are numerous and fine. They are subdivided into fields, of different shapes and dimensions, bordered with dwarf trees, flowering shrubs, and taller trees, such as the plane, weeping-willow, ash, and white poplar. Within these enclosures are cultivated mad-apples, melons, and cucumbers, with a variety of esculent roots, cabbages, and greens for the kitchen; in others, cotton, tobacco, sesamum, palma christi, and lucern; and some are sown with barley, which

is used in the spring as green fodder for the horses. Among these enclosures are large plantations of pomegranate, plum and cherry trees, and sometimes groves, composed of the various fruit trees which the country produces. The gardens, those of Babullah excepted, are supplied from the river by means of Persian wheels. In most of the gardens there are summer-houses, furnished with fountains, and with kiosks, or a kind of balconies, projecting over the river. The Aleppo gardens are spoken of with rapture by the natives. They supply the city with greens and fruits, and contribute both to the health and amusement of the inhabitants.

In the vicinity of the city are many extensive quarries, which afford a gritty stone, when first dug easily cut, and indurated by exposure to the air; and the more ancient of these quarries have subterraneous excavations of great length, which serve the Bedowen Arabs for winter habitations, as stables for the camels, and as dens of debauchery to the Janissaries. The marble of Aleppo is of a yellowish colour, but by rubbing it with oil, and exposing it to the moderate heat of an oven, it is made to resemble the red marble of Damascus. An extensive plain, called the valley of salt, or salt lake, eighteen miles from the city, supplies the inhabitants with that article.

The climate of Aleppo may be characterized as, upon the whole, mild. The heat, indeed, is great during the summer months of July and August, though it is generally moderated by westerly breezes. But it is intense when the wind proceeds from the north-north-west, east, north-east, or south-east, and all the inhabitants, both native and foreign, are then oppressed with an excessive lassitude, an oppression of the breast, and a parched sensation of the eyes, lips, and nostrils. These winds do not occur every year, nor do they produce such fatal effects as the desert wind. In general, the air of Aleppo is dry, piercing, and salubrious,. The spring commences in the early part of the month of February, about the middle of which the almond-tree blossoms, and the fields become clothed with verdure. In May the corn ripens rapidly into harvest. Refreshing showers fall in the beginning of June, after which drought prevails till the middle of September. From about the close of May to this time the inhabitants usually sleep on their terraces, without sustaining any injury. The severest part of the year is from the middle of December to the latter end of January, when frost is common, though snow is comparatively rare. At the end of August the Nile-clouds, as they are called, make their appearance, and are often attended with dew. About the autumnal equinox the air is refreshed by showers, which are termed the first rains, and are usually preceded by irregular gusts of wind that raise the dust in vortices. These are succeeded in twenty or thirty days by the second rains, which are more plentiful than the first, and after them the weather becomes variable and much cooler. The transition from the Autumn to the Winter is slower than that from Spring to Summer. The trees retain their leaves till the beginning of December, and the most delicate persons have no fires till the middle of this month. The rigour of winter commences about the middle of December, and lasts [illegible] days; but though there is almost always some [illegible] in winter, many years pass without snow [illegible]. narcissus is in flower during the greatest [illegible] the winter, and violets and hyacinths are [illegible] tiful in January. Although violent storms [illegible] wind are rare at Aleppo, squalls, accompanied with heavy showers, and sometimes with [illegible] der, are frequent in the Spring and Autumn. Lightning, unaccompanied with thunder, is frequently seen in the night during the months of September and October; and it is sometimes seen in Summer; but the nocturnal sky, in the hot months, is almost always serene, exhibiting a glorious scene to the astronomer, who may indulge his study, and at the same time enjoy the cool air on the terrace.

The soil near Aleppo, in the more distant plains, consists of a reddish, sometimes a blackish, light mould, and produces the finest the earth in great abundance. The fields near the city yield, in consequence of much manure, two or three crops of different kinds every year; but without manure, they are only sown every year with different sorts of grain alternately, and are seldom suffered to remain fallow. They begin to plough in September; and the plough is drawn, by one or two small cows, or by a single ass, in furrows so straight, that one would imagine a line must have been used in forming them. They sow wheat, barley, lentiles, [illegible] beans, chichling, small vetch, a small green ney bean, and Indian millet. The earliest wheat is sown about the middle of October, and barley so late as the end of February. They seldom use the harrow, the grain being covered by repassing the plough along the edge of the furrow; in sandy soil, they sow first, and plough. The barley harvest commences in May about ten or fourteen days before that of wheat, and early in June corn of every kind is taken off the ground. Among the reapers in Syria, a custom prevails of accosting a passing traveller and presenting to him a handful of corn, with a general shout; and a small present is expected in return. The corn, when reaped, is carried on asses to the summit of the nearest hill, and, being laid on hard ground, is separated from the chaff, not by threshing, but by means of a sledge drawn by two or three rollers, and armed with several rings, with serrated edges, so sharp as to cut the straw. This machine is drawn by oxen, mules or asses, and driven by a man seated on the sledge, and as it passes circularly over the corn spread beneath, the grain, by repeated operations, is trodden out, while the straw is cut by the iron rings. The chaff and bruised straw are then separated from the grain, by throwing up the whole into the air with wooden shovels when the wind blows moderately. The straw that have been imperfectly trodden are again submitted to the sledge. When the grain has been afterwards more perfectly winnowed, and separated from the straw, it is thrown [illegible] in a large heap, and is then divided in a stipulated proportion between the husbandman

the landlord. The cattle employed in the harvest are left unmuzzled at the heap, as the Scripture mentions. See Lowth's Com. on Isaiah, ch. xxviii. v. 27, 28. Notes, p. 130. The grain is then removed to granaries, which are subterraneous grottoes, with one round opening at the top, which, when the magazine is full, is shut close and covered with earth, and thus completely concealed from the enemy. The corn is chiefly ground in mills wrought by mules, though there are some water-mills upon the river Kowick, and among the lower people by hand-mills. Wind-mills are unknown.

The olives produced at Aleppo resemble the Spanish olives, but are not so large, and the annual produce of them is inconsiderable. The city is supplied with oil from other parts, and particularly from Edlib and adjacent villages, where the olive plantations are more extensive. Large quantities are employed in making soap, and the ashes employed in this manufacture are brought from the Desert by the Arabs. The gardens afford several varieties of grapes; those that are ripe appear in the market in September, but the vintage is not at its height till the middle of November. The dried fruit of the vine affords part of the food of the inhabitants; it is eaten with bread and used in sherbets; a large quantity of raisins is also used in the distillery, carried on both by Turks and Christians. Anniseed is added in the distillation, and the spirit, which is very strong, is called araki. The inspissated juice of the grape is much used by the natives; it is called dibs, and much resembles coarse honey in appearance. It is brought to town in goat skins, and serves for the common people instead of honey. The pistachio tree is diligently cultivated, and the nuts reckoned superior to those of any other part of the world. Pliny, lib. xiii. c. v. lib. xv. c. 24, says, that pistachios were first brought from Syria into Italy, by Lucius Vitellius, in the reign of Tiberius; and Galen, De Alim. Facult. lib. ii. c. 30, mentions Bercœa as famous for that fruit in his time. Large quantities are exported from hence to Europe. The nuts of the wild pistachio are brought to town from the mountains; the tree not growing near Aleppo. The white mulberry is common in the gardens, and brought to market in May, and the fruit of the red mulberry, which is not ripe till two months later, is delicious. Very little silk is made at Aleppo; that which is exported from hence to Europe, by way of Scanderoon, is chiefly the produce of Antioch and the adjacent mountains, or it is brought to Aleppo from places more distant. The pomegranate is common, and ripens towards the end of August. The markets are supplied with several varieties of figs; but the middle sized yellow fig is the most esteemed. The gardens also produce other fruits, as cherries, apricots, peaches, plums, apples, pears, quinces, cornelian cherry, almonds, walnuts, hazel-nuts, jujubes, and sumach; the former of these two last being much valued as a medicine, and the latter as an ingredient in cookery. Oranges, lemons, and citrons, were formerly produced in the orchards of Aleppo; but as they are not now cultivated, it has been inferred from this circumstance, that the winters in Syria are now more rigorous than they were in former times, and this is the opinion entertained by the natives. Among the vegetables which form part of the diet of the inhabitants, the mad-apple (Solanum Melongena of Linnæus,) of which there are three varieties, claims a principal place. Of the vegetables produced in the fields without culture there are capers, borage, common mallow, sorrel, dandelion, water-cress and truffles. Savory is used to give a relish to their bread.

The inhabitants of Aleppo consist chiefly of Turks and Arabs; many among them, to the amount, perhaps, of four thousand, claim descent from Mahomet, and wear their dress intermixed with green, as a token of this distinction. They are not at present held in very high esteem, owing to their superciliousness and contentious spirit, although, formerly, they were greatly reverenced, and any injury done to them was severely punished. The extent of the population is variously estimated. Dr. Russel, whose calculations ought probably to be most relied upon, states it at 250,000, of which 30,000 are Christians, and 5000 Jews. The population of this place and neighbourhood is thought to be on the decline, in consequence of exactions practised on the inhabitants by a despotic and oppressive government. The domestic servants are nearly all Armenians.

The men dress in the long eastern habit, and during six months in the year wear furs. Under the furs their garments consist of a silk or linen shirt, and drawers, wide trowsers of red cloth, to which are sewed socks of yellow leather, serving for breeches, stockings, and, within doors, for shoes; but in walking, they use slippers without heels. They also wear a waistcoat, called a kunbaz, that comes lower than the knee, and a long vest reaching down to the heels, which covers all, is named a dulaman. Above the dulaman, they have a long Persian shawl, and a belt under the waistcoat, and to this cincture they attach a small dagger or knife, and men of business a silver inkhorn. The turban is commonly worn. The Abai is a silk or camblet gown, with large sleeves, laced down the seams with a narrow gold lace, which is worn in summer instead of the kurk, or loose gown trimmed with furs. Abai is the name of the ordinary vestment of the Arabs. The dress of the ladies in many respects resembles that of the men. But their dulaman and kunbaz sit closer to the shape, and, not folding over the breast, leave the neck uncovered. Instead of the costly, long-haired furs of the men, they use sable or ermine, and they are formed in a different fashion. The ladies are fond of thick long hair; and their head-dress, consisting of a warm cloth cap, under cotton and muslin, which compose the rest of the attire, is much warmer than that of the men. They wear ear-rings, a necklace, or collar, of gold, large clumsy gold bracelets on the wrist and ancles, a string of zechins close to the hair on the forehead, and another, very long, across the body like a sash. Both sexes wear rings on their fingers, and some women wear them on their toes. The use of rouge is not much known, but the women tinge their fingers and hands, also their toes and feet, of a dusky red

or yellow, with a paste formed of the powdered leaves of henna and water. These parts are afterwards covered with another paste composed of flour and water, with crude sal ammoniac and quicklime, which changes them to a very dark green. The inside of the eyelids are tinged with a powder called kohol. The women apply another composition called khatat to the eye brows, which tinges them of a fine black, and makes the hair smooth and glossy. The men, after a certain age, or after performing the pilgrimage to Mecca, let the beard grow, and bestow much pains upon it. The Turks wear whiskers, and persons of both sexes use a variety of perfumes, of which sandal wood, musk, and spikenard are the most common. The women never appear in the streets without their veils, which in general are a linen sheet covering the whole habit from head to foot, and concealing the whole face except one eye. Those of the Christian and Jewish women are of plain white calico, which the Turkish women chequer with blue and red. The Jewish women have one arm free. Women of every class, when they go abroad, wear thin yellow boots, reaching half way up the leg, over these yellow babooge or slippers; and in wet weather wooden clogs, called kabkal. Women are never seen in the streets after dusk. They are always particularly anxious to keep the crown of the head covered, which scarcely any consideration can induce them to bare. Though society is deemed the most polished here of any part in the Turkish dominions, the females are said to be addicted to intrigue, whenever it can be secretly conducted,

Trade is carried on in Aleppo to a very considerable extent, both by Christians and Mahommedans. Four caravans proceed annually through Natolia to Constantinople, and others arrive from Bagdad and Bassora, with coffee and India muslins and shawls. The Turks carry on the trade of India, Asia Minor, Constantinople, and Egypt. The exports are cloth, from Antioch, Merdin, and other places; osnaburghs, from Aleppo and Damascus; and printed cottons, from Diarbekir; galls, drugs, and various other articles. The imports are considerable; cloths, Lyonnese stuffs, and bonnets, from Europe; merceries, indigo, tea, sugar, paper, soap, and numerous coral ornaments. Commerce with Europe has of late years much declined, and the European establishments in the city consequently reduced.

Generally speaking, the inhabitants of Aleppo are sedentary in their mode of life and habits, and are somewhat addicted to amusements, though not at all disposed to exercise. The men frequent the coffee-houses, where they are entertained with music and dramatic representations. The women often attend the baths, where persons of every class in society are admitted, in an indiscriminate manner, till they are full. At these places music and refreshments are provided, parties of pleasure formed, and all the splendour of attire that can be mustered, is brought into view. Dancing is not reckoned a genteel accomplishment for people of condition, and even among the vulgar it is seldom practised, unless by such as make it their trade. The coffee-houses are entertained by a band of [illegible], a puppet-show, and a story-teller. The Aleppins have, in general, a correct ear, and are fond of music. The instrumental music is of two kinds, one martial and loud, intended for the field, and the other less sonorous, adapted to the chamber. The band of music, belonging to the castle, [illegible] that of the bashaw, performs regularly twice a day from the battlement, and the bashaw's band also performs twice a day in the court of the seraglio.

With regard to nuptial contracts and ceremonies at Aleppo, they are similar to those generally observed among the Turks. When a matrimonial engagement is projected, the proposal is intimated to the mother of the intended bride, and the relations on both sides proceed to make the necessary enquiries. If the result be satisfactory, the young woman is formally demanded of her parents by the father of the young man. Substitutes are then appointed to stipulate the necessary conditions; and these proxies adjust the sum to be paid to the bride's father, with other articles of the marriage contract. When the money is paid, the contract is regularly signed and sealed, and then the Cadi grants his licence for the marriage. About six days before the wedding, the bride is invited by her female relations to the bagnio, and there she is entertained till the day preceding the marriage, when they proceed to apply the henna. In Aleppo it is customary for the father of the bride to make some addition to what is paid by the bridegroom, and to lay it out for the benefit of his daughter; but among the Bedowen inhabitants, and in the villages, the father usually receives a part of what he receives for his daughter; and in this respect they may be said to sell their daughters. This custom of purchasing wives is practised by all the oriental Christians, as well as the Turks, and appears from the sacred writings, to have been the ancient practice. Accordingly, among the Arabs, daughters constitute the riches of a family. On the nuptial day, the women go in procession from the bridegroom's house to fetch the bride, who is brought home amidst the acclamations of the women, accompanied by her mother, and several other female relations. The procession is in the day time, and at Aleppo they do not carry tapers, as travellers have reported. On their arrival at the house, the remainder of the day is spent in feasting and music. When the bride, covered with a veil of red gauze, and dressed in her wedding garment, has been introduced to her husband, the relations withdraw, and continue singing and feasting till morning; and the nuptial rejoicings last several days. The mother for the most part suckles her child, unless prevented by incapacity, and the child is seldom kept at the breast less than two years, sometimes three or four; and the mother often suckles during the whole time of pregnancy. During the first week the child is swaddled, and then dressed in clothes which are more loose and easy; and as soon as they are able, they are set at liberty to crawl about on the carpet. When children can support themselves, they are usually carried astride on the shoulders; and the expression used by Isaiah, ch. lx. v. 4, upon which

bishop Lowth comments, Notes on Isaiah, p. 258, viz. עלכתף is literally that which is now used by the Arab women. The difference of carrying a child in the bosom or on the shoulder, referred to, Isaiah xlix. 22, and noticed by Harmer, Obs. on Scripture, vol. ii. p. 366, may be owing to their different age, without regard to sex.

In the funeral ceremonies practised at Aleppo, the women perform a conspicuous part.—When a person is dangerously ill, one or two sheiks are employed to read portions of the Koran, and to pray by the bed-side. At the approach of death, the attendants turn the face of the dying person towards the keblah, that is, towards Mecca. When he expires, the women in the chamber give the alarm, by shrieking, as if they were distracted, and are soon joined by all the other females in the harem. This conclamation is termed the Wulwaly, and is so shrill as to be heard, especially in the night, at a prodigious distance. Schultens in his commentary on Job, x. 15, tom. i. p. 978, considers the Arabic Wulwal, as corresponding to the Hebrew ילל, and to the Greek ολολυζω and αλαλαζω, and he supposes that the former Greek word was applied in a joyful sense. However, the Arabic wulwaly is applicable only to distress and affliction, and seems to have a greater affinity to the latter term than to the former, which was commonly used by the Greeks on sacred or joyful occasions. See *Mark*, v. 38.—Plutarch refers to this practice in his account of Portia's fainting on the day of Cæsar's death, when her maids, apprehending that she was dead, wailed over her. Brutus, Oper. tom. i. 991. We also learn from Cicero De Legibus, lib. ii. Oper. tom. iii. p. 221, ed. Olivet, that the extravagant exclamations of women at funerals was prohibited by the twelve tables. See Præficæ. In a few hours the corpse is prepared for interment by ablution, and by stopping all the natural passages with cotton, sprinkling parts of it with a powder composed of spikenard and other aromatic herbs, and wrapping it up in a cotton winding-sheet. Over the bier, at the head of which is fixed a batoon, on which the man's turban, or the attire of the female head, is placed, is thrown a black pall, and over this the best wearing apparel of the deceased. The funeral procession is attended by the acquaintance and kindred of the deceased: a number of the sheiks, some of whom incessantly repeat Ullah, Ullah, and others chant verses of the Koran: and one person is the chief mourner, and manifests her grief, real or fictitious, by the most extravagant and frantic cries and gestures. Other mourners are sometimes hired, who, at intervals, join the general wulwaly. A funeral service is performed by the imam in some neighbouring mosque, and the corpse is then deposited in the grave, in a reclining posture, with the head to the west, and the face turned towards Mecca. A handful of earth is then thrown by the imam, or sheik, after a funeral service, into the grave, which is also done by others who stand near, and who at the same time pronounce a short benediction; after which the grave is filled up. The funeral service in use among the Kurdeens is very laconic, and is as follows:—'If thou hast taken away, thou shalt restore; if thou hast given, it shall be restored to thee; and if thou doubtest this, thou shalt now be convinced.' The funeral service, recited by the imam at the grave, is as follows: 'O man! from earth thou wast at first created, and to the earth thou dost now return: this transitory abode being the first step of thy progress to the mansions of eternity. If, in thy actions in life, thou hast been beneficent, God will pardon thy transgressions; and if thou hast not, still the mercy of God has no bounds. But remember what thou didst profess in this world, that God is thy Lord, and Mahomet thy prophet—and thy belief in all the prophets and apostles, and that God's forgiveness is amply extended.' The sepulchre is visited by the near relations on the third, seventh, and fortieth day after the interment; they also celebrate the anniversary: solemn prayers are offered at the tomb for the repose of the deceased, and victuals and money are distributed to the poor. The tomb is bestrewed by the women, in their visits, with flowers and aromatic herbs; and the wulwaly is repeated. The men make no alteration in their dress as a mode of mourning; but the women lay aside their jewels, dress in their plainest garments, and wear on the head an embroidered handkerchief of a dusky brick-dust colour.—They commonly mourn twelve months for a husband, and six for a father.

Crimes of a capital kind are very rare at Aleppo. The usual capital punishments are hanging, beheading, strangling, and impaling. Janissaries are strangled, not with a bow-string, but by a cord put round the neck, and then twisted with a stick in the manner of a tourniquet. The bodies of all who are executed remain for some days exposed to public view. Theft is uncommon; when it occurs, it is sometimes punished by amputation of the hand, but more commonly with the bastinado, which is performed with rods about the size of a small walking-stick; and this is the usual punishment for offences of an inferior kind. Banishment to the island of Cyprus, and the maritime towns of Syria, is chiefly employed for removing turbulent members from the city or the divan.

The state of literature at Aleppo is much degenerated from that of ancient times, when it was more respectable. There are indeed public day-schools adjoining to some of the principal mosques, but their colleges for students in advanced life are few in number, and poorly encouraged. They are more properly seminaries of pedantry and superstition than of science; and they are chiefly frequented by the studious of the poorer class, who dedicate themselves to the service of the mosque. Grammar and school-divinity are the subjects chiefly taught at college. The effendees, who assume an appearance of respect for learning, have no liberal notion of science. Astronomy, which was once a favourite study among the Arabs, is at present wholly neglected. Although they have books on the subject in their libraries, and some instruments, yet so little is known of the science at Aleppo, that a person who is found capable of calculating

eclipses, has, on this account, the reputation of a most profound astronomer. Almanacks are seldom constructed at Aleppo, but are brought thither from Constantinople or Cairo. As to mathematical studies, they are little attended to by the modern Arabs; nor have natural history and the experimental parts of philosophy made any progress amongst them for several centuries. History is little regarded by the literati at Aleppo. Their knowledge of distant states, and of the revolutions of empire in the western world is very partial and imperfect; and even their own history, before the appearance of their prophet, remains in great obscurity. Their geographical knowledge also lies within very narrow bounds; nor have they any good maps, except such as have been imported from Europe. Superstition has banished painting from Syria; and music, degraded by fashion to a mercenary profession, is rather tolerated than encouraged; poetry, which was formerly much cultivated among the Arabs, has very perceptibly declined and languished; so that the modern Aleppo bards never attempt any performance beyond a dirge, a ballad, or an epigram. Although the medical practitioners at Aleppo are numerous, their knowledge of medicine is superficial, perverted by prejudice, and accompanied with pedantic affectation, arrogance, and obstinacy. A very competent judge affirms their general practice to consist in specious trifling. Their knowledge of anatomy is acquired by reading, not by dissection; and their ignorance of the circulation of the blood, leaves them quietly in possession of the ancient doctrines. The most calamitous disease to which they are subject is the plague.

The epidemical diseases most prevalent in Aleppo are, continual fevers, intermittent and remittent fevers, regular and anomalous, erratic fevers, commonly attended with diarrhœa; the dysentery, quinsy, pleurisy, peripneumony, rheumatism, and ophthalmia. The sporadic and chronic diseases are, with few exceptions, nearly the same as in Britain. Those which are most common at Aleppo, are pulmonary complaints, spitting of blood, and consumptions, obstructions of the abdominal viscera, cachexy, jaundice, dropsy, inguinal ruptures, the hæmorrhoids and worms. The tinea is common, and various other cutaneous eruptions; but the true or confirmed leprosy is now become obsolete in Syria. The venereal disease is also very common in this country. The Europeans soon after their arrival at Aleppo are subject to a fever, which has been distinguished by the name of l'oca, or goose. The disease attacks but once; and the English are rather more liable to it than the Provençals and Italians. The natives of Aleppo and European strangers, after some residence here, are subject to a singular kind of eruption; which from the supposed time of its duration, is denominated the botch of a year, or the ring-worm or pimple of Aleppo; but by the Europeans and Turks, il mal d'Aleppo, the Aleppo evil, and the Aleppo ulcer. No part of the body or limbs is exempt from this eruption; but it most commonly fixes on the face, and leaves a scar, with which almost all the inhabitants are disfigured. Volney suspects that it proceeds from the quality of the water. Dr. Russell has particularly described it: and he observes, that the mercurial plaster was the most efficacious remedy.

The animals, birds, &c. of Aleppo, will be treated of in the geography of the district. One species of pigeon, however, claims a slight degree of attention.

Speedy intelligence was of such importance in Aleppo, that the carrier-pigeon was employed to convey notice from Scanderoon or Alexandretta, and Bagdad, to Aleppo. It is the peculiar quality of this bird to find its way through the air from incredible distances, to which it has been conveyed hood-winked, or in a covered basket, and with a velocity no less surprising. But this practice can only be adopted during the period of incubation, or while its young are unfledged; and a kind of training is required. Damiri, an Arabian author, affirms, that it can traverse 450 miles in a day; and, according to Maillet, a French writer, its flight is at the rate of sixty miles an hour. Thus it may easily be believed, that intelligence was conveyed in two hours and a half through the distance of seventy miles, from Alexandretta to Aleppo. The practice has been discontinued in Syria for some time; but during its existence, it is said that a merchant of Aleppo having accidentally killed a carrier-pigeon, discovered from the billet under its wing that a scarcity of galls prevailed in England; and, availing himself of the information, made such arrangements as enabled him to realize a fortune.

ALEPYRUM, in botany, *a*, without, λεπυρον, a bark, shell, or covering, i. e. of corollaceous glumes, by which this genus is distinguished from Devauxia; class and order, monandria polygynia. Nat. Ord. Restiaceæ,

Gen. Ch. CAL. sheath of two concave, keeled, permanent valves, clasping each other at the base, containing one or more flowers: COR. none: STAM. filament one, capillary, drooping, about as long as the calyx; anther simple, oval: PIST. germens several, six to eighteen, ovate-oblong, superior, inserted into one side of a central oblong receptacle, and all turned one way; styles as many, thread-shaped, combined at the bottom, spreading or deflexed at the upper part: STIGM. linear, downy: PERICARP. capsules as many as the germens, membranous, oval, of one valve, and one cell, bursting longitudinally at one side. SEED. solitary, obovate, pendulous. Essential characteristics, sheath of two valves; COR. none, ANTH. simple; GERM. unilateral: CAPS. bursting longitudinally at one side: seed solitary.

Also a genus of small herbaceous plants, nearly allied to the more numerous one of Devauxia, and scarcely to be separated therefrom, the want of petals in Alepyrum being the only difference. The three species are all natives of the south coast of New Holland, nor do they appear to have been met with by any botanist or collector, excepting Mr. Brown: ROOTS fibrous: leaves

radical, simple, linear-lanceolate, or setaceous: flower-stalks radical, unbranched, single-flowered. 1. A. polygonum: many-jointed Alepyrum, sheath single-flowered; the outer valve with a leafy point: GERM. from fifteen to eighteen; stalk twice the length of the leaves. 2. A. Pumilio, dwarf Alepyrum; sheath single-flowered; the outer valve with a leafy point: GERM. from six to nine; stalk the length of the leaves. 3. A. muticum, pointless Alepyrum; sheath with a few flowers; the outer valve pointed.

ALERIA ALALIA, or ALARIA, in ancient geography, a town of Corsica, mentioned by Ptolemy, situated near the middle of the east side of the island, on an eminence, near the mouth of the river Botanus, built by the Phocæans. Afterwards Sylla planted a colony here. It is now in ruins, and called Alleria Distrutta.

ALERION, in heraldry. See ALLERION.

ALERT', } Ital. All' erte, al' erta, par-
ALERT'NESS. } ticipial adjective from the verb ergere; Lat. erigere; estre à l'erte, to observe, or watch from a high place—a military phrase formed by a combination of French and Italian. See Cotgrave. 'Stare à l'erta, to be watchful.' *Florio's Italian Dictionary.*—Watchful, brisk, lively.

> Thir nobill nymphis maid reverence,
> With gestour lively and *allairt*;
> And eftir their obedience,
> Hir grace passit to ane udder pairt.
> *Burel in Sibbald's Chronicles*, v. iii. p. 470.

That *alertness* and unconcern for matters of common life, a campaign or two would infallibly have given him. *Addison, Spectator.*

> Not such the *alert* and active; measure life
> By its true worth, the comfort it affords,
> And their's alone seem worthy of the name.
> *Cowper's Task.*

ALES, (Alexander) a divine of the confession of Augsburg, born at Edinburgh in 1500. He entered the lists very early against Luther, but became at length a perfect convert to the Protestant religion. The change of religion which happened in England after the marriage of Henry VIII. with Anna Bullen, induced Ales to go to London in 1535. He was highly esteemed by Cranmer, archbishop of Canterbury, Latimer, and Thomas Cromwell, who were at that time in high favour with the king. Upon the fall of these favourites, he was obliged to return to Germany: and the elector of Brandenburgh appointed him professor of divinity at Frankfort upon the Oder, in 1540; but leaving this place upon some disgust he returned to Leipsic, and died in March 1565. He wrote a Commentary on the writings of St. John, on the epistle to Timothy, and on the Psalms.

ALES, a name given to a compound salt; it also signifies contracted, when used by physicians as an adjective.

ALES, a river of Roxburghshire, which rises in Selkirk, and falls into the Tiviot, a little below Ancrum.

ALESA, ALÆSA, or HALSEA, in ancient geography, a town of Sicily, on the Tuscan sea, built, according to Diodorus Siculus, by Archonides of Herbita, in the second year of the 94th Olympiad, or A. A. C. 403; situated on an eminence about a mile from the sea; now in ruins. It enjoyed immunity from taxes under the Romans.

ALESANI, a town and jurisdiction of Corsica, consisting of nine villages, in the district of Aleria, which see.

ALESHAM. See AYLESHAM.

ALESIA, in ancient geography, a town of the Mandubii; called also Alexia, by Livy and others; situated on a very high hill, whose base was washed by two rivers. The town was of such antiquity, that Diodorus Siculus relates it was built by Hercules. It is now called the city of Alise, in the duchy of Burgundy, near Dijon.

ALESSANDRIA, in Egypt. See ALEXANDRIA.

ALESSANDRIA, or ALEXANDRIA, is a strong town, with a citadel, lying in a marshy country on the east bank of the Tanaro, in Upper Italy. It is the see of a bishop, the suffragan of the archbishop of Turin. It contains, besides the cathedral church, twelve parish churches, two collegiate churches, seventeen monasteries and nunneries, together with several fine private buildings, and had in the year 1806, 35,216 inhabitants. The yearly fairs held here at the end of April and beginning of October, are attended by merchants from all parts of Italy, and even from France and Switzerland, being inferior to none in Italy, except those of Sintegaglia. This town and fortress were founded in the latter half of the twelfth century by the Lombard league, formed to oppose the emperor Frederic I. The French made themselves masters of the town and citadel in the war of the Spanish succession, but were dispossessed by prince Eugene in 1706. In the invasion of Italy by Buonaparte in 1796, the fortress of Alessandria was given up to the French conditionally, by the armistice of 28th April, and definitively by the treaty of 15th May. It remained in their hands above three years; but after the defeat which the French sustained at San Guiliano, on the 25th June 1799, it fell into the power of the allied Austrian and Russian armies. It had been furiously bombarded during six days, and was about to be stormed when it surrendered by capitulation; and so obstinate had been the resistance, that of 103 cannon found by the allies, only six were fit for use. After the decisive battle of Marengo, in 1800, Alessandria fell into the hands of the French, in whose possession it remained till 1814, when it once more changed masters, on the restoration of the king of Sardinia to his Italian states. During this interval it was the capital of the department of Marengo, and was greatly strengthened in its fortifications. Thirty-eight miles south-west of Milan, and forty-four miles east of Turin. Long. 8°. 40′. E. Lat. 44°. 57′. N.

ALESSIA, or ALESSIO LISSUS, a town of European Turkey, in the province of Albania, seated near the mouth of the Drino, forty miles west of Albanopolis. It is famous for the castle, where Scanderberg died, and was buried in 1467, for whom the Turks have such a veneration, that they carry away pieces of his tomb as relics, and esteem them effectual charms to animate their courage in battle. Lon. 19°. 36′. Lat. 42°. 8′ N.

ALESSIO, a town of Turkish Dalmatia, in

Hungary, seated on a mountain, twenty-five miles from Spalatio. It is a bishop's see.

A L'ETENDARD, in music, to the standard! a military signal sounded by the trumpet, for the troops to gather round the standard, on the attack of an enemy.

ALETHA, a town of France, seated on the river, and in the department of Aude, arrondissement of Limouse, thirty-five miles south of Carcassone, and thirty-seven miles south-west of Narbonne. It is remarkable for its baths and for the grains of gold and silver found in a river which runs from the Pyrenean mountains, at the foot of which it stands.

ALEUROMANCY, from *αλευρον*, meal, and *μαντεια*, divination, otherwise called alphitomantia, and crithomantia, an ancient kind of divination performed by meal or flour.

ALEUTIAN ISLES.

ALEUTIAN, Aleutskie, or Aleutic ISLANDS, of *aleut*, a bold rock, a name given, principally by Russian navigators, to a chain of islands, extending from the promontory of Alaschka, in North America, to Kamtschatka, in Asiatic Russia. They are between forty and fifty in number, and include what were generally known in our English geographical works by the name of the Fox islands, Behring's and Copper islands, and the group formerly divided into the Aleutian and Andrenovian Isles. Behring's and Copper islands are still excluded from this denomination by some writers, but as the entire chain is evidently connected, and as they appear to be but a continuation of the immense mountains of the neighbouring continents, we shall find it most convenient, in common with the most recent Russian geographers, to consider them under this one appellation. In this extended view of them, these islands are scattered over that portion of the Northern Pacific, nearly 1500 leagues in circuit, communicating with the Northern ocean by Behring's straits. All the settlements hitherto formed upon them belong to Russia, and to that nation must be attributed the honour of their first discovery.

In the year 1725, Peter the Great, whose mind was strongly excited by the question then agitated, relative to the distance between the American and Asiatic continents, drew up instructions with his own hand, for the conduct of an expedition of discovery to this region, which was to be entrusted to the command of an officer named Behring. In 1728, the deputation sailed from the mouth of the Kamtschatka river, and coasted the eastern shore of Siberia as far as 67°. 18′. north latitude; but making no discovery of the opposite continent, in 1729 he again reiterated his attempt, but with no better success. The same illustrious officer, deputed in 1741 by the empress Anna, and attended by another vessel under the command of Tschirikoff, not only accomplished the primary object of his mission, but led the way to all the subsequent important discoveries of the Russians in these seas. His discoveries in the course of the voyage, aided by the recent conquest of Kamtschatka, have facilitated the solution of some of the most interesting problems of modern geography. Tschirikoff is said to have discovered the coast of America in the 56th degree of latitude; and Behring, who was separated from his companion in a storm, saw it in latitude 58°. 28′.; and in his return was driven upon the island which now bears his name, and where he died.

The two uninhabitated islands, Behring's and Copper island, appear to have been first visited in 1745; and becoming known to the natives of Kamtschatka, were largely resorted to for the sake of the valuable furs which they afford. The Eudokia, in the year above alluded to, was fitted out by private adventurers, and the command given to Michael Nevodtsikof, a native of Tobolsk. Other adventurers penetrated as far east as the Fox Islands. One of the most remarkable of these voyages was that of St. Andrean and Natalia, fitted out by the merchant Andrean Tolstyk, which sailed from the Kamtschatka river on the 27th September, 1760, and reached Behring's Island on the 29th. Driven ashore by a violent autumnal storm, they were obliged to pass the winter; but putting to sea on the 24th of June the following year, they passed by Copper Island, 150 versts from the former, and steered south-east to the Aleutian Isles. These they reached on the 6th of August, and thence proceeded on the 19th, in quest of more distant islands, for the purpose, if possible, of exacting tribute. Steering away to the south-east, and north-east by east, they were driven by a gale of wind upon an island indented with a safe bay, where they anchored in safety. This they called Ayagh, or Kayaka, and another, about twenty versts distant, Kanaga. Four other islands were afterwards discovered. This group, north-west of the Fox Islands, were, in honour of the vessel which made the discovery, called the Andreanofskie, or Andrenovian Isles. From the year 1758 to 1760, though several vessels visited the Fox Islands, and obtained valuable cargoes of sea-otter and fox skins, little information was obtained. In 1762, four vessels sailed from the Fox Islands, of which only one returned, and the natives seemed exceedingly hostile.

For the better discovery of this archipelago, Captain Krenitzin and lieutenant Levashef sailed from the mouth of the Kamtschatka river, by order of the empress Catharine, to examine the chain of Aleutian Islands. Having carefully surveyed the whole of this archipelago, from Behring's island to the promontory of Alaska, and after spending the winter in the Fox Islands, this expedition, in the autumn of 1769, returned to Kamtschatka. But our immortal Captain Cook communicated more scientific information respecting these islands, and also of the coasts of the two continents, than all the previous voyages of the Russians put together. During his third and last voyage in 1778, he surveyed the eastern portion of the

archipelago with his usual energy and perseverance, and enriched the science of geography with many new discoveries.

In the year 1785, the Russians instituted a fresh expedition, under the command of Captain Billings, an English naval officer, in the Russian service, who had accompanied Captain Cook in his last voyage to the Pacific Ocean. This attempt is ascribed to the suggestion of Mr. Coxe, then at St. Petersburgh, and whose account of the Russian discoveries between Asia and America, had attracted the attention of the Russian government. During this voyage, which was not completed till 1796, the whole chain of the Aleutian Isles was explored; and some parts of the western coast of America. The details are published in the narratives of Martin Sauer, secretary to Captain Billings, and Admiral Sarytochef. A few years after the return of this expedition, the Russian American Company turned their attention towards the best means of supplying the north-west American settlements with provisions, &c. It was resolved to try whether the conveyance by sea would not answer a better purpose, than the tedious journey by land to Ochotsk. To ascertain the practicability of this hypothesis, Captain Krusenstern, who had long served in the British Navy, suggested the plan of an expedition from Cronstadt, round Cape Horn, to the Aleutian Islands, and the north-west coast of America. This plan meeting the approbation of count Romanzof, the minister of commerce, and Admiral Mordwinof, minister of the marine, obtained the sanction of his imperial majesty; and two vessels called the Nadeshda and the Neva, were accordingly purchased in London for the voyage. The command of the expedition devolved on Captain Krusenstern, the original author of the plan, subordinate to whom, Captain Lisiansky was appointed to the Neva. These two vessels sailed in company from Cronstadt in the month of August, 1803, and proceeded to the Brazils, whence they sailed round Cape Horn to the Sandwich Islands where they separated; the Nadeshda proceeded to Japan and China, while Captain Lisiansky, in the Neva, proceeded to Kadyak and the American settlements. Upon the details of this voyage our limits do not allow us to enter, but full and interesting accounts have been published by the two captains, and also by Dr. Langsdorff, who went out in the expedition in the quality of a physician.

The westerly part of the Aleutian chain consists of those islands which lie nearest to Kamtschatka. The first is Commodore's, or Behring's Island, situate, according to Captain Cook, in fifty-five degrees of latitude, and sixty of longitude from the harbour of Petropaulowska, in the bay of Awatska. It is from seventy to eighty versts long, and stretches from north-west to south-east. Ten leagues from the south-east point of this island, in the direction of east by south or east-south-east lies Mednoi Ostroff, or Copper island, so called for the large masses of native copper found upon the beach. Still further to the east lie three small islands, Attak or Attoo, Semitshi, and Agattoo, the Plishnie Ostrova, or nearest Aleutian Isles of the Russians. These islands are situated between the fifty-fourth and fifty-fifth degrees of north latitude. Attak is the largest; nearly of the same shape as Behring's Island, but more extensive, stretching from east to west, to the length of eighteen leagues. It has two harbours, one of which lies on the southern coast. From the eastern extremity of the Aleutian Islands, properly so called, another group runs south-eastward, continuing the chain as far as the western extremity of the Fox Islands. These are called the Andreanofskie Islands; but we have less accurate information respecting the central part of the chain, than of the eastern and western groups. They are said to lie within the fifty-second and fifty-fourth degrees of north latitude, but being of inconsiderable extent and importance, are seldom visited by navigators. The most remarkable are, Takavangha, which has in its centre, near the northern coast, a burning mountain; Kanaghi or Kanaga, which has likewise a high smoking mountain; Ayag, which has a number of good bays and anchoring-places; and Tshetchina, on which a high white mountain overtops the rest, apparently an extinct volcano, especially as there are still hot springs on the island. Atshak, or Atchka, and Amlac, are also usually reckoned among the number of the Andrenovian isles, of which the former greatly resembles Copper Island, and is provided with a commodious harbour.

The most important and best explored portion of this archipelago is the easterly group, called by the Russians Lyssie Ostrova, or the Fox Islands. Of these the most considerable are, Umnak, Unalashka, or Oonalashka, and Unimak; the last of which is separated by a narrow strait from the promontory of Alaska. Beyond these, to the north-east, lies the large island of Kadyak, or Kodiak, generally included in the group called Schumagin's Islands.

The whole of these islands are bare and mountainous; their coasts are rocky and surrounded by breakers, which render their circumnavigation exceedingly dangerous. The land rises immediately from the coasts to steep bald mountains, towering above each other higher and higher, and assuming the appearance of chains of mountains, with a lengthwise direction of the island. Springs take their rise at the bottom of the mountains, and either flow in broad and rapid streams into the neighbouring sea, or, collecting in the rocky vales and glens, form ample lakes, sending off their superfluous waters, by natural canals, into the adjacent bays. They bear evident marks of volcanic formation; and several of them have still active volcanoes, which continually emit smoke, and sometimes flames. No traces of metals have been discovered on these islands; but carneoles and sardonyxes are common. Their soil is similar to that of Kamtschatka; and affords the same kinds of edible berries and roots; some few vegetables, however, seem to be of foreign origin. No wood of any considerable growth has been perceived upon any of these islands, except a small quantity on Unalashka. The land animals are bears, wolves, river-otters, river-beavers, and ermines. The sea-otter, so valuable on account of its skin, is

frequently caught; but the number of these animals, is much diminished. The Fox Islands furnish a great variety of foxes, of various colours, black, grey, red, and brown. The sea abounds with all sorts of seals, dolphins, and whales, and occasionally sea-lions and porpoises are seen. Salmon are caught in great abundance and variety; and halibut of an immense size are frequently taken. The winter upon these islands is mild, but the summer is equally short and unpleasant. The inhabitants are numerous, and tributary to Russia, from whence vessels are sent out, and establishments formed upon these islands on account of the very profitable chase of sea-otters and foxes for the supply of trade,

Unalashka, one of the largest of the Fox Islands, as visited by Captain Cook during his last voyage, merits more particular attention. This island stretches from north-east to south-west, and is from seventy to eighty versts in length, but of very unequal breadth. On the north and north-east side there are many bays and creeks, in some of which are convenient harbours. A part of the south-west shore consists of very high, steep, inaccessible cliffs; and another part has remained hitherto wholly unexplored. The whole island consists of a mass of rocks, covered with a thin coat of earth; the hills are of very unequal height, and are intersected by irregular valleys, the soil of which is commonly argillaceous, or an earth washed down from the hills. In the lower valleys there is abundance of grass, and Captain Cook was of opinion that cattle might subsist at Unalashka all the year round, without being housed. The soil, in many places, appeared capable of producing grain, esculent roots, and vegetables. Wood is unknown on this and the neighbouring islands, but low bushes and shrubs of dwarf-birch, willow, and alder, are common. For all the timber used for the purposes of building, &c. they are indebted to the sea, which wafts it to their shores from the continent of America. The inhabitants are rather low of stature, but plump and well shaped; with short necks, swarthy chubby faces, black eyes, small beards, and long, straight, black hair, which the men wear loose behind, and cut before, but the women tie up in a large fold. With regard to their character, Captain Cook describes them as the most inoffensive people he ever met with, and perfect patterns of honesty. But, according to the accounts of the first discoverers, this does not seem to have been their original disposition; and recent travellers have observed, that although generally kind-hearted and peaceable, yet, when roused to anger, they become exceedingly malevolent, indifferent to all danger, and even to death itself. The clothing of the men and women is nearly the same, and consists of a sort of frock or shirt, called parka, fastened round the neck with a broad stiff collar, and descending below the knee. These garments are made of the skins of seals, prepared in a manner peculiar to themselves, and sewed together very ingeniously. Though simple in their form, they are ornamented in a variety of ways with glass beads, beaks of sea parrots, long white goats' hair, brought from Siberia, or small red feathers. Over the frock, the men sometimes wear a kamleika, or rain-garment. This is made of gut, which is water-proof; and has a hood to it, which draws over the head, and is tied under the chin. When on shore, the men wear boots, made of seal's skin; and they all have a kind of oval snouted cap, made of wood, with a rim to admit the head. These caps are dyed with green and other colours, and are fancifully ornamented with ivory figures, carved from the teeth of the sea-cow, with glass or amber beads, and with the bristles from the beard of the sea-lion. They make use of no paint; tattooing was formerly very much in use among them, particularly among the women; but their intercourse with the Russians has rather brought this practice into disrepute. Both men and women, particularly the latter, bore the under lip, and insert pieces of bone or other ornaments; but this practice has also decreased of late. The women generally go barefooted; wear bracelets of glass beads just above the wrist and ancle-joints, and are fond of rings upon their fingers. The principal food of these islanders consist of fish, sea-animals, birds, roots, and berries. They dry large quantities of fish in summer, which they lay up in small huts for the winter. Roots and berries are also preserved for the same season. Of fish, the most common and abundant are several sorts of salmon, cod, herrings, and halibut. The last is the most esteemed, and is sometimes caught of an enormous size. The fat of the whale is also a favourite species of food; and when it grows old and rancid, serves to light and warm their houses. They eat almost every thing raw; but of late, have learnt from the Russians some simple modes of cookery. Vegetable food is not held in much esteem by the Unalashkans. That sweet plant, the Siberian parsnip, (heracleum Sibericum,) is but little eaten, any more than the bulb of the saranna, or Kamtschadale lily. Edible berries abound; as bramble-berries, cran-berries, hurtle-berries, heath-berries, and others. The Russians have begun to plant potatoes, which succeed extremely well, and are much liked by the people. The habitations of the Unalashkans are holes dug in the earth, covered with a wooden roof, over which they throw grass and earth; so that a village has the appearance of an European church-yard full of graves. The entrance into these huts is from the roof; but some of the largest which are inhabited by the Russians, have a door in the side. Light is also admitted by the roof, through an opening or window, covered with seal's entrails, or dried fish-skin. Several divisions are made within, by means of seal-skins or straw-mats, which separate the apartments of the different families. Their household furniture consists of bowls, spoons, buckets, piggins or cans, matted baskets, and perhaps a Russian kettle. The knife and the hatchet, (or rather a small flat piece of iron, made like an adze, by fitting it into a crooked wooden handle,) are the only iron tools found amongst them. Their instruments and utensils are, however made with the greatest neatness, and the most exact symmetry. The needles, with which they sew their clothes and embroider, are made of the wing-bone of the gull, with a very nice cut, round

the thicker end, instead of an eye, to which they tie the thread so skilfully, that it follows the needle without any obstruction. Their thread is made of the sinews of the seal, the fibres of which they split, to the thickness which each sort of work requires. The women are the tailors, shoemakers, and boat-builders, or boat-coverers. At their leisure hours, particularly in long winter evenings, they make fine mats, little baskets, and pocket-books of straw, that are both beautiful and strong. Captain Cook observes, there is a neatness and perfection in most of their work, that shows they neither want ingenuity nor perseverance. Their houses have no fire-place, but are both heated and lighted by lamps. These are made of a flat stone, hollowed on one side like a plate; in the hollow part they put the oil, mixed with a little dry grass, which serves the purpose of a wick. They produce fire both by collision and attrition; the former by striking two stones one against another, one of them being previously rubbed with brimstone. The latter with two pieces of wood, one of which is a pointed stick, and the other a flat piece. The pointed end of the stick they press upon the other, and whirling it nimbly round as a drill, in a few minutes it produces fire.

The principal occupations of the Aleutians, are fishing, hunting, and preparing the necessary implements for both, Their baidars, baidarkas, or boats, resemble the canoes of other savages, and consist of a skeleton of wood, over which is stretched a leather covering of seal's skins. The boats of the Unalashkans are superior in point of beauty to those of any of the other islands; some of them appear so transparent, that one might trace the formation of the inside, and the position of the rower. In their form, they are long and narrow, and commonly hold only one person; sometimes they are made to hold two, and occasionally three; each person sitting in a round hole just fitted to the size of the body. The whole canoe is so light, that, even when sodden with water, it may be carried in one hand, and is impelled by means of double paddles, seven or eight feet long, which are managed with great dexterity. Experienced navigators sometimes venture out, in these boats, a considerable way to sea, even in stormy weather. The darts, or javelins, with which they kill their game, are adapted with the greatest judgment to the different objects of the chase. For land animals a single barbed point; for birds, three points of light bone, spread, and barbed; for seals, &c. a false point, inserted in a socket at the end of the dart, which parts, on the least effort of the animal to dive, remaining in its body. To this barbed point, a string of considerable length is fastened, and twisted round the wooden part of the javelin. This serves as a float to direct them to the seal, which, having the stick to drag after it, tires, and soon becomes an easy prey. These darts are not shot from a bow, but slung from a small plank, about eighteen inches long and two inches broad. In order that the weapon may be held the faster, they have a sort of handle at the lower end, and an opening through which the fore-finger is thrust. At the other end is a small channel, into which the javelin fits with a little knob, which serves to retain it. When the javelin is to be thrown, the plank is held horizontally, and the aim being taken, the weapon is directed by the middle finger and thumb. This is done with so much dexterity, and the motion given to it is so powerful, that the object aimed at is rarely missed, and even whales are thus killed without any other weapon.

Their favourite amusement is dancing, in which, however, they do not excel. Their music is exceedingly rude, consisting of a small drum or tambour, and a rattle made of the bladder of a sea-dog, filled with peas or small pebbles.—These little drums, however, are frequently ornamented with ingenuity and elegance. They also cut out from the teeth of the sea-cow, small figures of men, fish, sea-otters, and other objects, in a manner that appears very extraordinary, considering that the sea-cow's teeth are much harder than ivory, and that they have no proper tools to work with.

The religion of these Islanders, consists in superstitious observances, and a belief in charms. Many of them have been baptized, and are nominally professors of the Greek faith; of which, however, they understand nothing more than making the sign of the cross. They have no marriage ceremony; every man may have as many wives as he can conveniently maintain; if his means decrease, he sends first one, then another, back to their parents; and the women thus dismissed, look out for other husbands. Sometimes the same woman lives with two husbands; and it is not uncommon for men to sell or exchange wives. Boys, if they happen to be very handsome, are often brought up entirely in the manner of girls; instructed in the arts of female blandishment; and used as concubines. This shocking, unnatural, and immoral practice, has prevailed here even from the remotest times. Such men are known under the name of schopans. The bodies of the dead, especially of the men, were formerly interred in places set apart for the purpose, and with particular ceremonies. Their best javelins and clothes, with a portion of train-oil and other articles of food, were laid with them in the grave; and sometimes even slaves of both sexes were slaughtered upon the occasion. These customs are now, however, entirely laid aside.

The population of Unalashka, and the neighbouring islands, appears to have been formerly considerable, amounting to several thousands.—In 1790, Sarytcheff reckoned it at 1300. According to the most recent accounts, it does not appear to amount to more than 300. This rapid depopulation is ascribed partly to the practice of sending the best hunters from hence to a distance, to chace the large sea-otters, few of whom ever return again to their families; and partly to the state of oppression under which the natives live, and the change which has taken place in their modes of living. Captain Cook seems to consider the natives of these Islands as originally of the same extraction with the Greenlanders and Esquimaux. When first discovered by the Russians, they were under the government of Toigans, or chiefs, who, however, possessed little distinction or dignity, and had no revenue. A

present they are subject to the Russian settlers. Throughout the whole of the Aleutian Islands, on the island of Kadyak, and the western coast of America, the Russians have formed settlements for the purpose of hunting, and collecting furs; with which they carry on a lucrative commerce, particularly with the Chinese. The most valuable fur is that of the sea-otter. Besides the sea-otter, there are a number of foxes, especially on the Fox Islands. The black foxes are not so valuable as those of Siberia. The arctic, or ice-fox, also called the rock fox, and the blue fox, from the natural colour of the fur, which is of a bluish-grey, is very common. From the first discovery of these islands by Behring and Tscherikoff, in 1741, the fur-trade was carried on for a long period by private adventurers; and appears to have been productive of great abuses. The natives were frequently treated in the most barbarous manner; and the keenness displayed by these rapacious hunters, threatened to extirpate the race of animals upon which the trade depended. Convinced of the extreme necessity of putting a stop to this destructive plan of proceeding, Schelikoff, an intelligent Russian merchant, took considerable pains to unite the different partakers of this trade into a company, in order that it might be conducted upon some plan that might prove advantageous to all parties. In 1785, he succeeded in joining company with the Golikoffs. They increased their capital, and fitted out several ships which the enterprising Schelikoff commanded in person. Factories, protected by forts, were established in almost all the islands, as far eastward as Kadyak; and for several years they continued a lucrative trade, and acquired considerable wealth. The success of this connexion induced several merchants to unite like Schelikoff and the Golikoffs; and, in this manner, was laid the foundation of the present Russian American Company. The irregular manner in which the trade was still carried on, and the cruelty which was frequently exercised towards the natives of the islands, drew upon them great censure: insomuch, that the Emperor Paul determined [illegible] an end both to the company and the trade. [illegible] determination would have been infallibly carried into effect, but for the interference of M. [illegible] sanoff, who had married Schelikoff's [illegible] and was personally interested in the concerns of the American company. By means of [illegible] tive interposition, the new established [illegible] was, in 1799, confirmed, with considerable [illegible] vileges. The late Emperor, on his accession, interested himself very much in behalf of the company, of which he became a member, and induced many of the nobility to follow his example. By means of the active superintendence of the minister, count Romanzoff, and the commercial counsellor Benedict Cramer, this branch of Russian commerce has undergone several advantageous changes; but, according to recent accounts, many abuses still remain. The miserable situation of the Promüschleniks, or [illegible] lectors, themselves the slaves of the company's agents, and exercising, in their turn, the most oppressive tyranny over the wretched Aleutians, has been represented by several eye-witnesses in the most deplorable colours. It is to be hoped that their situation may attract the attention of the Russian government. Notwithstanding the calamities inflicted on them, these people are said to be very hospitable in their dispositions, and to receive their friends with some peculiar marks of respect. Attired in their best apparel, they come out beating drums to the shore, and the master and hostess rush out into the sea as high as their breasts, and draw the canoe towards the land. They then assist the guests to disembark, and bear them on their backs to the place of reception. The host tastes every thing before he presents it to the company; and after the feast they retire to their favourite amusement—[illegible] ler's *Samlung Russischer Geschichte*. v. iii. [illegible] *Account of the Russian Discoveries*. [illegible] *View of the Russian Empire*. *Voyages* and [illegible] *of* Billings; Sarytcheff; Cooke, Langsdorff, [illegible]

ALETRIS, from αλετρυω or αλεω, to grind, in botany, a genus of the hexandria monogynia class and order, of the natural order of lilia or liliaceæ, the coronariæ of Linnæus and asphodeli of Jussieu. Its characters are, no calyx; COR. one-petalled, ovate-oblong, hexangular, funnel-shaped, semisexfid very much wrinkled, divisions lanceolate, acuminate, spreading, erect, and permanent; STAM. awl-shaped filaments of the length of the corolla, inserted into the base of the divisions, antheræ oblong and erect; PIST. an ovate germ: STYLE subulate, of the length of the stamens, STIG. trifid; PERICARP. an ovate, three-cornered, acuminate, three-celled capsule; and the seeds are very many. Professor Martyn enumerates eight, and Gmelin nine species, viz. 1. A. farinosa, American aletris, stemless, leaves lanceolate, membranaceous, flowers alternate, growing in North America, was cultivated here in 1768, by Mr. Miller. The natives frequently use it as a bechic and incisive in coughs and in the pleurisy. 2. A. Capensis, waved-leaved aletris veltheimia of Gleditsch, stemless, leaves lanceolate, waved, spike ovate, flowers nodding; [illegible] of the Cape of Good Hope, flowering here [illegible] November to April, and brought over in [illegible] by Mr. W. Malcolm. 3. A. glauca, [illegible] leaves lanceolate glaucous, flowers, nodding [illegible] a spreading border; a native of the Cape of Good Hope, flowering in January, and introduced in 1781, by Mr. J. Wynch. 4. A. [illegible] aloe uvaria of others, great orange-flowered [illegible] stemless, scape longer than the sword-shaped keeled leaves; a native of the Cape of Good Hope, cultivated at Chelsea in 1707, and flowering in August and September in large [illegible] There is a variety with narrower leaves and longer spikes of flowers. 5. A. pumila, [illegible] orange-flowered A. stemless, scape shorter than the linear, sharply-heeled leaves; a native of the Cape, introduced in 1774, and flowering from September to November. 6. A. hyacinthoides, stemless, leaves lanceolate, fleshy, flowers [illegible] minate; having two varieties. 7. A. [illegible] sweet scented aletris, caulescent, leaves lanceolate loose; found in Africa, and cultivated in [illegible]

by Mr. Miller. 8. A. cochinchensis, caulescent, leaves lanceolate-linear, reflex, flowers panicled; a native of Cochin china, the juice of the leaves is used to dye green, and the flowers are eaten. The eighth species of Gmelin is A. japonica, stemless, with leaves petiolated, ovate, lanceolated, seven-nerved, and spiked flowers. The ninth species is A. aurea.

ALEURITES, Αλευριτης, farinaceous, of αλευρος, meal, parts of the tree having a meal scattered over them; in botany, a genus of the monœcia monadelphia class and order, of the natural order of tricoccæ and euphorbiæ of Jussieu, the characters of which are, that the flowers are male and female; CAL. of the male is a PERIANTH. three cleft, very short, clefts oval, and obtuse, COR. has five petals, oblong, spreading, obtuse: much longer than the calyx; the nectary has five scales somewhat cornered, very short at the bases of the petals: STAM. numerous filaments, connate into a conic columnar receptacle; antheræ, roundish. The female flowers are few, in the same corymb; the calyx, corolla, and nectarium, as in the male, but larger; the pistillum has a germ conic superior; the style none, the stigmas two, very short; the pericarpium a large, globose, two-seeded berry; the seeds are two, globose, coated with a double bark. There is one species, viz. A. triloba, which is a tree of the islands of the South Sea.

ALEWIFE FISH, clupea tyrannus. Among the different species of fish that resort to York River, in Virginia, about the month of March, the alewife or oldwife, called the bay alewife (clupea non descripta) arrives in very considerable shoals, and in some seasons their number is almost incredible: they are of the size of a large herring, and are principally distinguished from that fish by a bay or red spot above the gill-fin. When caught, from March to May, full roed and fat, they are as good for the table as the herring. In this season, each of the fish has in its mouth an insect, fixed with its back downwards, and firmly holding itself by its sixteen legs to the palate of the fish: it is two inches long, and called by the fishermen the louse: it is with difficulty that it can be separated, and perhaps never without injury to the jaws of the fish, though that may be from the hasty aukwardness of the fishermen; from which circumstance, it is, among the many superstitions current with that class of men, considered essential to the life of the fish: for when it is taken out, the fish, though returned to the river, is incapable of swimming, and soon dies But as this is the case with every fish on whose mouth or gills any force has been used by heedless fishermen, such as the extracting a hook or drawing out an insect, we must attribute its death more to the injury received than to the loss of its companion. It is as yet uncertain whether the latter obtains its post by force or favour; whether it is a mere traveller or a constant resident, or what may be its business where it is found. There are some other particulars with regard to the natural history of this fish and its insect, which it may not be uninteresting to mention. The alewife comes from the ocean into the rivers of Virginia about the same time with the chad, and travels upwards from the beginning of March to the middle of May. As long as they are caught on their passage up the river they are full of roe; and every fish has the insect clasped to its mouth. A respectable gentleman who amused himself with fishing forty years, has declared, that in all that time he never saw a bay alewife without the louse. The chad returns from the fresh water lean, and out of season, about the end of May or beginning of June, and continues descending during the remaining summer months: no one then values it, being unfit for use. Whether the bay alewife returns with the chad is not known, for after June the fishing for them is discontinued.

ALEXANDER.

ALEXANDER, (king of Macedon,) surnamed the GREAT, was the son of Philip of Macedon, by his wife Olympias, daughter of Neoptolemus king of Epirus. He was born, according to the most authentic accounts, in the 106th Olympiad, B. C. 356, in the month Boedromion, and the night the temple at Ephesus was burnt. Alexander was contemporary, in his youth, with some of the greatest men in Greece, and had the happiness to be placed under the care of Aristotle as his tutor, who became deservedly his friend. 'I am indebted,' he once observed, 'to Philip, my father, for living; to Aristotle for living well.' It is presumed that the poems of Homer contributed much to produce his passion for military glory, especially as the character of Achilles seems to have been selected by him for a model. While very young, he gave several proofs of manly skill and courage; one of which, the breaking in of his fiery courser, Bucephalus, which had mastered every other rider, is mentioned by all his biographers as an incident which convinced his father Philip of his unconquerable spirit. His progress in every kind of science was rapid, and corresponded to the natural talents which he possessed, and the distinguished attention and abilities of his tutor. He devoted himself with the greatest assiduity to the study of metaphysics, mathematics, and morals; and was no less solicitous to be a master of rhetoric both in the theory and practice of it. To his solicitude in this respect we owe Aristotle's treatise on rhetoric, which, with a jealousy unworthy a great mind, he requested the author not to communicate to any but himself. He had also a taste for the arts in general; he knew their importance and utility; and music, painting, sculpture, and architecture, flourished in his reign, because they found in him a competent judge, and, as some say, a munificent protector. In early life he manifested a genius formed for great and splendid actions. When he conversed

with the Persian ambassadors at his father's court, at the age of no more than seven years, the subjects of his enquiry were, not the palaces and retinue of their king, but the character and manners of their sovereign, the number and discipline of his army, the road that led into upper Asia, and 'the number of days' march from Macedonia to Susa.' When he was requested to enter his name among the Olympic competitors, he replied, 'So I would, if I were to have kings for antagonists.' On the occasion before mentioned, of his taming the famous horse Bucephalus, which none of his father's grooms would venture to mount, Philip was so delighted that he said to him, 'My son, seek a kingdom more worthy of thee, for Macedon is below thy merit.' His youth is said to have been distinguished by temperance, chastity, and self-command.

His dutiful respect for his mother, whom Philip divorced, produced a disagreement between him and his father; and was increased by a suspicion, which was entertained, that he would be disinherited, in favour of one of Philip's children by another wife. When only sixteen years of age, he was appointed regent of Macedonia during his father's absence; on which occasion he manifested such prudence and bravery, that he was afterwards employed in several military enterprises, and is said to have once preserved the life of his father by his resolute and seasonable interposition. In the battle of Chæronea, at the age of eighteen, he signalized himself by his valour, and greatly contributed to the victory. Before Philip undertook his projected expedition into Asia, he recalled his son from Epirus, whither he and his mother had retired, and was apparently reconciled to him: but when his father was assassinated by Pausanias, Alexander and his mother were suspected of being privy to the conspiracy. The first act of his reign, however, was the just punishment of the murderers. In the twentieth year of his age, B. C. 336, he succeeded to the throne of Macedon; and commenced his military career by marching into Thessaly to overawe the Greeks, who were disposed to emancipate themselves from the Macedonian yoke, and by causing Attalus, who encouraged their revolt, to be put to death. Having succeeded in this enterprize, he marched into Thrace, defeated the Triballi, who inhabited the modern Bulgaria, and drove them beyond the Danube; he also made the Getæ to fly at his approach; subdued several barbarous nations, and established a treaty of peace, in which the Celtes, a fierce and high-spirited people, and others, were comprehended. During his absence in these expeditions, the cities of Greece, instigated by the eloquence and influence of Demosthenes, formed a powerful alliance against him. The report of his death had induced the Thebans to revolt; and, having murdered two officers of the Macedonian garrison, they were preparing to besiege the citadel. Alexander, receiving intelligence of this event, hastened to Greece, B.C. 335, passed the straits of Thermopylæ, and entered Bœotia before the Thebans were undeceived as to his death. To those who accompanied him, he spoke in the following manner: 'Demosthenes, in his oration, [illegible] me a child when I was in Illyria and among the Triballi; he called me a young man when I was in Thessaly; and I must now shew him, [illegible] the walls of Athens, that I am a man grown.' The city of Thebes, though bravely defended by the inhabitants, was at length taken by storm; the buildings were rased, the house of Pindar the poet excepted, from a respect to its memory; the inhabitants were sold for slaves, and their lands distributed among the soldiers; this severe conduct struck the Greek states with terror. Athens sent a deputation to Alexander, imploring his clemency; but he demanded the surrender of the orators, whom he supposed to have been the chief instruments in forming the league which Philip his father had defeated at Chæronea. This was the occasion on which Demosthenes recited to the people the celebrated fable of the Wolves and the Dogs.

Alexander having relented, by the intercession of Demades, and waved the enforcement of the demand, re-established the tranquillity of Greece, and went to Corinth, where his office of generalissimo was recognized and settled. At Athens he held a grand council of state and war, in order to deliberate upon his expedition into Asia. Antipater and Parmenio recommended delay, but Alexander had formed his purpose; and having offered sacrifices, entertained his friends with feasts, and distributed among them the crown lands, Perdiccas asked him what he had reserved for himself? 'Hope,' replied Alexander. Accordingly he assembled his army, and prepared for his march into Asia. When one of his attendants asked him why he succeeded so well in quieting the dangerous tumults in Asia? he answered, 'It was by delaying nothing.' In the twenty-second year of his age, B. C. 334, Alexander crossed the Hellespont into Asia with an army of about 30,000 foot, and 4000 or 5000 horse. Parmenio, who commanded the infantry, passed over with the greatest part of the army from Sestos to Abydos; and Alexander crossed first the Strymon, afterwards the Hebrus, and after twenty days march arrived at Sestos. Having prepared for his expedition by a variety of superstitious ceremonies, to which he was attached, he proceeded to Ilium, where he sacrificed to the heroes buried in the neighbourhood, and particularly to Achilles, to Minerva, and to the ghost of Priam. In his march he preserved Lampsacus, which he had determined to destroy on account of its adherence to the Persians, but this he did in consequence of the interposition of Anaximenes. 'I swear solemnly,' says Alexander to Anaximenes, who met him on the road, and the object of whose interview he suspected, 'that I will not do what you desire me.' 'My request, then,' said the old man, smiling, 'is that you would burn Lampsacus.' The Persians collected a large force to meet him on the banks of the river Granicus, May 22, B.C. 334; but after an obstinate resistance, they were routed with great slaughter. The consequence of this victory was the surrender of Sardis, the chief town of Lydia, and the possession of the whole country as far as the river Hermus. Our conqueror then proceeded to Ephesus, and restored

the democracy; and by an edict established the popular government in all the Greek cities. At Miletus, which he besieged and took, he dismissed his fleet, and advanced to the siege of Halicarnassus, which was abandoned by the Persians, and then to Tralles, which he took and levelled with the ground. Having demolished Halicarnassus, he appointed Ada, who claimed the title of queen of Caria, and who delivered up to him Alinda, governess-general of all Caria; which induced many of the princes of the Lesser Asia to revolt from the Persians, and to put themselves under his protection. Alexander ingratiated himself with the army, by permitting the soldiers who were married to spend the winter with their wives in Macedonia; a practice conformable to the law of Moses, Deut. xxiv. 5., and which Aristotle probably learnt of some Jew, and recommended to his pupil. Whilst the king was busily preparing for the next campaign, an unsuccessful attempt was made upon his life by the corruption and treachery of an officer of his army.

The campaign, however, was opened early in the spring; and Alexander, taking possession, in his march, of the cities of Lycia and Pamphylia, proceeded to Phrygia; and at Gordium, the capital, he was desirous of seeing the famous chariot to which the Gordian knot was tied. The oracle had foretold, according to an ancient tradition of the country, that the man who could untie it should possess the empire of Asia: Alexander, persuaded that this prediction related to himself, after many fruitless trials, exclaimed, 'It is no matter which way it be untied,' and cut it with his sword. Having subdued Paphlagonia and Cappadocia, he advanced by hasty marches into Cilicia, and arrived in the country called Cyrus's Camp. Through a narrow strait called the Pass of Cilicia, he marched with his army to Tarsus, where Parmenio arrived just in time to prevent its being set on fire by the Persians. Heated and fatigued by so rapid a march, he plunged into the river Cydnus, which ran through this city, and was instantly seized with a shivering, which his attendants thought would prove fatal. The whole army were alarmed, and they expressed their apprehensions with lamentations and tears; and as the speedy arrival of Darius was expected, Alexander intimated to his friends and physicians, that the condition of his affairs would not admit either of slow remedies or timid physicians. 'A speedy death,' says he, 'is more eligible than a slow cure.' Philip, an Acarnanian, one of his physicians, who tenderly loved him, offered to give him a dose, which would be speedy in its effects, and desired three days to prepare it. In the mean time Alexander received a letter from Parmenio, in Cappadocia, which bid him beware of Philip, Darius having bribed him by the promise of a thousand talents, and his sister in marriage. His confidence however, prevailed over his fears. He did not divulge the contents of the letter, but when Philip came to administer his medicine, he took it from under his bolster, and gave it Philip to read; and fixing his eyes on the physician, swallowed the draught without hesitation. The effects of the medicine were very violent, but the skill of the physician prevailed, and Alexander in three days presented himself to the congratulations of the army.

During this interval Darius was on his march, and Alexander advanced to meet him near Issus, in the month of October, B. C. 333. The army of Darius consisted of 600,000 men; but by infatuated councils, and a vain confidence in the number of his forces, he had quitted an open and level country, and prepared to engage in a close and mountainous situation, where his multitude could only embarrass him in action. Victory was for some time obstinately disputed; and Alexander received a wound in his thigh; but at length the Persian emperor fled. A dreadful carnage succeeded, and the tent of Darius, with his mother, wife, and daughters, came into the possession of the conqueror. When Alexander had performed the offices of duty and compassion to the dead and wounded, he entered the tent where the queens were lodged, accompanied only by his favourite Hephæstion. The queens mistaking Hephæstion for the king, paid their respects to him as such; but as soon as Sysigambis, the mother of Darius, had discovered the mistake, she fell prostrate at the feet of Alexander, and begged his pardon. The king raised her from the ground, and said to her, 'Dear mother, you are not mistaken; he also is an Alexander.' Alexander, after this respectful visit, declined exposing himself to the danger of human frailty, and solemnly resolved never to see the queen of Darius any more.

After this victory, he pursued his march to Syria. Parmenio went to Damascus, and possessed himself of the treasures of Darius. The king proposed to visit Tyre, that he might have an opportunity of sacrificing to the Tyrian Hercules; but the Tyrians resolved not to admit a Macedonian within their gates. Alexander therefore determined to besiege the city; and this siege, one of the most famous in history, lasted for seven months, when the place was stormed and utterly destroyed. Thousands were put to the sword, two thousand were crucified, and the rest sold for slaves. After having depopulated the city, he colonized it anew, and boasted of being its founder. This event took place, August 20th, B. C. 332.

From Tyre Alexander proceeded to Jerusalem, with the intention of punishing the Jews for affording relief to the Tyrians during the siege; but on his approach he met Jaddua, the high priest, in his pontifical habit, accompanied by the priests in their sacred vestments, and the people clothed in white. When the procession drew near, Alexander bowed before the priest, and paid him religious adoration; alleging to Parmenio, as the reason of this conduct, that the figure of a person in such habit had appeared to him at Dium, in Macedonia, and assured him of the divine guidance, and of ultimate success in his expedition. After this interview, he is said to have accompanied Jaddua to Jerusalem, sacrificed in the temple, and conferred great favours on the Jewish nation. From Jerusalem he proceeded to Gaza, which he besieged, and took by storm: from Gaza he marched to Pelusium, left a garrison in it, and sailed up the Nile.

He afterwards marched through the deserts to Heliopolis, and, crossing the river, he arrived at Memphis, where he offered pompous sacrifices not only to the Grecian gods, but to the Egyptian Apis. From Memphis he sailed down the river to the sea, and fixed on the place where he proposed to build a new city, which has since become so famous under the name of Alexandria. Here he formed the design of visiting the temple of Jupiter Ammon, situate on an oasis in the midst of the Lybian deserts. The senior priest of this temple flattered him with the title of the son of Jupiter, which Alexander joyfully accepted; and he was farther assured that he should be the monarch of the world. From this journey, which had proved so successful, he returned as from a triumph; and afterwards in all his letters and decrees, used the following style: 'Alexander, king, son of Jupiter Ammon.'

Having, during his abode at Memphis, settled the affairs of Egypt, he marched in the spring towards the east against Darius. In his way to Tyre, which was the place appointed for the general rendezvous of his forces, he heard that Andromachus, whom he had appointed governor of Syria and Palestine, had been massacred at Samaria: and, in order to avenge this audacious act, he put those that were concerned in it to death, banished the rest from Samaria, supplied their place with a colony of Macedonians, and divided part of their territories among the Jews.

From Tyre he directed his march to Thapsacus, and having passed the Euphrates, was informed of the death of Statira, the captive queen of Darius; which detained him, till he had visited Sysigambis, administered suitable consolation, and performed the funeral obsequies of departed royalty in the most magnificent manner. Darius was much gratified by the tokens of respect which Alexander had rendered to his queen and family, and renewed propositions of peace. On a former occasion, during the siege of Tyre, he had made very advantageous proposals, which Parmenio wished him to accept; declaring, that he would agree to them if he were Alexander. 'And so would I,' replied Alexander, 'were I Parmenio.' Darius now offered him all the provinces between the Euphrates and the Hellespont: but Alexander had more extensive views, and Darius prepared for battle, pitching his camp near a village called Guagamela, in a plain at some distance from Arbela. Alexander, at the sight of his formidable army, consulted soothsayers, offered up victims to fear, joined in prayers addressed to Jupiter, Minerva, and Victory, and afterwards went to bed, and slept soundly the whole night. Parmenio expressed his surprize in the morning, that the king should be able to sleep so calmly, just as he was going to fight a battle in which his whole fortune was at stake:—'How could it be possible,' replied Alexander, 'for us not to be calm, since the enemy is coming to deliver himself into our hands!' The army of Darius consisted of 600,000 foot, and 40,000 horse; and, according to some historians, of upwards of a million of men, and that of Alexander of no more than 40,000 foot, and 7000 or 8000 horse. The Persians were, however, totally routed: Parmen... was in great danger, was rescued by Alexa... in person; and they both joined in the pur... of Darius; and, passing the river Lyca... to Babylon, which Mazæus, the governor... ly surrendered. This battle of Arbela, fo... October, B. C. 331, decided the fate of Asia.

From Babylon Alexander marched to... Susa, where he found treasures of various ... and of great value. Here he left Dari... mother and children; and having reduced ... Uxii, whose country lay near Susa, and extend... to the frontiers of Persia, he forced his w... through the Persian straits, and arrived at Pe... sepolis. Having destroyed the royal pala... which he and his companions, in a season of ... bauch, at the request of Thais (*the courtesan* ... Ptolemy's mistress,) set fire, and plundered ... city, he pursued Darius first to Ecbatana, ... capital of Media, and then as far as Rhage... city one day's journey from the Caspian Sea... His progress was however interrupted by ... news of the death of this monarch, who ... murdered by a conspiracy of his own sub... Having settled the government of Parthia, ... reduced Hyrcania, dispersed the Mardi, ... possession of Zadracarta, the capital of Hyrca... where for fifteen days he *celebrated* mili... games, and offered magnificent sacrifices to ... gods of Greece, and then entered and proceed... to the reduction of Asia.

The luxury of the Persians produced in ... army, not only faction and discontent, but ev... a conspiracy against the life of the king. ... Philotas, the son of Parmenio, was forced ... torture, on this occasion, to confess *his guilt*, a... his condemnation was followed by the assa... sination of his father, at the age of seven... years. This alienated the affections of his army ... and produced such a degree of dissatisfaction ... and disgust, that he separated those who were ... disposed to sedition from others, and proceeded ... without further delay to action. Having pass... through Drangania, Arachosia, and the country ... of the Arimaspi, all which submitted to his arms, ... he arrived at a part of Mount Caucasus, call... Paropamisus, where his army *endured* great ... toil and hardship; and where Bessus, who had ... been a principal agent in procuring the death of ... Darius, and had assumed the imperial purple ... under the title of Artaxerxes, had laid waste ... the country, in order to deprive him of pro... visions and forage. Alexander having found an ... opening that led into Media, directed a city to ... be built there, which he called Alexandria: and ... also founded several towns in its vicinity. From ... hence he penetrated into Bactria, and took ... Aornos and Bactra, the two *strongest cities* of ... the country: he then passed the river Oxus in ... pursuit of Bessus, who had withdrawn with a ... few adherents over this river to Nauticus, a city ... of Sogdiana. When Alexander arrived at a ... small city inhabited by the Branchidæ, he com... mitted an act of cruelty, which though omitted ... by Arrian, is related by Curtius, lib. vii. c. ... tom. ii. p. 520. ed. Snakenb, and referred to by ... Strabo, lib. xiv. tom. ii. p. 787. Bessus, ... poiled of all the ensigns of royalty, and stripped ... even of his garments, was brought in chains

before him, when he ordered his ears and nose to be cut off, and delivered him up to Oxyartes, the brother of Darius, by whom he was sent to Ecbatana, and, according to some, crucified. Plutarch relates, that being fastened by his limbs to trees which were bent together, he was torn asunder by their elastic force, when they were allowed to return to their natural position.

Our hero then pursued his march to Maracanda, the capital of Sogdiana, known by the name of Samarcand, and by long and dangerous stages advanced to the river Iaxartes, erroneously called by Arrian, Curtius, and others, Tanais. On the side of this river he was surprised by the barbarians, who, rushing suddenly from their lurking holes in the mountains, and fighting with bows and slings, killed many of the Macedonians, and took others prisoners. The king himself was wounded in the conflict; but the barbarians were at length defeated with great slaughter. Soon after this transaction he formed a treaty with the Abian Scythians, who, from the time of Cyrus, had lived in freedom and independence, and were distinguished by equality and liberty, love of poverty and justice. Whilst he was forming a plan for building a city on the river Iaxartes, in order to curb the nations he had already conquered, and those he intended to subdue, he was diverted from the execution of his design by the revolt of the Sogdians and Bactrians: and, directing his arms against their combined forces, he took and destroyed in a few days seven of their cities. The capture of Cyropolis, the most populous of the whole country, was vigorously resisted by the inhabitants; but it was razed to the very foundations. In these different sieges, Alexander, Craterus, and many of his principal officers were wounded. He then returned to the Iaxartes, marked a space of about three leagues in circumference, and built a city, called Alexandria. In less than twenty days the ramparts were raised, and the houses built; and, in order to people it, he ransomed all the prisoners he could find, settled in it several Macedonians, who were worn out in the service, and permitted many natives of the country, at their own request, to inhabit it. His conflict with the Scythians, was difficult, and he granted them a peace on their own terms. The Sacæ, a powerful nation, submitted to him, and, by an embassy, courted his favour.

Alexander was now gradually throwing off both the habit and manners of a Macedonian prince, and assuming those of an eastern despot. He was surrounded by a number of sycophants, the bane of princes, and the curse of nations, who, by indulging his humour and soothing his passions, precipitated him into extravagances, and deprived him of his former equanimity. One faithful friend, whose value was unknown, declined concurring in the general adulation. At a banquet which succeeded the sacrifices performed at a festival of Bacchus, the honour of which Alexander had transferred to the Dioscuri, i. e. to Castor and Pollux, some of the attendants extolled the actions of the Macedonian prince above those of Castor and Pollux, and even of Hercules. Clytus remonstrated, alleging, that 'he could not bear to hear such indignities offered to the gods, or the credit of ancient heroes undervalued, to tickle the ears of a living prince.' As to Alexander's actions, he allowed they were great and glorious, but he maintained that they were not supernatural; that the army had shared in them, and that they had a right to participate in the praise belonging to them. Alexander was indignant; and, as Clytus affirmed that he had preserved the life of the king at the battle of the Granicus, stretching out his arm and saying, 'this hand, O Alexander, saved thee;' the king rushed upon him, and endeavoured to kill him, but was prevented by the interposition of friends. At length, however, when his friends retired, he seized a lance, or long Macedonian pike, and laid Clytus dead on the spot. His passion soon subsided, and, reflecting on the deed he had perpetrated, he indulged excessive grief, refused food for three days, neglected his apparel, and, as some say, would have slain himself with the same pike that killed Clytus. Flattered, however, by the army, and perverted by the doctrine of Anaxarchus, of Abdera, the sophist, who taught him, 'that let a sovereign prince do what he will, all his actions are just and lawful,' he soon became more tranquil. His servile attendants attempted to persuade him that he was more than man, and that it was unjust and disloyal in his subjects not to own his divinity; and some of them, amongst whom Anaxarchus was the chief, even endeavoured to engage the Greeks, as well as the Asiatics to pay him adoration. Alexander was pleased; and was highly provoked by a speech of Callisthenes, the disciple and relation of Aristotle, who attempted to awaken in his mind more sober thoughts; and it was determined that when the king drank to any guest, he should immediately arise, adore him, and having received a kiss from the king, depart from his divine presence.

These produced a new conspiracy against the king, but the conspirators being discovered, were stoned to death. Callisthenes was apprehended, and, as some say, carried about in chains, till he died a natural death; but according to others, he was first racked and then crucified. The death of Callisthenes, says Seneca, Nat. Quæst. lib. vi. c. 23, is an eternal reproach to Alexander, and a crime of so horrid a nature, that no quality, however excellent, nor military exploit, however illustrious, can ever efface its infamy.

After having surmounted his domestic dangers, he pushed his conquests into the countries north-east of Persia, and waged war with the Sogdian prince, Oxyartes. The only strong hold which the enemy could retain, was the Sogdian rock, or the rock of Oxus, into which Oxyartes had conveyed his wife and family. It was defended by Arimazes, with 30,000 soldiers under his command, and furnished with provisions for two years, and was deemed impregnable. Alexander, before he commenced the siege, summoned the garrison to submit, when the commander asked in return 'whether Alexander, who was able to do all things, could also fly; and whether nature, on a sudden, had given him wings?' Alexander was highly exasperated, and directing 300 mountaineers in his army to seek a path to the top of the

rock; sent a message to the commander, summoning him to surrender, and informing him 'that he had now a corps of winged soldiers.' The Macedonian camp resounded with the shout of 'victory,' and the barbarians instantly surrendered. Implacable in his resentment, Alexander ordered Arimazes and the principal nobility of the country to be scourged with rods, and afterwards to be fixed to crosses at the foot of the rock. After the reduction of this place, he marched into the country of the Paratacæ, where was another fortress, called the rock of Chorianes, also deemed impregnable. Chorianes, the commander, was, however, induced by Oxyartes, to surrender it; and, having been enrolled in the number of Alexander's friends, was entrusted with the charge of it, in return for which he supplied the Macedonians with provisions. On one of these occasions, Roxana, the daughter of Oxyartes, who, after the death of the wife of Darius, was esteemed the most beautiful woman in Asia, fell into the hands of the conqueror; and such was the influence of her charms, that he espoused her publicly.

India next attracted Alexander's attention; and accordingly he dispatched a herald to Taxiles, and the other princes on this side the river Indus, enjoining their submission; and Hephæstion, with part of the army, was dispatched to join Taxiles and the rest of the Indian princes, who were come out to meet them, and to reduce the country as far as this river. This was speedily executed. Alexander bent his march towards the river Choaspes, and reduced several places in his progress, among which Andaca was one of the most considerable. He proceeded against the Aspii and Assaceni, whom he successively defeated; but having invested Magaza, the capital of the latter people, he was wounded in the siege, and repeatedly repulsed. The Indians were however compelled to submit; and by an act of perfidy, which Diodorus Siculus and Plutarch severely condemn, were all put to the sword. Ora, Bazira, and the rock of Aornus, to which the inhabitants of the latter place retired, were next reduced; and Alexander proceeded to the river Indus, where Hephæstion and Perdiccas had already provided a bridge of boats for the passage of the army. Having refreshed his troops in the territory of his ally, Taxiles, Alexander passed the Indus, B. C. 327, and advanced forward to the Hydaspes, known in modern times by the name of the Betah or Chelum, or, according to the orthography of Major Rennell, Behut, and Ihylum, where Porus, with a large army, lay encamped to dispute his passage. On approaching the banks of this river, he found that the people with whom he had to contend were not to be subdued so easily as the Persians. The Indians were a very tall, robust, hardy, and well disciplined people; and their king, Porus, a prince of high spirit and invincible courage. Alexander, however, after encountering great difficulties, on account of the inundations of the Indian rivers, at the time of his march, which was about the height of the rainy season, passed the Hydaspes; and, having vanquished a detachment under the command of the son of Porus, who was slain in the action, encountered Porus himself at the head of 4000 horse, 30,000 foot, 300 chariots, and 200 (or as Q. Curtius says, lib. viii. 13. 16. 85 phants. The dispute was short and bloody. The Indians were completely routed, and Porus compelled to submit. Alexander received the king with respect. This prince being asked 'how he wished to be treated?' replied, 'as a king.' 'That, for my own sake,' said Alexander, 'I shall do.' 'And therein,' replied Porus, 'is comprehended all that I can ask.' Alexander gave him his liberty, and restored his kingdom, with additional provinces; and Porus, in return, became his friend and ally. Two cities were built; one called Nicæa, and the other Bucephala, for perpetuating the remembrance of this victory. Passing the Acesines, he entered the territories of Porus, and in pursuit of him crossed the Hydraotes; and having conquered the kingdom, gave it to his late ally. In the midst of his success, Alexander received advice, that the Cathei, Oxydracæ, and Malli, the most warlike nations in India, were confederated against him, and had assembled a great army. He immediately proceeded to attack them; and, though they made a vigorous defence, they were put to flight; and their city of Sangala taken by storm and razed. He then prepared to pass the Hyphasis, as Arrian says, to seek new enemies. Here he was told, that after passing this river, he must travel eleven days through deserts, that he would then arrive at the Ganges, the largest river in India; and that farther in the country were the Gangaridæ and Prasii, who were collecting a great force, in order to oppose his entrance into their dominions. Rumours of this kind spreading through the army, produced *discontent*, which unable to allay, he was constrained to terminate his progress. When his purpose was made known to the army, he was saluted with loud acclamations, 'because,' they said, 'he who was invincible had suffered himself to be overcome by their prayers.' On the banks of the Hyphasis, the modern Beyah, which were the limits of his conquests, he caused to be erected twelve altars, on which sacrifices were offered. These altars, if we may believe the biographer of Apollonius Tyanæus, were still remaining, with Greek inscriptions, when that fantastic sophist visited India, 373 years after Alexander's expedition. —*Philostrat. vita Apollon.* lib. ii. c. 43. et Olearii.

Having exhibited public shews in the Grecian manner, he added all the conquered country to the dominions of Porus, and began a retrograde march towards the river Hydraotes. From thence he proceeded to the Acesines, and marched on to the Hydaspes, proposing to embark on the river Indus, and to pass by this *river to the* ocean. Observing in these rivers many crocodiles, and seeing that the country produced beans like those of Egypt, he inferred, *that he had* discovered the source of the Nile, and prepared a fleet to sail down the Hydaspes to Egypt. Strabo. Geog. lib. xv. p. 1020. This circumstance shews, that the knowledge of the Greeks, in this age, did not extend beyond the limits of the Mediterranean. The breadth of the Panjab at

s now called, through which Alexander passed, rom Ludhana, on the Setlege, to Attock, on the Indus, is computed to be 259 geographical miles, in a straight line; and his march, computed in the same manner, did not exceed 200 miles. But in his advance and return, his troops were so spread over the country, and all his movements were so exactly measured and delineated, by men of science, whom he kept for the purpose, that he acquired a very extensive knowledge of that part of India.

Having prepared a fleet, consisting of eighty vessels of three banks of oars, and about 2000 smaller ships and transports, and having offered sacrifices to the gods, he embarked, and at the sound of a trumpet the fleet began to move; but arriving at the confluence of the Acesines with the Hydaspes, where these united streams roll with great rapidity into the Indus, many of his vessels were lost, and he himself was in great danger. When the danger was past, and the fleet and army were joined, he began his march, through a desert country, in order to reduce the Malli and Oxydracæ, whom he surprised before they could prepare for a contest. In storming their principal city, Alexander, in person, scaled the walls, and leaped down into the city, accompanied by only three of his guards. Here being wounded, he fainted through loss of blood; two of his guards, who were themselves wounded, however, covered him with their shields; till the soldiers from without, ascending the walls, threw themselves into the city, and by an act of the most undaunted resolution rescued their sovereign. As soon as he was able he rejoined his forces.

His first thoughts were now directed to the increase of his fleet; and, having accomplished this object, having given orders for erecting a city in the commodious situation afforded by the confluence of two great rivers, and having conferred upon Oxyartes, the father of his wife Roxana, the government of Paropamisus, with some additional territories, he embarked, and continued his voyage; occasionally employing himself, as he proceeded, in reducing some Indian princes, who were either negligent in attention, or took up arms against him. Of this number, were Musicanus, the sovereign of one of the richest and most populous kingdoms in India; Oxycanus, another Indian prince, who was taken prisoner; and Sambus, whose capital, Sindomana, opened its gates to receive him. Musicanus afterwards revolted; and Alexander directed him to be carried back into his own dominions, to be there crucified, together with all the brahmuns, who had instigated him to revolt. The king next sailed to Patala, the modern Tatta, an island formed by two branches of the river Indus, where he ordered an haven and convenient docks to be constructed for his ships; and when he had careened his fleet, he sailed down the right hand branch of the river towards the ocean. As they approached the sea, they were exposed to great danger for want of skilful pilots; and, therefore, after having gratified his vanity by entering the ocean beyond the Indus, performing religious rites in honour of Neptune, and surveying two small islands, he returned to Patala. Having surveyed the other branch of the Indus, and found a place of safety for his fleet, he gave directions to Nearchus, to conduct the fleet, by the ocean, through the Persian gulf, up the river Tigris, to meet him and his army in Mesopotamia; and departed, with the army, to march back by land to Babylon. The distance of that place on the Hydaspes, where Alexander fitted out his fleet, from the ocean, according to the researches of Major Rennell, cannot be less than a thousand British miles, whence, considering the slow navigation of such a fleet as he conducted, it is no wonder that he was above nine months before he reached the ocean.

Having left Patala, Alexander crossed the Arabis, and marched through the country of the Oritæ, whose capital he seized, and converted into a new and noble city, which he committed to the government of Hephæstion. He then proceeded through Gedrosia; and, in the whole of his progress, suffered much from sickness, excessive heat, and fatigue, and also from famine and thirst; so that he brought back from India scarcely one fourth of his army, which had consisted of 120,000 foot, and 15,000 horse. In these circumstances, he maintained an invincible resolution; and, by his example, encouraged the perseverance of his troops. Having rested and refreshed his army at the capital of Gedrosia, he prepared his march into Caramania, a very plentiful country, where his attendants were amply recompensed for the hardships and fatigues they had endured. Here he punished those governors who were charged with mal-administration, some of whom were put to death; and redressed the various grievances which the people had suffered in his absence. He then continued his march through Caramania, and was joined by Nearchus, his admiral; and, turning aside to Persia, he visited the tomb of Cyrus, at Pasargadæ; ordered Orsines, the governor of Persia, who was charged with many atrocious crimes, to be crucified; placed Peucestas, who had saved his life in a city of the Malli, in his room; and commanded Baryaxes, a Mede, who had usurped the title and tiara of king, to be put to death. In these marches, Calanus, an Indian brahmun, who had accompanied Alexander, finding his health declining, requested to have a funeral pile prepared; on the top of which he stretched himself at full length, and remained without voice or motion in the midst of the flames.

At Susa, to which Alexander next marched, he put to death Abulites, and his son Ozathres, who were charged with enormous crimes in the administration of public affairs; and, to unite the Macedonians and Persians, he encouraged the forming alliances between the noblest families of Persia and the principal persons of his own court; and by taking himself two wives of the royal blood of Persia, viz. Statira, the daughter of Darius, and Parysatis, the daughter of Ochus, set the example. He also bestowed fortunes on those Persian ladies of high rank, who were married to his own principal officers. Here, also, he paid the debts of his army, and conferred rewards and promotions on those who had signalized themselves in his service.

Having still a curiosity to see the ocean, and to explore the maritime parts of his empire, he went down from Susa, upon the river Eulæus; and having crossed the Persian gulf to the mouth of the Tigris, went up that river to the army, which was previously encamped, under the command of Hephæstion, on its banks, near the city of Opis. Here he issued an edict, that those Macedonians, who were either unable, or unwilling, to make any more campaigns, might have their discharge, and return home; and that those who chose to remain with him, should be duly encouraged. This edict, which was intended to please the army, excited a mutiny, which was quelled by extraordinary resolution and intrepidity. Whilst the soldiers surrounded the tribunal on which he was seated, all clamouring for their discharge, reproaching him with the favours which he had conferred on the Barbarians, and insolently telling him, that his father Ammon and he might go and subdue the world by themselves, he leaped into the midst of them, ordered his guards to seize thirteen of the ringleaders, whom he pointed out, and commanded their immediate execution. This terrified them into silence; immediately upon which, remounting his tribunal, he pointed out to them, in an eloquent speech, the justice of his own conduct and the folly of theirs. He afterwards promoted the Persian nobility to the principal commands in his army; and by thus seeming to transfer his confidence, humbled the Macedonians, who delivered up the authors of the sedition on condition of reconciliation and favour.

At Ecbatana, whither he next went, he offered sacrifices, and exhibited sports and games; which were followed by a royal banquet; but his joy on this occasion was unexpectedly interrupted by the sudden illness and death of Hephæstion. From Ecbatana, he marched against the Cossæans, and subdued them; and he then pursued his course towards Babylon, where he formed a variety of new projects; but before any of his plans could be fully carried into effect, he was seized with a fever, occasioned, as some say, by excess of drinking, which, in a few days, terminated his life. He died on the 21st of April, in the second year of the 114th Olympiad, B. C. 323, after he had lived thirty-two years and eight months, and reigned twelve years and eight months. When his principal courtiers, perceiving his death to be inevitable, asked him to whom he left the empire, he answered, 'to the most worthy;' and when Perdiccas enquired at what time they should pay him divine honours, he replied, 'when you are happy;' and having pronounced these words, he expired. Alexander's corpse was embalmed, after the manner of the Egyptians and Chaldeans; and Aridæus, his bastard brother, who had been declared king, was appointed to convey it to the temple of Jupiter Ammon. Two whole years, see Ælian. lib. xiii. c. 30. tom. ii. p. 898, were employed in preparing for this magnificent funeral, during which, Olympias bewailed the fate of her son. The funeral procession, conducted by Aridæus, was singularly splendid. Ptolemy advanced with a guard of his best troops, as far as Syria, to meet the procession. He prevented their depositing the corpse in the temple of Jupiter Ammon, and conveyed it first to the city of Memphis, and thence to Alexandria. Here he reared a magnificent temple to the memory of Alexander, and ordered him all the honours which were usually paid to demi-gods and heroes by Pagan antiquity. Freinshemius, in his Supplement to Livy, lib. cxxxiii. c. 65. tom. vi. p. 66. edit. Drakenb., relates, after Leo Africanus, who lived in the fifteenth century, that the tomb of Alexander was to be seen in his time, and that it was reverenced by the Mahommedans, as the monument, not only of an illustrious king, but of a great prophet.

Alexander, as to his person, was of a middle size, with his neck somewhat awry: his eyes full eyes, and a fierce majestic countenance. His talents, and general character, have been differently appreciated by his biographers. But it is certain that he rendered essential service to science by the presents which he conferred on his preceptor, and employed men of learning of every description, and liberally rewarded them. But when we consider the greater part of his life, well might the Gentoo annals call him 'a mighty robber and murderer;' and justly does the author of the first book of Maccabees characterize him, by saying, 'he butchered kings, εσφαξε βασιλεις της γης. 'What have we to do with thee,' said the Scythian ambassador, 'we have once set our foot in thy country. Are not those who live in woods allowed to be ignorant of the and the place from whence thou comest? Thou boastest, that the only design of thy marches to extirpate robbers; and thou thyself art the greatest robber in the world!' To the same effect was the answer of the pirate, when Alexander questioned him, what right he had to infest the seas? Alexander has been praised for his continency, yet his life was by no means regular in this respect. In his early youth indeed, he appeared so indifferent to the sex, that his mother suspected him to be impotent: and his behaviour to the Persian captives shows him to have had a great command over himself in this particular. The wife of Darius was a finished beauty; her daughters were likewise considered handsome; yet this young prince, when he had them in his power, not only bestowed on them all the honours due to their high rank, but scrupulously managed their reputation with the utmost delicacy. The Amazon Thalestris could not obtain from him a compliance with her gallant request till after a delay of thirteen days. But in opposition to this, what are we to conclude from his connexion with favourite mistress Pancaste to be drawn naked by Apelles, and whom he indeed gave to the painter, who fell in love with her? What of that immoderate love of boys, which Athenæus relates of him? What of that prodigious number of wives and concubines, which he kept? Nothing surely, but that the continence of his early years was a piece of affectation proceeding from his ruling passion, vanity. His excesses with regard to wine were notorious, and almost beyond imagination; and he committed, when intoxicated, a thousand extravagancies.—*Diodorus Siculus*, lib. xvii. tom. ii. p. 160.—253. ed. We

seling. *Plutarch*, Oper. tom. i. p. 664.—707. ed. Xyland. *Q. Curtius de Rebus gestis Alex. Mag.* passim. ed. Snakenb. *Arriani Exped. Alexandri.* passim. ed. Gronov. *Strabo, Geog.* tom. i. & ii. ed. Amst. 1707. *Rollin's Anc. Hist.* book xv. vol. iv. & v.

ALEXANDER SEVERUS, the Roman emperor, was born at Acra, in Phœnicia, according to one account, in the year 208, and according to another, Dec. 12, 205. His father, Genesius Marcianus, was a Syrian, and became a consul. His mother, Mamæa, was the daughter of Julia Mæsa, the sister of Julia, wife to the emperor Severus; and as another daughter of Mæsa was married to Heliogabalus, Alexander, (or Alexianus, which was his family name), was first cousin to that emperor. She was a woman of talents, and having imbibed Christian principles, is said to have paid particular attention to his education and moral improvement. His application and improvement corresponded with his advantages. With a robust and graceful form, and considerable mental accomplishments, he combined a mild, humane, and generous temper, and made it his chief study to please and oblige. When Mæsa, his grandmother, perceived the approaching termination of Heliogabalus's career of profligacy, she embraced a favourable opportunity of persuading him to adopt Alexander. Accordingly he assumed this name instead of that of Alexianus, with the addition of Severus, and was invested with the title of Cæsar, A.D. 221. The young prince soon gained the affections of the people to a degree which excited the jealousy of the emperor, who, therefore, resolved to destroy the dangerous competition, either by corrupting the manners, or by taking away the life of his aspiring rival. Mamæa and her mother defeated his design, and, by means of the Prætorian guards, the very attempt of Heliogabalus, against the honour and life of the young Cæsar, terminated in his own ignominious death. By the same auxiliaries, Alexander in the year A.D. 222, was advanced to the throne; and the senate invested him with the various titles and powers annexed to the imperial dignity; offering him at the same time the name of Antoninus, and the surname of Great; which, however, he modestly declined. With the consent of his mother Mamæa, he married the daughter of a patrician, who afterwards became the object of her jealousy and cruelty, and was by her instigation banished into Africa. Under her direction, and with the approbation of the senate, a council of state was appointed, consisting of sixteen of the wisest and most virtuous senators. At the head of which, as prætorian præfect, was Ulpian, distinguished by his knowledge and respect for the laws of Rome. The prudent firmness of this aristocracy restored order and authority to the government; and, by their influence, the city was purged from the superstition and luxury, which Heliogabalus had introduced, and every department of public administration was dignified by diplomatic probity. But the most important objects of Mamæa's solicitude was that of forming the character of the young emperor. His excellent understanding encouraged cultivation. The natural mildness and moderation of his temper preserved him from the precipitation of passion, whilst his affection for his mother, and his respect for the wise Ulpian, guarded him from the poison of flattery. He was very indulgent to the Christians; and seems to have been himself well acquainted with the Christian morals; for he frequently repeated the gospel golden rule, 'Do as you would be done by;' caused it to be inscribed over the gates of his palace, and on several public edifices; adopting it as the motto of his own private conduct.

'His ordinary occupations,' says a popular historian, 'exhibit a pleasing picture of an accomplished emperor; and, with some allowance for the difference of manners, might well deserve the imitation of modern princes. Alexander rose early: the first moments of the day were consecrated to private devotion, and his domestic chapel was filled with the images of those heroes, who, by improving or reforming human life, had deserved the grateful reverence of posterity. But, as he deemed the service of mankind the most acceptable worship of the gods, the greatest part of his morning hours was employed in his council, where he discussed public affairs, and determined private causes, with a patience and discretion above his years. The dryness of business was relieved by the charms of literature; and a portion of time was always set apart for his favourite studies of poetry, history, and philosophy. The works of Virgil and Horace, the republics of Plato and Cicero, formed his taste, enlarged his understanding, and gave him the noblest ideas of man and government.'

Although he was very religious, his offerings in the temples were not magnificent. He often repeated the words of Persius, Sat. ii. v. 69. 'In sancto quid facit aurum?' 'What has gold to do with sacred things?' His respect for virtue extended to the dead as well as the living. Accordingly he collected in Trajan's square the statutes of the deified emperors of Rome, and of the famous Roman commanders, and adorned them with inscriptions, setting forth their great exploits and eminent virtues. In his palace he had two chapels, in which the principal objects of his veneration were ranged in two classes, the one destined to virtue, and the other to talents. In the first were placed the good emperors, among whom he very erroneously ranked Alexander the Great; and next to them the wise men, by whose useful lessons mankind had been benefitted; and here were blended Abraham, Orpheus, Apollonius Tyanæus, and Jesus Christ. The second chapel was destined to military heroes, and men conspicuous in the republic of letters, Achilles, Cicero, Virgil, whom he called the Plato of the poets, and some others. In order to encourage the progress of letters and of science in general, he allotted pensions to rhetoricians, grammarians, physicians, architects, men skilled in mechanics, and even to aruspices and astrologers. He established schools for all these arts, and provided for the instruction of the poor without expense to them. His life, however, has not been free from blemishes. His deference for his mother was considered as carried to a culpable excess. He gave her name to

several buildings, which, (as we learn from Ammianus Marcellinus, lib. xxviii. p. 372.) they retained in the fourth century, and caused her to be honoured with the titles of Augusta, mother of her country, of the armies, and of the senate. He was also charged with being of a suspicious and inquisitive temper, and with being inclined to vanity. His timidity likewise betrayed him into imbecility of conduct; particularly with reference to the prætorian guards, who by their mutiny produced a civil war in Rome, that lasted three days, and terminated in the massacre of Ulpian. Although this wise man sheltered himself in the emperor's palace, and was even murdered in his presence, he had not resolution sufficient to avenge this atrocious crime in the manner it deserved. Such indeed was the weakness of government, that the tyranny of the army threatened with instant death his most faithful ministers, and it is said to have endangered his own person The historian Dion Cassius, who had commanded the Pannonian legions with a spirit of ancient discipline, and whom the emperor recompensed by appointing him his colleague in the consulship, was compelled to retire from the city, and to spend the greatest part of his consulship at his villas in Campania, and the remainder of his days in Bithynia, his native country. Dion. Cass. Hist. lib. lxxx. p. 1371.

This imbecility, however, was not uninterrupted. In one of these apyrexia, when some of the soldiers at Antioch had excited a sedition in the legion to which they belonged, and interrupted his mild expostulations by their clamours, he addressed them in the following dignified and spirited language: 'reserve your shouts till you take the field against the Persians, the Germans, and the Sarmatians. Be silent in the presence of your sovereign and benefactor, who bestows upon you the corn, the clothing, and the money of the provinces. Be silent, or I shall no longer style you soldiers, but citizens; if those indeed, who disclaim the laws of Rome deserve to be ranked amongst the meanest of the people.' When their brandished arms threatened even his person; 'your courage,' resumed the emperor, 'would be more nobly displayed in the field of battle; me, you may destroy—you cannot intimidate; and the severe justice of the republic would punish your crime, and revenge my death.' The clamour continuing, the emperor, with a loud voice, pronounced the decisive sentence: 'citizens, lay down your arms, and depart in peace to your respective habitations.' The clamour was instantly silenced, and the soldiers supplicated forgiveness; nor were they restored to their rank in the army, till he had punished with death those tribunes, whose connivance had occasioned the mutiny. When he became capable of taking the government into his own hands, and of exerting his genius and courage, he more effectually commanded the awe of his soldiers.

While Artaxerxes, the restorer of the Persian monarchy, was preparing to invade the Roman dominions, Alexander sent ambassadors in order to dissuade him from engaging the two empires in a long and dangerous war. The message was received with contempt; nor did any of Alexander's remonstrances avail to prevent the Persian monarch from ravaging Mesopotamia and entering Cappadocia. The emperor, therefore, resolved to march against him in person. In the spring of the year 233, Alexander, with a body of the prætorian guards and part of the best legions of Europe, advanced towards the frontiers of the Roman dominions to meet the enemy, which was the haughty style assumed by Artaxerxes in his embassies; whose force consisted, as history reports, of 120,000 horse, clothed in complete armour of steel; 700 elephants, with towers, filled with archers, on their backs, and 1800 chariots armed with scythes. Of the event of the battle which ensued, historians have given very contradictory accounts. Herodian asserts, and Mr. Gibbon acquiesces in his account, that the plan of Alexander for the conduct of the war, however judiciously concerted, totally failed. The emperor himself, influenced by his mother's counsels, and perhaps by his own fears, led the bravest troops and the fairest prospect of victory; and, after consuming in Mesopotamia an inactive and inglorious summer, left Syria and Antioch an army diminished by sickness and provoked by disappointment. But the Persian monarch, in several obstinate engagements against the veteran legions of Rome, lost the flower of his troops; and, instead of expelling the Romans from the continent of Asia, found himself unable to wrest from their hands the single province of Mesopotamia. Crevier and some other modern writers choose rather to follow Lampridius, whose account is entirely different from that of Herodian. The Persians, says the last author, were totally defeated, and Alexander approved himself an intrepid soldier and skilful general. The great king fled before his valour; an immense booty and the conquest of Mesopotamia were the immediate fruits of this signal victory, Alexander, it is said, having taken care to guard Mesopotamia with several well garrisoned forts, returned to Rome, A. D. 234, to give the senate an account of his expedition, and was received by persons of all ranks with the greatest demonstrations of joy; and ordered a signal triumph. His triumphal car was drawn by four elephants; the air resounded with acclamations and the shouting attendants unanimously exclaimed, 'Rome is happy, while it sees Alexander alive and victorious.'

Soon after his triumph, Alexander, accompanied by his mother, marched against the Germans, who had passed the Rhine, and were making incursions into every part of Gaul. Upon his arrival in Gaul, he sent ambassadors to the barbarians in order to treat with them; and if Herodian may be credited, to purchase peace, which he preferred to the precarious issue of a war. Having passed the winter in the neighbourhood of the Rhine, he employed himself in introducing discipline among the lawless legions of Gaul. His attempts for this purpose produced discontents in the army, which were aggravated by a person, originally a barbarian of mean origin, whose father was a Goth, and mother an Alan, and who had been raised from the lowest station to the rank of a general officer

This person was proclaimed emperor by the seditious soldiers: and made his way to the throne by the massacre both of Alexander and his mother. This event happened on the 19th of March, A.D. 235, when Alexander was in his twenty-seventh year, after a reign of thirteen years. The untimely death of this prince was universally regretted; and the soldiers, who were not concerned in the plot, manifested their resentment by a speedy vengeance in immediately killing his murderers. The senate decreed both to him and his mother divine honours; appointed for them altars, priests, and sacrifices; and instituted, in honour of the deceased emperor, an annual feast, which was celebrated on the first of October, the day of his nativity. *Crevier's Rom. Emp.* vol. viii. book xxiv. p. 279—350. *Anc. Un. Hist.* vol. xiii. p. 432—449. *Gibbon's Hist.* vol. i. p. 238. 240. 337, vol. ii. p. 450.

ALEXANDER (Jannæus,) king of the Jews, was the third son of Hyrcanus, and succeeded his brother Aristobulus in the year before Christ, 106. Queen Salome, the widow of Aristobulus, took him and his two brothers out of prison, and placed Alexander on the throne. His fourth brother endeavoured to deprive him of the crown, and was put to death; but the youngest, whose name was Absalom, was favoured with his protection as long as he lived. Alexander, being a subtle and warlike prince, began his reign with leading an army against Ptolemais; but his own dominions being invaded during his absence, by Ptolemy Lathyrus, he was obliged to raise the siege and return to defend them. On the banks of the Jordan he was defeated, with the loss of 30,000 men, besides those that were taken prisoners; and, if he had not been succoured by Cleopatra, Lathyrus would have forced his way into Judea. Alexander, after an interview with Cleopatra at Ptolemais, returned to Jerusalem; and having recruited his broken army, marched against Cadara and took it. He next proceeded against Amathus, and reduced it after a very short siege; but he was soon obliged to relinquish it in consequence of a defeat by Theodotus, the son of Zeno, tyrant of Philadelphia, in which he lost many men, his baggage, and the whole of the treasure which he had taken at Amathus. The next place against which he directed his arms was Gaza, which had afforded protection and assistance to Lathryus; and on this account, as soon as the town was betrayed to him, he revenged himself on the inhabitants, after leading them to expect clemency and moderation, by abandoning them to the fury of the soldiers. After which, he reduced the city to a heap of ruins. On his return to Jerusalem, the people, exasperated by the Pharisees, who were constantly caballing against him, insulted him with the most opprobrious language, exclaiming that such a slave as he, was unworthy of either the pontifical or regal dignity, and proceeded even to violence against his person. He was wearied with their clamours, and marched out of Jerusalem, in order to gratify his inclination for war. Having taken and destroyed the city of Amathus, he proceeded against the Arabians, whom he subdued, and then laid the Moabites and Mountaineers of Gilead under tribute. Near Gadara he fell into an ambush, and it was with great difficulty that he regained his capital. During his absence, the Pharisees had caused a rebellion, which terminated in a civil war of six years' continuance. Demetrius, surnamed Euchærus, assisted the rebels; and, after some previous skirmishes, Alexander was defeated, and retired to the mountains. This defeat, however, induced the Jews, who had joined Demetrius, to desert him, and join Alexander; and Demetrius, alarmed by this defection, left Judea. Alexander then marched against the rebellious Jews; but the fury of their resentment continued, till a decisive battle put an end to the war. In this last action he cut off the greatest part of their army, and drove the rest into Bethome, which he besieged and captured. Josephus, who, being a zealous Pharisee, may possibly have exaggerated, informs us, that he caused 800 of the principal captives to be carried to Jerusalem, where they were all crucified at the same time and place; and that, whilst they were hanging on the cross, he ordered their wives and children to be butchered before their faces. It is added by the historian, that a banquet was prepared for himself and his concubines, near to this horrible scene, that they might behold and enjoy the torture and distress of the sufferers. After this event, the rebels dispersed; nor were the Pharisees able to make any effort against him as long as he lived. The succeeding years of his live were employed in extending his conquests through Syria, Idumæa, Arabia, and Phœnicia; and his return to Jerusalem, after an expedition of three years' continuance, was the occasion of loud acclamations on the part of his subjects. From this time, however, he devoted himself to drinking, and other debaucheries; which at length brought on a quartan ague, that prevailed till the day of his death, which happened about three years after his return. He died in his camp before Regaba, a fortress in the Gerasene territory beyond Jordan, which he was besieging, in the twenty-seventh year of his reign, in the year before Christ 79. He left two sons, Hyrcanus and Aristobulus; but decreed by his will, that his wife Alexandra should govern the kingdom during her life, and appoint for her successor either of them, according to her own pleasure. Alexandra, by conciliating the Pharisees, according to the advice of her husband, secured their influence with the people; so that they celebrated the funeral of the deceased king with great pomp, and confirmed her as sovereign administratrix of the nation. Her eldest son Hyrcanus was appointed high-priest, and the direction of all affairs of importance was committed to the Pharisees. Their resentment against those who had opposed them in the late reign still continued; and they contrived every method that was practicable for destroying them. This conduct induced the miserable subjects to assemble, and, with Aristobulus at their head, to wait on the queen, and implore her protection; but, the queen having surrendered herself and the government to the Pharisees, could devise no means for their redress. At length, however, she complied; and consented that they should disperse themselves into places where she had garrisons. In the year

before Christ 70, Alexandra was seized with a disorder which threatened her life; and when Aristobulus perceived her danger, he repaired to his friends, in the garrisoned towns, and they arranged themselves in great numbers under his standard; hoping that he would exert himself for abolishing the oppressive tyranny of the Pharisees, well knowing that no service of this kind could be expected from his brother Hyrcanus. The Pharisees were alarmed, and accompanied Hyrcanus to the queen, in order to represent what had occurred, and to demand her assistance. The impaired state of her health would not admit of her interference, and having left the care of the government to them, she appointed Hyrcanus her heir general, and soon after expired. Accordingly he took possession of the throne, and raised an army to oppose his brother. A battle near Jericho decided the quarrel. Hyrcanus, abandoned by the greatest part of his troops, was obliged to fly to Jerusalem, and afterwards to seek an asylum in the castle of Baris, whilst his partisans, who were chiefly of the sect of the Pharisees, took refuge in the temple. In a little while, they both submitted to Aristobulus; and in the year before Christ 69, he obtained both the high-priesthood and the crown. *Josephus Ant.* lib. xiii. c. 12.—15. tom. i. p. 666—675. *Bell. Jud.* lib. i. c. 4, tom. ii. p. 59—62. *Anc. Un. Hist.* vol. iii. p. 114—123. *Rollin's Anc. Hist.* vol. viii. p. 4—11.

ALEXANDER, (Padas,) king of Syria, was, as some say, the natural son of Antiochus Epiphanes; but, according to others, a young man of mean extraction at Rhodes, named Balas, suborned by Heraclides at the instigation of Ptolemy, Attalus, and Ariarthes, to personate the son of Antiochus Epiphanes, and under that title, to lay claim to the crown of Syria, in opposition to Demetrius. After he had been acknowledged by the three kings above-mentioned, Heraclides, who conducted the imposture, took him to Rome, in the year before Christ 153, and together with him Laodicea, the real daughter of Antiochus Epiphanes, and presented them to the senate, who received them graciously, and passed a decree in their favour; though, as Polybius asserts, Legat. cxlii. p. 966, the whole city was convinced of the imposture. The senate not only acknowledged Balas under the assumed name of Alexander, but decreed that their allies should assist him in his endeavours for recovering the rights of his father. Thus countenanced by the Roman senate, he landed in Syria, and found no difficulty in raising troops, which, together with the succours afforded him by Ptolemy, Attalus and Ariarthes, enabled him to make himself master of Ptolemais, the reduction of which induced a great number of persons to join him. Demetrius and Alexander were competitors for the favour and support of Jonathan, who had succeeded Judas Maccabæus in the command of the Jewish forces, and strove to outvie each other in their alluring offers. Alexander, however, prevailed; and with him Jonathan formed an alliance. These two competitors took the field at the head of their respective armies; and though Alexander was defeated, he maintained his ground; and, being supplied by his powerful [illegible] fresh succours, succeeded in a second [illegible] which Demetrius was killed, before [illegible] Alexander having gained possession of [illegible] Syrian empire, sent an embassy to [illegible] manding Cleopatra, the daughter of [illegible] in marriage; and the king not only [illegible] with his request, but attended her [illegible] and the nuptials were solemnized at P[illegible] in a very splendid and magnificent [illegible] Alexander could not bear his [illegible] prosperity, but became insolent and [illegible] and committed the management of [illegible] to a profligate and tyrannical favourite, [illegible] name was Ammonius, who conducted [illegible] with a degree of despotism, which exposed [illegible] and his master to the hatred of the nation. [illegible] metrius, the eldest of the deceased king's [illegible] availed himself of this opportunity for [illegible] ing his right; and was acknowledged [illegible] pollonius, governor of Cœlosyria and Phœ[illegible]

When Alexander was roused out of his [illegible] gy, and perceived the danger of his situation, applied to his father-in-law, Ptolemy, for assistance; who, with an army, which the author of the second book of Maccabees compares to the sand of the sea-shore, marched to his [illegible] Upon his arrival at Ptolemais he was informed that Alexander was plotting against his life, and that Ammonius had charged himself with the execution of this detestable scheme of treachery. Ptolemy complained to the king of Syria of the plot, and demanded the criminal to be delivered up to him; but Alexander refusing to comply, Ptolemy concluded that he was privy to the design, and determined to turn his arms against his son-in-law. He therefore sent ambassadors to young Demetrius, offering him his daughter Cleopatra, the wife of Alexander, and promising to settle him on the throne of his ancestors. Demetrius accepted the offer; and when the news of this event reached Antioch, Ammonius was put to death by the populace; but the inhabitants of this city refused to declare in favour of Demetrius. However, such was the hatred they had conceived against Alexander, that they entered into a confederacy against him, and opened their gates to Ptolemy, offering to put the crown on his head. This prince, says Josephus, knowing how to set bounds to his ambition, rejected the proposal, and with singular self-denial and generosity, declared, that he could not, without the most flagrant injustice, place himself on the throne of Syria, by excluding the lawful heir. He proceeded to recommend Demetrius in a eulogy on his character, and by pledging himself as guarantee for his future conduct, at the same time undertaking to assist him and teach him the art of governing. These disinterested representations of Ptolemy had the desired effect. Demetrius was proclaimed king of Syria, and placed on the throne of his ancestors. Alexander, who was then in Cilicia, assembled a numerous army and advanced to Antioch. Ptolemy met him, and a bloody engagement ensued, in which Alexander was defeated; and his adherents abandoning him, espoused the cause of Demetrius. Upon this Alexander fled to Arabia, and seeking refuge in the house of Zabdiel

Zabel, or as Diodorus Siculus, in Excerpta Photii cod. 244, calls him, Diocles, was murdered by his treacherous host. Ptolemy was wounded mortally by Alexander's friends; and when the head of the murdered prince was brought to him as a present from the Arabian, the joy he felt on the occasion put an end to his life. Demetrius, without any further opposition, took possession of his father's dominions, and styled himself from this victory Nicator, or the conqueror. Alexander Balas had reigned according to Josephus, five, but according to the history of the Maccabees, six years, (reckoning from the 160th year of the æra of the Seleucidæ to the 167th, which was the first year of the reign of Demetrius Nicator.) This happened in the year before Christ 145. Such is the account which Josephus gives of the troubles of Syria, and the death of Alexander Balas. But the author of the history of the Maccabees varies much from him, especially in what relates to the character of Ptolemy Philometor, whom Josephus highly commends; whereas the author of the first book of the Maccabees represents him as an ambitious and perfidious prince, who trampled under foot the most sacred laws of nature and justice, to raise himself on the ruins of his son-in-law. *Josephus Ant.* lib. xiii. c. 2. 4. tom. i. p. 634—643. *Diodorus Sic.* tom. i. p. 592. 1 *Maccabees*, xi. 4—12. *Anc. Un. Hist.* vol. viii. p. 224—233.

ALEXANDER, bishop of Lincoln, in the 12th century, was by birth a Norman, educated under his uncle, bishop of Salisbury, and by his interest promoted to the episcopal see in 1123. Having been accustomed in early life to a splendid mode of living, he affected a degree of state, and indulged in unnecessary expenses. Henry of Huntingdon, in the dedication of his history to him, which is penned in the language of servile adulation, calls him 'the flower and top of the kingdom and nation; and he informs us that at the court of Rome he was styled 'the Magnificent.' St. Bernard, in a letter addressed to him about a year before his death, acts the part of a more honest friend, and cautions him 'not to be dazzled with the lustre of secular grandeur, nor to look upon any worldly advantage as permanent; or value his fortune more than himself; to guard against the flattery of prosperity, for fear of a turn of misfortune, which will last longer: not to be charmed by the transient satisfactions of life; for that scene will quickly be shut up, and make way for another both lasting and uncomfortable.' He also advises him 'not to deceive himself with any distant prospect of death; for such delusive hopes lead directly to danger and surprise, and are the likeliest way to hurry a man into the other world without preparation.' These prudent and salutary lessons, however, did not seem to have been regarded. In imitation of the barons and some of the bishops, he built three castles; one at Banbury, another at Sleaford, and a third at Newark. He likewise founded two monasteries. King Stephen was offended by these stately edifices and strong fortresses; and when he determined to take the castles from the barons, he seized that at Newark; in consequence of which the bishop was imprisoned for seven months, and with difficulty obtained his liberty. From this time he employed his thoughts and time in ornamenting his church, which he had rebuilt with a stone roof the year after its consecration: increasing the number of its prebends, and augmenting its revenue with several manors and estates; and at length he rendered it the most stately and flourishing of any in the kingdom. He went twice to Rome, viz. in 1142 and 1144; and after his first visit, he returned as the pope's legate, and called a synod, in which he published many useful canons. In 1147 he visited the pope in France, and there fell sick through the heat of the weather. He returned to England and soon after died, in the twenty-fourth year of his prelacy. *Biog. Brit.*

ALEXANDER I. (pope, and a martyr,) succeeded Eoaristus in the see of Rome, in the tenth year of Trajan, while the persecution was raging, in which Ignatius perished. He himself suffered martyrdom in 119, during the fourth persecution under Hadrian. The epistles extant under his name, are the forgeries of a later age; but the tradition, that he first introduced the use of holy water into the Romish church, seems to rest on a better foundation.

ALEXANDER II. (pope,) was a native of Milan, of the name of Anselm, and removed from the see of Lucca to that of Rome, in the year 1061. He was elected pope by the instance of Hildebrand, who was at the head of the ecclesiastical faction at Rome, in opposition to the empress Agnes, widow of Henry III. who was regent during the minority of her son Henry IV. and who supported the lay faction, in the interest that subsisted between the clergy and the laity. By her influence, Cadalus, bishop of Parmas, was elected pope, under the name of Honorius II. The dispute was terminated by a council at Mantua in 1064, and Alexander, by a signal triumph of the church over the civil power, was declared lawful pope. The discipline and privileges of the clergy were the principal objects of this pontiff's attention; and the subordinate instrument of conducting his measures was Peter Damien, a monk. Alexander laid hold of every opportunity that occurred for interposing in the secular concerns of kingdoms and princes. He sanctioned the project of William, duke of Normandy, for the conquest of England; denounced excommunication against Harold as a perjured usurper; and sent William a consecrated banner, and a ring with one of St. Peter's hairs in it; thus, as Hume says, Hist. vol. i. p. 186, 'covering over safely all the ambition and violence of that invasion with the broad mantle of religion.'

Alexander extended his authority in all directions. He not only prohibited the young emperor from divorcing his wife Bertha, but, in 1073, summoned him to appear at Rome, and to account for his conduct in the disposal of church benefices for providing his army with supplies. The dispute was, however, closed by the death of the pope in 1073. The increase of papal tyranny, under the direction of Hildebrand, to whom this pope was subservient, discriminates his pontificate. Many of his letters on public affairs are extant; and one of them addressed to the bishops of Spain for the purpose

of restraining the cruelties which they exercised towards the Jews, does honour to his humanity. For an account of these letters, see *Dupin's Ecclesiastical History*, vol. iv. p. 29: also, *Bower's History of Popes*, vol. v. p. 224.

ALEXANDER III. a pontiff of great ability, was born at Sienna, where he was bishop under the name of Roland, and succeeded Adrian IV. in 1159. At the time of his accession to the papal chair, Frederic I. was making vigorous attempts for reducing the power of the Roman see, and cardinal Octavian was elected pope under the name of Victor IV. in opposition to Alexander. After the death of Victor, in 1164, cardinal Guy was chosen by the influence of the emperor, and denominated Paschal III. but the whole interest of the Roman clergy was exerted in favour of Alexander, who, in the former pontificate, had been compelled to retire into France, and he now returned to Rome, and was restored to his see. Councils were summoned to settle the dispute. The council of Wurtzburg, convened by the emperor in 1166, produced an union of the nobility and clergy in support of the rights of Paschal; and the council of Lateran, called by Alexander in 1167, deposed the emperor, and abrogated the oath of allegiance by which his subjects were bound to him as their lawful sovereign. At length an appeal was made to the sword; and though Frederic was at first successful, and upon the death of Paschal procured the election of John, abbot of Strum, as his successor, under the name of Calixtus III., he was in the issue obliged to give up the contest, and in a treaty of peace, made with Alexander at Venice in 1177, to acknowledge him as lawful pontiff. The pride of Alexander knew no bounds on the occasion of this triumph. When Frederic was prostrate at his feet, he addressed him with the words of the Psalmist, 'Thou shalt tread upon the lion and adder; the young lion and the dragon thou shalt trample under foot:' and when the emperor replied, 'Not to you, but to Peter;' the pope answered, 'To me and to Peter.' This story is discredited by some writers, but believed by others, and the truth of it is confirmed by concurring circumstances, for which we refer to Dupin. After the establishment of Alexander he treated his rival Calixtus III. with condescension and kindness, and appointed him to the see of Benevento. The pope, securely seated in the papal chair, directed his attention towards securing the independence, and maintaing the prerogative and privileges of the triple crown; and in order to prevent the disorders likely to arise in future from equal factions, he obtained a canon in the third council of Lateran, held at Rome in 1179, which enacted, that the right of election to the pontifical dignity should not only be vested in the cardinals alone, but that two-thirds of the votes of the electors should be necessary for rendering it legal. Thus the people, and even the Roman clergy, were entirely excluded from all participation in the honour of conferring this important dignity.

At this council, the right of recommending and nominating to the saintly order was taken away from councils and bishops, and canonization was ranked among the greater and more important causes, the cognizance of which belongs to the pontiff alone. In this year he exercised that tyranny over princes, which he had usurped by the popes from the time of [Gregory] VII. in conferring the title of king, with the insigns of royalty, upon Alphonso I. [of Portugal], by an arrogant bull, in which he styled him as a vassal. Whilst he was in France, he had supported the cause of Thomas à Becket against his sovereign Henry II., and [when] when the constitutions of Clarendon, which asserted the king's jurisdiction over the clergy, were sent to him for confirmation, he rejected and annulled them. When Becket was banished, he received him kindly; obtained for him a commission from the French king, abrogated the sentence that had been passed upon him; restored him with his dignity, and appointed him legate in England. After the murder of this arrogant prelate, Alexander, who had kept the king in awe during the whole of the contest by the terror of excommunication, compelled him to undergo a very severe penance: and having forgiven him, issued bulls against his son, and canonized the archbishop. With a view of restoring order and tranquillity in the church, he convoked a solemn and numerous assembly of the clergy in 1164, in which the licentious rage of disputing about religious matters was condemned; and in the council of Lateran, of 1179, a spiritual war was declared against heretics, and more particularly against the Albigenses.

Having enjoyed the undisturbed possession of the pontifical chair scarcely four years, Alexander III. died in the year 1181, with the character of having exhibited more ambition to obtain, than moderation in exercising, the supreme authority. *Dupin. Eccl. Hist.* vol. iv. p. 116. *Bower's Popes*, vol. vi. p. 11. Mosheim, vol. ii. p. [illegible] vol. iii. p. 53, &c. *Hume's Hist.* vol. i. p. 396, &c.

ALEXANDER IV. (pope,) was Rainald of Jenland, bishop of Ostia, and succeeded Innocent IV. in 1254, at the time of the contest between the Guelphs and Gibellines. The right of the Roman see to the disposal of the crown of Naples was supported by a war, in the pontificate of Innocent IV., against Mainfroy or Manfred, regent for Conradine, the son of the emperor Conrad; and this pope, in order to engage the assistance of a powerful ally, had conferred the crown on Edmund the second son of Henry III. of England. Alexander IV. pursued the measures of his predecessor, and published a crusade against Sicily, and, for defraying the expense of it, induced Henry to levy a tenth on all ecclesiastical benefices in England for three years. A demand for farther supplies was however resisted, and the nominal possession of the kingdom reverted to Alexander; but Mainfroy, having defeated the crusaders, became the real possessor of it, A.D. 1258. The pontiff was equally unsuccessful in his attempts to oppose the progress of Ezzelin or Ecelin, who, at the head of the Gibellines, and on the part of the hereditary Frederic II., had made himself master of Lombardy. In defiance of the banner of the cross and anathemas fulminated by the apostolic see

Ezzelin pursued his victories; and Mainfroy kept possession of the throne.

Alexander maintained the cause of the mendicant dominican friars, against the members of the university of Paris, who refused to admit them to a participation of the rights and privileges of their society; and condemned a book written by William de Saint Amour, one of the doctors of the Sorbonne, entitled, The Perils of the Last Times, in which the character of the dominicans was described, and their pride, hypocrisy, and licentiousness, cruelly censured. In the council of Arles, held in 1260, he condemned another book, written by the abbot Joachim, under the title of The Everlasting Gospel; and at the same time proscribed those who, under the denomination of Joachimites, had adopted the doctrine which this book promulgated. Differences of another kind having arisen between the states of Venice and Genoa, a council for settling them was summoned to meet at Viterbo; but in the mean time Alexander, oppressed by the dissensions of the church, and by the vexations which his ineffectual attempts for composing them produced, closed his life in the year 1261. 'He appears,' upon the whole, 'to have been a narrow-minded bigot, more concerned to preserve and enlarge the privileges of a monastic order, than to correct abuses and encourage improvements.' *Dupin. Eccl. Hist.* vol. v. p. 50, 118, 138, &c. *Bower's Popes*, vol. vi. p. 225. *Cave H. L.* tom. ii. p. 303. *Hume's Hist.* vol. ii. p. 173, &c.

Alexander V. (pope), was born in the isle of Candia, about the year 1339. His original name was Philargo, and his parents were so poor, that in his childhood he was a beggar. An Italian monk took him under his protection and instruction, and procured his admission into his order of friars minors. By his recommendation he became a student at Oxford, and afterwards took his degree of doctor in divinity at Paris. Having passed through several gradations of preferment, (being first bishop of Vicenza, then of Novara, and at length archbishop of Milan, cardinal, and legate of pope Innocent VII. in Lombardy,) he was unanimously elected pope by the cardinals, at a council in Pisa, in the year 1409. This pontiff was mild and liberal, and extended his generosity particularly to the mendicant orders of monks. Such was his munificence, that he used to say, 'When I became a bishop, I was rich; when a cardinal, poor; and when pope, a beggar.' He seems, however, to have counteracted his good qualities by the orders transmitted to the archbishop of Prague, enjoining him to proceed with rigour against Huss and his followers. This zealous reformer, confiding in the known candour of the pontiff, instead of personally appearing at Rome, in compliance with the summons that had been sent him, commissioned two friends to plead his cause, saying, on his own part, 'I appeal from Alexander ill-informed, to Alexander well-informed.' When Alexander proposed to visit Rome, he was persuaded by Balthasar Cossa to accompany him to Bologna. Whilst he was at this city he died, in the year 1410, having possessed the papal see little more than ten months; and Cossa, who was suspected of hastening his death, by his influence with the cardinals, and a recommendation from Louis of Anjou, king of Sicily, was chosen to succeed him. *Dupin Eccl. Hist.* vol. v. p. 8, &c. *Bower's Popes*, vol. vii. p. 123.

Alexander VI. (pope), was born in 1431, at Valencia in Spain, and by the interest of his uncle, pope Calixtus III., was appointed cardinal in 1455; and afterwards archbishop of Valencia, and vice-chancellor of Rome. The emoluments of this last office enabled him to maintain the state of a prince, and supplied him with the means of licentiousness and extravagance. Under pope Siztus IV. he was legate in Spain; and at last by assuming a sanctity, and by bribing the cardinals, he was elected, at the age of 61, to succeed pope Innocent VIII. in 1492. He then changed his original name of Roderic Borgia for that of Alexander VI. By Vanozza, a Roman lady, with whom he had continued an illicit connection for many years, he had five children. His second son was Cæsar Borgia, who was a monster of debauchery and cruelty, and who is said to have quarrelled with his elder brother for the favour of his sister Lucretia, and to have killed him, and thrown his body into the Tiber. Notwithstanding his infamous character he was the favourite of his father, who trampled with contempt on every obstacle which the demands of justice, and the remonstrances of religion laid in his way, in order to aggrandize himself and his children. In his political connections he was faithless and treacherous; and formed alliances with the purpose of violating them. Having engaged Charles VIII. in an enterprise for the conquest of the kingdom of Naples, he entered into a league with the Venetians and with Maximilian, to rob him of the fruits of his victory; and after having obtained a large remittance from the sultan Bajazet, in order to enable him to carry on war against this king of France, he delivered up to him Zizom, the brother of Bajazet. Notwithstanding his notorious vices, he proposed to the Christian princes to march at the head of an army against the Turks; and under this pretext he issued a bull for a jubilee in 1500, by which he contrived to enrich his treasury. Of his presumption, as well as of his hypocrisy, we have a curious specimen in his division of America between the Spaniards and the Portuguese. For this purpose, he appointed that a line, supposed to be drawn from pole to pole, a hundred leagues to the westward of the Azores, should serve as a limit between them; and in the plenitude of his power, bestowed all to the east of this imaginary line upon the Portuguese, and all to the west of it upon the Spaniards—professing that zeal for propagating the christian faith was his motive.

The profligate career of this execrable hypocrite and tyrant was continued till the year 1503, when the poison, which he and his son Cæsar had prepared for others, and particularly for Adrian, a wealthy cardinal, who stood in the way of their avarice and ambition, by a happy mistake terminated his own days. Some writers, amongst whom is Voltaire, have disputed this account of Alexander's death; but Guicciardini and other reputable historians attest it. The life and actions of this pontiff shew

says Mosheim, that there was a Nero among the popes as well as among the emperors. Besides other instances of infamous licentiousness with which he is chargeable, he is accused of incest with his own daughter. And though it may be possible that the malignity of his enemies may have forged false accusations against him, and in some instances exaggerated the horror of his real crimes, yet there is upon record an authentic list of undoubted facts, which, by both their number and atrocity, render the name of Alexander VI. odious and detestable. His insatiable avarice is expressed in the following lines:

Vendit Alexander claves, altaria, Christum,
Vendere jure potest; emerat ille prius.

Christ's altars, keys, and Christ himself,
Were bartered by this Pope for pelf:
But who shall say he did not well?
That which he bought, he sure might sell.

Dupin's Eccl. Hist. vol. vi. p. 14. *Bower's Popes*, vol. vii. p. 328. *Mosheim's Eccl. Hist.* vol. iii. p. 431. *Robertson's America*, vol. i. p. 162, 8vo.

ALEXANDER VII. (pope,) was born of the illustrious family of Chighi, at Sienna, in 1599, and recommended by the marquis Fallavicini to pope Urban VIII. Having been inquisitor at Malta, and legate at Ferrara, he was nuncio in Germany, and employed at Munster in conducting the conferences that were intended to restore the peace of Europe. Some writers relate, that at this time he had formed the design of abjuring Popery, and embracing the Protestant religion, but was deterred from executing his purpose. Upon his return from this embassy, he was appointed bishop of Imola, in Romagna, and afterwards cardinal and secretary to the pope. His next advancement was to the papal chair, to which he was introduced by the unanimous suffrage of the sixty-four cardinals, which he contrived to obtain by that dissimulation and address of which he is said to have been complete master. After his election in 1655, he ordered his coffin to be placed under his bed in his apartments in the Vatican, that it might serve to him as a memento of mortality; when he was robed in the pontifical habit, he appeared to have a hair-cloth under his shirt; and when a wealthy female, signora Olympia waited upon him with congratulation, he dismissed her with a cold repulse, saying, 'It is not decent for a woman to enter the dwelling of the father of the church.' That the whole of this appearance of humility and self-denial was a farce, was sufficiently verified in his future conduct. His zeal for religion, and his concern for terminating the wars which distracted the Christian world, seem to have subsided after his elevation to the pontificate; nor did he take any pains to conciliate the crowns of France and Spain. The five propositions of Jansenius, which contained the sum of his doctrine, had been condemned by Innocent X.; but the Jansenists had contrived to evade this sentence by a subtle distinction, which allowed them to acknowledge that these propositions were justly condemned by the pope; but to maintain that they were not contained in the book of Jansenius in the sense in which they were condemned. At the instigation of their enemies, however, Alexander VII. the successor of Innocent, issued a bull in 1656, declaring, that the five propositions which had been condemned were the tenets of Jansenius, actually contained in his book, and proceeded in 1666, to send into France the form of a declaration to this purpose, which was to be subscribed by all those who aspired to any preferment in the church. This declaration produced the most deplorable divisions and tumults.

It was vigorously opposed by the Jansenists, who maintained, that in matters of fact the pope was fallible, especially when his decisions were personal, and not confirmed by a general council; and, consequently, that they were under no obligation to subscribe this papal declaration, which had merely for its object a matter of fact. Notwithstanding this intolerant bull, Alexander is said to have been liberal in his sentiments; to have disapproved the severities exercised towards the Vaudois in Piedmont, and to have treated the Protestants who visited Rome with condescension. It is further related that when some English gentlemen presented themselves at his feet to pay him the customary homage, upon finding that they were Protestants, he courteously said, 'Rise, you shall not commit what you think an idolatry; I will not give you my blessing, but I pray God you may be worthy to receive it.' To the Jesuits the pontiff manifested a peculiar partiality; for though Innocent X. had, in 1645, condemned the indulgence which these artful missionaries had shewn to the Chinese superstitions, Alexander virtually disannulled, in 1656, the sentence of his predecessors, and allowed the Chinese converts the liberty of performing several of the rites to which they had been accustomed, and to which they were principally attached.

This pontiff was a friend to literature and the fine arts, and expended considerable sums in promoting them. He embellished the city of Rome and erected the magnificent college, Della Sapienza, which he furnished with a fine library and botanical garden. He appointed six new professorships, and increased the salaries of the former professors. As an author, he has been highly extolled by his panegyrists; a volume of Latin poems, entitled Philomathi Musæ Juveniles, consisting of heroic, elegiac, and lyric verses, and a tragedy under the title of Pompey, after the model of Seneca, written in his youth, whilst he was a student at Sienna, was published in folio, at the Louvre, in 1656. He died in the year 1667, with a higher reputation for talents than for honesty: and, as Bayle says, more lamented by the Jesuits than *the Jansenists*. *Mosheim's Eccl. Hist.* vol. v. p. 26—99—214. *Bower's Popes*, vol. vii. p. 483. *Gen. Dict.*

ALEXANDER VIII. (pope,) originally called Peter Ottoboni, was born at Venice in 1610, and having studied at Venice and Padua, was made a bishop and cardinal by Innocent X.; and at the age of seventy-nine succeeded Innocent XI. in the papal see. Instead of devoting the powers which he had acquired at this late period of life to the service of religion, his thoughts were chiefly employed in providing for his relations

and accumulating upon them honour and wealth. Accordingly one of his domestics being asked by this pontiff what the people said of him, replied, that they said, 'he lost no time in the advancement of his family.' 'Right,' says the pope, 'for I have only half an hour left of the four and twenty.' His indifference with regard to compromising the dispute that subsisted between France and the court of Rome, was considered by the French court as an evidence of his disposition to yield to the claims of the clergy of France; but at the close of his life, he issued a bull of execration against every thing that had been done to the prejudice of the pope's authority in the assembly of the clergy of France in 1682. Having enjoyed the honour and emoluments of his station fifteen or sixteen months, he died in 1691, with a character stained with the reproach of avarice and duplicity. *Gen. Dict. Bower's Popes*, vol. vii. p. 490.

ALEXANDER AB ALEXANDRO, so called, because his Christian and family names were Alexander, was born at Naples in 1461. He relinquished the practice of the law, to which he was at first devoted, because this profession endangered his integrity; and preferred a small fortune, in the tranquillity of retirement Against the power and favour of the great, he says, an advocate would find it impossible to support his clients; and the issue of suits depended not so much on the justice of the cause, as on the will and favour of an indolent or corrupt judge; so that it was fruitless to study, with diligence and labour, controverted points of law, with the varieties of its cases; and adds, that the provisions of law, though wisely contrived, were often iniquitously perverted. From the works of the ancients, to which he had been accustomed to direct his attention, he made a collection of passages relating to the history and customs of the Greeks and Romans, which he arranged in six books, under the title of Dies Geniales; a work which manifests more learning than judgment or taste. An edition of this work, with notes by various writers, was published in two volumes 8vo. at Leyden, in 1673. The author appears to have been credulous and superstitious, and gives a strange account of dreams, spectres, haunted apartments in his house at Rome, &c.; he died in this city about the year 1523. *Gen. Dict.*

ALEXANDER AB ALEXANDRO, proto-medicus of Sicily, in which island he was born early in the fifteenth century; left a work on the duties and privileges of the office he held, which was afterwards published: Constitutiones et regulata Jurisdictionis Regii protomedicatus Siciliæ elucidata, scripta. Haller says, circa A. 1429, edita Panormi, 1564, 4to. a I. Philippo Ingrassia.

ALEXANDER NOEL, OR NATALIS, a Dominican friar, and one of the most laborious writers of the seventeenth century, was born at Rouen, in Normandy, in 1639, admitted into the order of Dominican friars, in 1655, and went to pursue his studies in philosophy and divinity, at the great convent in Paris. He afterwards taught philosophy in the same convent in which office he continued for twelve years; and declining that of a preacher, he devoted himself entirely to the study of the scriptures and ecclesiastical history. He was created a doctor of the Sorbonne in 1675. By Colbert, the minister, with whose esteem he was honoured, he was introduced to his son, who was afterwards archbishop of Roan; and in this connection he enjoyed the conferences of persons of distinguished learning. These conferences led him to conceive the design of writing an ecclesiastical history. The first volume of this work, which he executed with great assiduity, and which was entitled, Selecta Historiæ Ecclesiasticæ capita, et in loca ejusdem insignia Dissertationes Historicæ Chronologicæ Dogmaticæ was published in 1676. This work consists of twenty-six volumes in 8vo. the last four of which were not published till 1686. In the first volume he gives a history of the first age of the church, with an account of the persecutions which it suffered, the succession of popes, the heresies which arose, and the councils which condemned them, the writers in favour of Christianity, and the kings and emperors who reigned during the first century. To this volume are annexed twenty-eight valuable and much esteemed dissertations, upon such points as have been the subjects of dispute in history, chronology, criticism, or doctrine. The history of the second century was published in 1677 in two volumes, and to it are subjoined three dissertations against M. Daillè with regard to fasting in lent, confirmation, and the use of the fathers; and another dissertation concerning the time of celebrating Easter; and he also treats of the version of the Septuagint, &c. &c. The third century was published in 1678; and in three dissertations he has collected what relates to the life, manners, ordination, fall, errors, and defenders of St. Cyprian. The history of the fourth century, compiled in three volumes, and containing forty-five dissertations, was printed at Paris in 1679. In the three following years he published his history of the fifth, sixth, seventh, eighth, ninth, and tenth centuries; and that of the eleventh and twelfth centuries in 1683; and in these volumes there are several excellent dissertations. His sentiments on the subjects of some of these dissertations exposed him to the resentment of the court of Rome, which issued out a decree against his writings in 1684. Nevertheless, he published in the same year, in three volumes, the history of the thirteenth and fourteenth centuries, in which he continued to defend the rights of kings against the pretensions of that court, though he vindicates those princes who employed fire and sword against the Albigenses. He at last completed this work in 1686, by publishing four volumes, containing the history of the fifteenth and sixteenth centuries. The history of the Council of Trent occupies the greatest part of the last volume. Of this voluminous work, containing many curious particulars, there have been many editions. In 1689 he published a work of the same kind upon the Old Testament, in six volumes in 8vo. which extends from the creation of the world to the birth of Christ, and which period he has divided into six ages. From 1678 to 1680 he also published several other dissertations. In 1689 our author published his Theologia Dogmatica et Moralis secundum

Ordinem Catechismi Concilii Tridentini, in quinque libros tributa, i. e. Positive and moral Divinity, according to the order of the Catechism of the Council of Trent, in five books; printed at Paris in ten volumes in 8vo. and at Venice 1698. Another volume having been added in 1701, this work was printed at Paris, in two volumes in folio, in 1703, with a collection of Latin letters. He also published, in 1704, Commentaries on the four Gospels; in 1710, upon St. Paul's, and the seven Canonical Epistles; and he also wrote a Commentary on the Prophets Isaiah, Jeremiah, and Baruch, which was never printed: and he likewise published several other treatises, which we shall not recite. Towards the latter part of his life he was afflicted with the loss of his sight, which he bore with great calmness and resignation. He died in 1724, in the eighty-sixth year of his age. His piety, humility, and disinterestedness rendered him an object of general esteem. *Gen. Dict.*

ALEXANDER I. (king of Scotland,) was the son of Malcolm III. and succeeded his brother Edgar in 1107. His character was distinguished by vigour and impetuosity, which gave him the appellation of 'the fierce:' and which, though previously concealed by his piety and devotion, discovered themselves on his accession to the throne. His conduct both in the northern and southern parts of the kingdom was so severe, that he awed the insurgents into submission; but a conspiracy was at length formed against his life, and the traitors, who were engaged in the execution of it, obtained admission into his bed-chamber at night, whilst he lodged at a castle in the Carse of Gowrie. Alexander, after having killed six of them, made his escape. Having reduced his own kingdom to order, he visited his brother-in-law, Henry I. of England, and assisted him in terminating a difference between him and the Welsh. He closed his reign in enacting and enforcing civil and ecclesiastical regulations, died a bachelor in the seventeenth year of it, and was succeeded by his younger brother, David. *Mod. Un. Hist.* vol. xli. p. 45.

ALEXANDER II. (king of Scotland,) succeeded his father William the Lion, in 1214, in his sixteenth year. His attempt to recover the possession of Northumberland was retaliated by a destructive expedition into Scotland, conducted by John, king of England. Whilst John was thus employed, Alexander reduced Northumberland; and, being forced to discontinue his pursuit of the English king, who was burning the towns, ravaging the country, and advancing towards the capital, he entered England by way of Carlisle, which he took and fortified, and proceeded as far as Richmond, in Yorkshire, retaliating, upon the adherents of John, severities similar to those which his own subjects had suffered. But his progress was impeded, and he was compelled to return.

In 1221, he married the princess Joan, eldest sister of Henry III. of England, which contributed to preserve the peace of the two kingdoms. After her death in 1239, they were again embroiled; but by the mediation of the earl of Cornwall, Henry's brother, and the archbishop of York, they were again reconciled. Alexander, in his voyage to quell some commotions that were excited in Argyleshire, fell sick, and being put on shore on an island called Kernery, on that coast, died in the fifty-first year of his age, and thirty-fifth of his reign. He was succeeded by Alexander III. his son by his second queen, the daughter of Egelrand de Coucy, one of the most powerful of the French nobility. *Mod. Un. Hist.* vol. xli. p. 77.

ALEXANDER III. (king of Scotland,) son of the preceding, succeeded his father at the age of nine years, in 1249. His marriage with Margaret, the daughter of Henry III. of England, was soon after solemnized in the presence of the two courts at York. On this occasion, Alexander paid homage to Henry for his English possessions; and, on being pressed to perform the homage for the crown of Scotland, he declined it. Alexander, upon his return to Scotland found that the Cummins, a family of very great influence, had formed a strong party against his English connections, under the plea that Scotland was never any better than a province of England; and both the king and queen were committed to close custody in the castle of Edinburgh, where they were debarred from seeing any company, or associating with each other, and prohibited from all concern in the government. When Henry heard of their situation, he determined to relieve them, and for this purpose assembled his military tenants at York, and marched to the borders; and by his emissaries, whom he dispatched to the castle of Edinburgh, released the royal pair, and afterwards dispossessed the usurpers. The king then assumed the exercise of the regal power; and, as soon as he was of age, pardoned the Cummins and their adherents, upon their submitting to his authority. However, in 1263, Haquin, king of Norway, appeared on the coast, with a fleet of 160 ships, to make good his pretensions to the Western Islands; and, disembarking his troops, made himself master of the castle of Ayr, and advanced into the country. Alexander, having assembled an army, met him at a place called Largs; and after a long and doubtful contest, the Scots army was victorious. Of the Norwegians, 16,000 are said to have perished in the field, and the Scots lost 5000. The ships of Haquin were so much wrecked the day after the battle, that he could scarcely procure a vessel to carry him and his friends to the Orkneys, where he died of grief. His son and successor, Magnus, concluded a treaty with Alexander; and in consideration of his receiving 1000 marks of silver in two years and an annual payment of 100 marks for ever after, renounced all claim to those islands. As a further cement of friendship, Margaret, Alexander's daughter, was betrothed to Eric, the son and heir of Magnus. In 1256, Alexander and his queen repaired to the English court, where they were sumptuously entertained; and when the queen was delivered, they both returned to their own kingdom. During the war between Henry and his barons, Alexander assisted him with 5000 men, and preserved the northern fortresses against all their attempts. Upon the accession of Edward I. to the throne of England, Alexander, with his family was present at the

coronation, and soon after paid him homage for his English estates. In the parliament, held at Westminster in 1282, Alexander attended as the first peer of England. In 1283 he lost his son Alexander, in the twentieth year of his age; and his death was soon followed by that of his sister the queen of Norway, who left an only daughter.

Having no surviving issue besides this infant princess, Alexander was urged by the nobility and the states of the kingdom to marry; and, in compliance with this request, he married Ioletta, daughter to the Count of Dreux in France. This excellent prince was soon after killed, whilst he was hunting, by his horse's rushing down a high precipice, A. D. 1285, in the forty-fifth year of his age, and the thirty-seventh of his reign. He was succeeded by Margaret, his grand daughter, and heir of his crown, who did not long survive him. Scotland was now in a very critical state, Edward I. was acquiring an influence in the kingdom, which no other English monarch ever possessed, and revived the claim of sovereignty, to which his father Henry had never pretended. The death of Alexander was much regretted; and the services he had performed to the kingdom demanded a tribute of respect to his memory. He had introduced many excellent regulations of government; he had divided the kingdom into two parts, in each of which he occasionally resided, with a view of preserving the public peace, and for the purpose of more easily administering justice to all ranks of people; and he had greatly contributed to diminish the burdens of the feudal system, and to restrain the licence and oppressions of the nobility. The death of Alexander III. forms a remarkable æra in the Scottish history. *Mod. Un. Hist.* vol. xli. p. 79, &c.

ALEXANDER, prince of Parma and Placentia, the son of Octavius Farnese, and great grandson of pope Paul III. succeeded his father in 1580; previous to which he had acquired the character of the greatest hero of his age; having given early proofs of uncommon courage, and military skill, in the wars of the Netherlands, under Don John of Austria: on which account, Philip king of Spain appointed him governor of the Netherlands, and prefect of Burgundy, upon the death of Don John. In 1566, he married the princess Mary of Portugal, and died in 1592, aged 48.

ALEXANDER OF RUSSIA.

ALEXANDER I. (Emperor of Russia and King of Poland), was the eldest son of Paul I. by his second wife, Sophia Dorothea, princess of Wirtemberg Stuttguard. He was born 22d December 1777, and the care of providing for his education being assumed by his grandmother, the Empress Catherine, she placed him under the tuition of the celebrated M. de la Harpe. In the year 1793 he married Elizabeth Aleviowna, princess of Baden; and on the sudden demise of his father (it was officially announced that he was *found dead in his bed*), in March 1801, he succeeded to the throne. The general amnesty published on his accession was allowed, it is said, to include all persons connected with his father's death, except one nobleman, who was sent into Siberia. The young emperor declared his intention of supporting the institutions, and abiding by the policy of his august grandmother. Russia having been precipitated by his predecessor into a maritime confederacy with the other northern powers against England, he very promptly manifested his desire to enter into amicable relations with this country; and on the 17th June a convention was signed at St. Petersburgh between the Russian ministers and Lord St. Helens, conceding the great British question, of the right to search neutral ships in time of war, and adjusting all matters in dispute. To this compact Denmark and Sweden immediately acceded. Few events in the history of the maritime struggles of Great Britain have been more important than was the dissolution of the northern confederacy at this juncture. Alexander was crowned at Moscow in September, and published on this occasion an ukase to discontinue the recruiting of the army, for diminishing taxes, liberating debtors, and prohibiting all prosecutions for fines, together with a full pardon to deserters. In June 1802, he appeared, for the first time, personally among the potentates of Europe, and had an interview with the king of Prussia at Memel. France, under the guidance of Napoleon, was at this period making rapid conquests in the south of Europe; Buonaparte having been, in the preceding month, crowned king of Italy at Milan; shortly after which he annexed Genoa to France. But the cabinet of St. Petersburgh seems wisely to have thought that its distance from the scene of action, might well excuse the emperor from any active interference with the belligerent states. He contented himself, therefore, in 1803, with offering to interpose his good offices in restoring the newly ruptured peace between England and France. The arrest and murder of the Duc D'Enghein, however, aroused him to make a strong remonstrance the following year against this shameful violation of the neutral territory of Baden; and he appealed from the frivolous excuses of the French government on that subject, to the diet of Ratisbon. But the influence of France was at this time paramount in Germany.

On the 11th April, 1805, Russia came forth decidedly into the first of her great struggles with France, and signed a treaty with England, Sweden, and Austria, to use the most efficacious means for the purpose of putting a stop to the encroachments of the French government, and securing the independence of the different states. A large Russian force now, therefore, advanced into Germany, but not in time to rescue the capital of the emperor of Austria from the more rapid advances of Napoleon. On the second of December was fought the memorable battle of

Austerlitz, in which the emperor Alexander appeared at the head of 50,000 Russians, and the emperor Francis with an Austrian force of about half that amount: the result is well known. Buonaparte spoke always of the sun of Austerlitz as shining upon one of his most glorious days. His force was about equal, perhaps, to that of the allies; whom, after a sanguinary and often doubtful contest, he compelled to quit the field. Alexander, in consequence, commenced his retreat on the sixth, and in the following July appears to have concurred very cordially in the negociations for a general peace, which were conducted by the ministers of the different powers at Paris. But the Russian minister, M. d'Oubril, having precipitately signed a separate treaty with France, the emperor refused to ratify it. The negociations were broken off, and the relations of England and Russia remained undisturbed.

The French, at the close of this year, having completely humbled Prussia, advanced into Poland; and on the 26th of November was fought between the French and Russians the equivocal battle of Pultusk. In that of Eylau, which was fought on the 7th and 8th of February, 1807, both parties again claimed the victory. On the morning, however, of the 9th, the Russian army found it necessary to retreat; and on the 14th of June was completely beaten by the French in the memorable battle of Friedland. Lord Hutchinson, who was present, declared, in the British senate, that the Russians recrossed the Niemen with the loss of 40,000 men, 1848 officers killed or wounded, and 27 generals. The result was an interview between Alexander and the French emperor at the instance, it is said, of the latter; and the celebrated treaty of Tilsit followed. Russia, by this compact, acknowledged the brothers of Buonaparte as kings respectively, of Naples, Holland, and Westphalia; she formally recognised also the confederation of the Rhine, and promised to acknowledge all the sovereigns who might hereafter become members of that confederation. She engaged also that hostilities should, on her part, instantly cease with the Ottoman Porte, and that she would use her mediation to negociate and conclude a peace between Great Britain and France. Secret articles are said to have been added, that Dantzic and the ports of Prussia and Russia should be shut against the commerce of Great Britain. By another secret article, Alexander also consented to concede Corfu and the seven islands to France. Such was the humiliating commencement of this prince's celebrated friendship with Napoleon.

In the autumn of 1806, the British cabinet was induced, from secret and pretty correct information of the designs of the French government upon them, to seize the eighteen Danish ships of the line then lying at Copenhagen, a measure which Russia thought proper to resent by declaring war against England. All British ships and property were detained, and the fort of Cronstadt put into a state of defence. Hostilities between England and Russia, however, were never carried much further than a cessation of commercial intercourse. A second meeting between Alexander and the emperor of France took place at Erfurt on the 27th of September 1808, with the obvious design, on the part of the latter, of enabling himself, with safety, to withdraw his troops from Germany. For that noble resistance of his usurpations was now commencing in the Peninsula, which ultimately issued in the emancipation of enslaved Europe.

While in this year his good brother of France was thus well engaged, the troops of Alexander advanced upon Finland, took possession of Abo, the capital, in the month of March; and on the 27th of September, 1809, procured the formal annexation of the greatest part of that province to Russia. The interruption of all commerce with England, began now to be severely felt by Russia; and the restraints of Napoleon's continental system, were ill-brooked by the pride of Alexander. From the commencement of 1812, a storm seemed to be gathering, which threatened the destruction of French influence in the north of Europe. Alexander put his armies in motion; and, by an imperial ukase of the 23rd of March, ordered a levy of two men in five hundred throughout his dominions. He concluded a treaty also with the Ottoman Porte, and settled all matters in dispute with Great Britain. Buonaparte, in the mean while, was pouring French troops, and those of the confederation of the Rhine, into Germany; and occupied all the principal towns and fortresses of Prussia. On the 6th of June, Napoleon passed the Vistula, and shortly after, the Niemer. 'Russia,' said he, in one of his favourite harangues, 'is dragged along by a fatality! Her destinies must be accomplished.—Are we no longer to be regarded as the soldiers of Austerlitz?—Let us carry the war into her territory: a second war in Poland will be as glorious to the French arms as the first.' We cannot pursue the details of the memorable campaign that followed. Suffice it to say, that he who entered Russia at the head of from 300,000 to 400,000 men, after having defeated the Russians in almost every pitched battle that they fought; after having taken Moscow, the capital of the empire, returned *alone!* and of his immense army but 50,000 ever re-passed the Russian frontier. Alexander, who had hitherto only fought for independence, now resolved in his turn to become the aggressor; and, joining his army in Poland, published in February 1813, the celebrated manifesto, which served as a basis for the coalition of the other powers of Europe, against the rapacity of the French. The battle of Leipsic, in which the allies compelled the French to retire, seems to have been almost the last struggle of Napoleon, to preserve his dominion over the other potentates of Europe. The Russian monarch marched with the rest of the allies into France; and it was principally to the efforts of Alexander, that, after about two months of constant fighting, with various success, one bold and great push was made to seize on Paris which the allies reached on the 30th of April 1814, at six in the morning, and which they occupied by capitulation, at three in the afternoon. At the peace, Alexander visited England, and amongst a succession of fêtes given upon the

occasion, dined with the prince regent, the emperor of Austria, and king of Prussia, at the Guildhall of London.

On his return he seems to have occupied himself in sincerely endeavouring to improve the internal condition of his empire. Early in his reign, he had given it, in a manner, a new constitution; re-organizing the senate and limiting the power of governors. When he was crowned king of Poland in 1815, he limited his own authority, granted legislative powers, and the privilege of self-taxation to the Polish senate, and a representative body to the people. One of his ukases forbad the confiscation of hereditary property in Russia, in any criminal case whatever, an advantage, until his reign, enjoyed only by the nobility. Nor should we omit to state, that he was decidedly the friend of literature, the arts, and every moral and benevolent institution of the age. The noble support he afforded to the Russian Bible Society, may be instanced as a proof of our last remark.

In the flower of his age this distinguished prince was seized with a fatal illness, and died at Taganrok, a fortress of the sea of Agof, in November, 1825.

The French papers, in conveying the intelligence of his death, coupled it with a curious extract from the Royal Prussian Calendar, in which the second brother, the grand duke Nicholas, was declared heir to the throne, in omission of his elder brother Constantine. Such intimation could scarcely originate in error in that quarter; and in consequence, it was at first inferred that Constantine was set aside. This inference was the more rational, as an ex post facto law had really passed to supersede any issue which he might have by his second marriage with the countess Gradinska, an accomplished Polish lady, on the ground that children to succeed must be royal on both sides. Reports also attributed sinister attempts to Constantine four or five years ago, which it was insinuated, led to his virtual renunciation of the right of succession; and one English paper boldly asserted that Alexander met a violent death. These rumours, however, appear to have rested on no adequate foundation; and in spite of the authority of the Berlin Almanack, the emperor Constantine set out on the 8th of December from Warsaw, for St. Petersburgh, where he was proclaimed on the 15th. The Court of Berlin had been previously apprised of the illness of Alexander; the proximate cause of whose decease originated in the breaking out of erysipelas in his leg, that he was aware of his own danger, and died as became him. The Russian authorities in London took an oath of allegiance to the new emperor Constantine, on Sunday the 25th of December.

On the whole, this monarch cannot be denied the meed of considerable commendation with respect to the internal management of his great empire. If he has not all the glory of a Peter I. in originating improvements, he has the great credit of continuing and enlarging them with exemplary patience and industry; and if he never pursued the ambitious projects of a Catherine with regard to other nations, he nobly defended and rescued his country from the grasp of an unprincipled usurper, and was foremost in a series of conflicts, essential to the liberty of half the civilized world. To hold the balance even in respect to his character, there seems to have been, of late years, a more decided leaning in this prince to arbitrary measures, both at home and abroad; and he is one of those potentates who has been busily engaged in the so-named Holy Alliance.

Alexander's Tomb, an elegant and very ancient sarcophagus, supposed once to have contained the body of Alexander the Great; and now, through the zeal and enterprize of Dr. E. D. Clarke, deposited in the British Museum. It is an entire block of green Egyptian breccia, a beautiful variegated marble, of which few specimens remain, measuring ten feet three inches and a half in length, three feet ten inches in height; at the circular end, five feet three inches, and at the other end, four feet two inches in breadth; covered with hieroglyphics.

This valuable relic of antiquity had been removed by the French from the mosque of St. Athanasius, at Alexandria, when the British troops entered that place; and Dr. Clarke found it concealed in the hold of a hospital-ship, in the inner harbour, half filled with filth, and covered with the rags of the sick. All descriptions of the inhabitants and visitants, with whom the learned traveller conversed, concurred in the tradition of 'its being the tomb of Iscander (Alexander), the founder of the Alexandrian city. On its shipment for England, in the Madras, the Capitano bey, with many Turks of distinction, came on board to pay a last testimony of devotion to this proud trophy of British valour; and, according to General Turner, 'all solemnly touched the tomb with their tongues.' The privilege to render this act of adoration being a contribution of six paras or medins to the iman of the mosque. On taking leave, the Capitano bey expressed his belief that providence would never suffer the tomb to go safe to England.

The chain of evidence by which Dr. Clarke supports his confident opinion of the identity of this sarcophagus with the real tomb of Alexander, is as follows: The body of Alexander, according to Plutarch, being embalmed at Babylon by certain Egyptians and Chaldeans, his funeral was delayed for two years, by the disputes amongst his successors, and, still more, by the immense preparations which were made for that solemnity. A notion prevailed, that the final possession of it would be most propitious to the state with whom it might rest; whence Perdiccas, who afterwards conducted the funeral procession, would have deposited it in the sepulchre of the kings of Macedon; but Alexander had ordered it to be taken to the temple of Jupiter Ammon, in Lybia. Diodorus Siculus, lib. xviii. c. 26., gives an elegant and most interesting account of its movement thither. The car, on which it was conveyed, was the most magnificent the world had then seen; a prodigious concourse of people attended it from all the cities near which it passed; and Ptolemy Soter, receiving intelligence of its approach, went out with an army as far as Syria to meet

it. Pretending to render the highest honours to the imperial corse, he conducted it to Memphis, and there it was detained until the shrine, in which he now determined to deposit it at Alexandria, was finished. This is described by the above historian as being constructed with all possible magnificence, and as standing within the city of Alxandria. Pausanias mentions the removal of the body from Memphis; Quintus Curtius, its being ultimately carried to Alexandria with great pomp; and Strabo, 'that there it still lies, though not in its original coffin, a case of glass having been substituted for the gold covering, which a later Ptolemy had removed.'

Augustus visited the tomb B. C. 30; and Dion Cassius mentions the singular circumstance of the emperor's mutilating the nose, in touching the body: he placed a golden crown upon it, on departing, and scattered flowers over it. Caligula is said to have taken away the breast-plate from the armour in which Alexander was buried, and occasionally to have worn it himself. A. D. 202, it was visited by Septimus Severus, who causing a strict search to be made through Egypt for all the monuments of its ancient literature, deposited them in the tomb of Alexander, and ordered the shrine to be closed from all future access. Caracalla, however, in 213, presumed to violate this injunction, placing a purple vest, splendid rings, &c. on the tomb; and here closes all the direct history of its existence. For further particulars respecting this interesting monument See ALEXANDRIA.

ALEXANDREA, in ancient geography, a mountain of Mysia, on the sea coast, forming a part of mount Ida, where Paris is fabled to have given judgment on the three goddesses.

ALEXANDRETTA, called by the Turks Scanderoon; a town in Syria, at the extremity of the Mediterranean sea. It is the port of Aleppo, from which it is distant twenty-eight or thirty leagues, but is now, properly speaking, nothing else but a village, without walls, in which the tombs are more numerous than the houses, and which entirely owes its existence to the road which it commands. This is the only road, in all Syria, where vessels anchor on a solid bottom, without their cables being liable to chafe; but in other respects it has many inconveniences. It is infested, during winter, by a wind, called by the French sailors le Raguier, which, rushing from the snowy summits of the mountains, frequently forces ships to drag their anchors several leagues. And when the snow begins to cover the mountains which surround the Gulph, tempestuous winds arise which prevent vessels from entering for three or four months together. The road also to Aleppo by the plain is infested by Curd robbers, who conceal themselves in the neighbouring rocks, and frequently attack and plunder the strongest caravans. But the worst circumstance is the extreme unwholesomeness of the air, occasioned here by stagnant waters and mephitic exhalations. It may be affirmed, that this every year carries off one third of the crews of the vessels which remain here during the summer; nay, ships frequently lose all their men in two months. The season for this epidemic disorder is principally from May to the end of September; it is an intermitting fever of the most malignant kind; and is accompanied with obstructions of the liver, which terminate in a dropsy. To this baneful epidemic, Alexandretta, from its situation, seems to be irremediably condemned; for the plain on which the town is built is so low and flat, that the rivulets, finding no declivity, can never reach the sea. When they are swelled by the winter rains, the sea, swelled likewise by tempests, hinders their discharging themselves into it: hence their waters, forced to spread themselves, form lakes in the plain. On the approach of the summer, the waters becoming corrupted by the heat, exhale vapours equally corrupt, and which cannot disperse, being confined by the mountains that encircle the gulf. The entrance of the bay besides lies to the west, which in those countries is the most unhealthy exposure, when it corresponds with the sea. The labour necessary to remedy this would be immense, and after all insufficient; and, indeed, such an undertaking would be absolutely impossible, under a government like that of the Turks. Several years ago, Mr. Volney informs us, the merchants of Aleppo, disgusted with the numerous inconveniences of Alexandretta, wished to abandon that port and carry the trade to Latakia. They proposed to the Pacha of Tripoli, to repair the harbour at their own expense, provided he would grant them an exemption from all duties for ten years. To induce him to comply with their request, the agent they employed talked much of the advantage which would, in time, result to the whole country: 'But what signifies it to me what may happen in time?' replied the Pacha; 'I was yesterday at Marach; to-morrow, perhaps, I shall be at Djedda: Why should I deprive myself of present advantages, which are certain, for future benefits I cannot hope to partake of?' The European factors were obliged therefore to remain at Scanderoon. There are three of these factors, two for the French, and one for the English and Venetians. The only curiosity which they have to amuse strangers with, consists in six or seven marble monuments, sent from England, on which you read: 'Here lies such an one, carried off in the flower of his age, by the fatal effects of a contagious air.' The sight of these is the more distressing, as the languid air, yellow complexion, livid eyes, and dropsical bellies of those who show them, make it but too probable they cannot long escape the same fate. It is true, they have some resource in the village of Ballan, the pure air and excellent waters of which surprisingly restore the sick. The Aga, for some years past, has applied the duties of the custom-house of Alexandretta to his own use, and rendered himself almost independent of the Pacha of Aleppo. The Turkish empire is full of rich rebels, who frequently die in peaceable possession of their usurpations.

ALEXANDRIA.

ALEXANDRIA, now called Scanderia, the ancient capital of Lower Egypt, was built by Alexander the Great, B. C. 335. It was situated on the Mediterranean, between the lake Mareotis and the beautiful harbour formed by the Isle of Pharos, about twelve miles west of the Canopic branch of the Nile, in N. lat. 31°. 10′. and E. long. 30°. 19′. It is probable, says a popular historian, that the opposition and efforts of the republic of Tyre, which gave Alexander so long and so severe a check in the career of his victories, led him to perceive the vast resources of a maritime power, and suggested to him an idea of the immense wealth which the Tyrians derived from their commerce, especially that with the East Indies. As soon, therefore, as he had accomplished the destruction of Tyre, and reduced Egypt to subjection, he formed the plan of rendering the empire, which he designed to establish, the centre of commerce as well as the seat of dominion. With this view he founded a great city, which he honoured with his own name, near one of the mouths of the river Nile, that, by the Mediterranean sea and the vicinity of the Arabian gulf, it might command the trade of both the east and west. He had no sooner conceived the design than he hastened to execute it. And so sudden was his resolution, that after he had directed where every public structure was to be placed, fixed the number of temples, and the deities to whom they should be dedicated, &c. there were no instruments at hand proper for marking out the walls, according to the custom of those times. Upon this, a workman advised the king to collect what meal was among the soldiers, and to sift it in lines upon the ground, whereby the circuit of the walls would be sufficiently marked out. The advice was followed; Dinocrates, the most celebrated architect of the age, was employed to draw up the plan, and every resource of power and art was employed to render it worthy of the name of its founder; which now became the chief commercial city in the world. During the subsistence of the Grecian empire in Egypt and in the east, and amidst all the successive revolutions in those countries, through a period of about 1800 years, commerce, particularly that of the East Indies, continued to flow in the channel, which the sagacity and foresight of Alexander had prescribed.

The breaking up of the empire of Alexander did not retard the progress of Alexandria to opulence and greatness. It became the capital of the Ptolemies, a race of enlightened princes, who placed their glory in commerce and the sciences. They erected, on an island opposite to the mouth of the harbour, a pharos, or light-house, which was considered one of the wonders of the ancient world. Alexandria then engrossed the commerce of India, the grand object of ancient ambition. The goods being brought up the Red Sea, were landed at Berenice, and being carried across to the river, were there embarked, and conveyed down to the city.

This city, says a modern traveller, was a league and a half long by one-third in breadth, which made the circumference of its walls about four leagues. Quintus Curtius, lib. iv. c. 8. tom. i. p. 221, makes them eighty stadia, or a little more than nine miles. According to Pliny, H. N. lib. v. c. 10. tom. i. p. 258, they were fifteen miles. Strabo, lib. xvii. tom. ii. p. 1143, makes the length of the city thirty stadia, and the breadth between seven and eight stadia; and Diodorus Siculus, lib. xvii. tom. ii. p. 590. ed. Wessel, makes the circuit ninety stadia, or somewhat more than eleven miles; and he says, that the city was peopled by 300,000 free inhabitants, besides, at least, an equal number of slaves. The lake Mareotis bathed its walls on the south, and the Mediterranean on the north. It was intersected lengthwise by straight parallel streets. This direction left a free passage to the northerly wind, which alone conveys coolness and salubrity into Egypt. A street, two thousand feet wide, began at the gate of the sea, and terminated at the gate of Canopus. It was decorated by magnificent houses, by temples, and by public buildings. In this extensive range the eye was never tired with admiring the marble, the porphyry, and the obelisks, which were destined at some future day to embellish Rome and Constantinople. This street, the handsomest in the universe, was intersected by another of the same breadth, which formed a square, at their junction, half a league in circumference. From the middle of this great place the two gates were to be seen at once, and vessels arriving under full sail from the north and from the south. A mole, of a mile in length, called Hepta Stadium, stretched from the continent to the Isle of Pharos, and divided the great harbour into two. That which is to the northward preserved the name of the founder, and was called the Great Port. A dyke, drawn from the island to the rock on which the Pharos was built, secured it from the westerly winds. The other was called Eunostos, or the Safe Return. The former is called at present the New, and is the port to which the vessels of Europe resort; the latter is the Old harbour, and is that to which those only from Turkey are admitted: a bridge that joins the mole to the city served for a communication between them. It was raised on lofty pillars sunk into the sea, and left a free passage for the ships. The palace, which advanced beyond the promontory of Lochias, extended as far as the dyke, and occupied more than a quarter (a third or fourth, says Strabo) of the city. Each of the Ptolemies added to its magnificence. It contained within its enclosure the museum, an asylum for learned men, groves and buildings worthy of royal majesty, and a temple where the body of Alexander was deposited in a golden coffin. Perdiccas, it is said, undertook to convey the body of Alexander to the temple of Jupiter Ammon, agreeably to the will of that prince; but Ptolemy, son of Lagus, carried it off, and placed it in the palace of Alexandria. The infamous Seleucus Cibyosactes violated this monument, carried off the golden

coffin, and put a glass one in its place. In the great harbour was the little island of Anti-Rhodes, where stood a theatre and a royal place of residence. Within the harbour of Eunostos was a smaller one, called Kibotos, or Cibotus, q. d. the harbour of the arch, dug by the hand of man, which communicated with the Lake Mareotis by a canal. Between this canal and the palace was the admirable temple of Serapis, and that of Neptune, near the great place where the market was held. Alexandria extended likewise along the southern banks of the lake. Its eastern part presented to view the Gymnasium, with its porticoes more than 600 feet long, supported by several rows of marble pillars. Without the gate of Canopus was a spacious circus for the chariot races. Beyond that the suburb of Nicopolis ran along the sea shore, and seemed a second Alexandria. A superb amphitheatre was built there, with a race-ground, for the celebration of the Quinquennalia, or feasts that were celebrated every fifth year. Such is the description, says Savary, Letters on Egypt, vol. i. p. 29, left us of Alexandria by the ancients, and above all by Strabo. The original architect of this city is said to have acquired great reputation by rebuilding the temple of Diana at Ephesus, which Herostratus had burnt.

Ptolemy Soter, one of Alexander's captains, who, after the death of this monarch, was first governor of Egypt, and afterwards assumed the title of king, made this city the place of his residence, about 304 years before Christ. This prince founded an academy, called the Museum, in which a society of learned men devoted themselves to philosophical studies, and the improvement of the sciences; he also gave them a library, which was prodigiously increased by his successors; and induced the merchants of Syria and Greece to make this city a principal mart of their commerce. His son and successor, Ptolemy Philadelphus, pursued the designs of his father, and completed the tower of Pharos; brought hither the image of the god Serapis, from Pontus; erected the famous temple of Serapion; improved the Alexandrian Library, and finished the canal, begun by Necos and carried on by Darius Hystaspes, which was intended for joining the Nile to the Red Sea. Ptolemy Euergetes, imitating the example of his predecessors, contributed to the wealth and prosperity of Alexandria. But the voluptuousness of Alexandria became proverbial: hence, 'Ne Alexandrinis quidem permittenda deliciis.' Quinctilian. For about 300 years, from the commencement of the reign of Ptolemy Soter to the death of Cleopatra, Alexandria continued in subjection to the Ptolemies; but most of them devoted themselves to indulgence and pleasure, and, by their example, contributed to that corruption which ultimately erminated in the ruin of this famous city. Ptolemy Physcon, in particular, was a monster of vice and cruelty. About the year B. C. 136, he put to death or banished most of those persons who had been in favour with his brother Philometor, and who had been employed during his reign; and permitted his foreign troops to plunder and massacre at discretion. Many of the inhabitants of Alexandria, terrified by his savage conduct, and in order to avoid his cruelty, retired into foreign countries, and left the city almost a desert. Of these there were grammarians, philosophers, geometricians, physicians, musicians, and other masters in the liberal sciences, who disseminated the polite arts and general science through Greece, Asia Minor, and the islands, and indeed to every place whither they fled. To supply the places of these fugitives, Ptolemy caused proclamation to be made in all the neighbouring countries, that persons of any nation, who were desirous of settling at Alexandria, should receive suitable encouragement. The proposal was accepted by many, and the houses and privileges which belonged to the former inhabitants were assigned to these new settlers, and thus the city was repeopled: but they soon found reason to dislike their situation, and to hate their new sovereign. Cruel and timid as he was, he determined to massacre all the young men of the city; and for this purpose he caused the Gymnasium, or place of exercise, in which they were assembled, to be invested by his foreign troops, and put them all to the sword.

When Julius Cæsar, B. C. 48, in his pursuit of Pompey, landed at Alexandria, he found the city in great commotion, without law and without government. Having arbitrated between Ptolemy XII. and Cleopatra, and decreed that they should reign jointly in Egypt, Pothinus instigated the Alexandrians to resist the decree, and to concur in driving Cæsar out of the city. Accordingly he brought 20,000 troops to effect his purpose, but Cæsar supported the attack; and in order to prevent any injury from their fleet, to which they next had recourse, he caused it to be set on fire, and possessed himself of the tower of Pharos, which he garrisoned. Some of the vessels that were on fire came so near, that the flames caught the houses adjoining to the quay, and spread through that quarter of the city which was called Bruchion, and consumed the library that was placed there, consisting of 400,000 volumes. In a decisive battle with the whole army of Ptolemy, Cæsar, assisted by a considerable body of Jews, obtained a complete victory. Ptolemy, in endeavouring to make his escape in a boat, was drowned in the Nile; and Cæsar returned to Alexandria. Before he left this city he confirmed all the privileges which the Jews enjoyed, in gratitude to them for their assistance, and ordered a column to be erected, in which these privileges were engraven, with the decree that confirmed them. The emperor Caligula was inclined to favour the Alexandrians, because they manifested a readiness to confer divine honours on him; and conceived the horrid design of massacring the chief senators and knights of Rome, A. D. 40, and then of abandoning the city, and of settling at Alexandria. At this time the Jews who inhabited this city, and who had continued to enjoy the privileges of citizens, granted to them by Alexander, under the Ptolemies, and who had obtained a confirmation of them from Julius Cæsar, became obnoxious to the Alexandrians. Their number amounted in the whole of Egypt to a million. The prerogatives that distinguished them, excited envy and jealousy

and their fellow-citizens wanted only a pretence for destroying them. They had been for some time restrained from doing them injury; but under the government of Flaccus, A. D. 40, who permitted the statues of Cæsar to be set up in the oratories of the Jews, they were grieviously oppressed. He took occasion, in consequence of some dissentions and seditions that occurred, to publish a decree, by which, without offering them a hearing, they were declared strangers in Alexandria; he also restricted them to one of the five districts into which the city was divided; and their houses, which they were compelled to abandon, were plundered: whilst, destitute of any settled abode, they were obliged to wander about the fields and the sea-shore, without shelter, property, or even the means of subsistence. Those who fell into the hands of their enemies were destroyed by a lingering and painful death. The streets, market-places, and theatres were deluged with blood; neither sex nor age was distinguished; and none, says Philo, Leg. ad Caium, were spared. This writer assigns no other cause for these barbarities than the rage and fury of the Alexandrians. When Flaccus was recalled, the Jews obtained some respite; but they were soon alarmed by the order of Caius to have his own statue set up in the temple of Jerusalem. In the mean while they sent a deputation to the emperor, at the head of which was Philo, to petition the restoration of their citizenship and of their oratories. Before the object of their embassy was settled, Caius died; and Claudius declared in favour of the Jews, whom he re-established in the possession of all the privileges they had enjoyed in Alexandria from the time of the foundation of that city. When Adrian visited Egypt, A. D. 130, he expressed a great dislike of the manners and dispositions of the Egyptians in general, and of those of the inhabitants of Alexandria in particular. In a letter written from thence, and addressed to the consul Servian, he says, 'the city of Alexandria is rich and powerful, with great trade, which produces plenty. Nobody is idle there; some blow glass, others make paper; many are employed about linen and making of clothes; all have some trade. All, whether Jews or Christians, acknowledge but one God. I wish that this city, by its grandeur and riches the first of all Egypt, was furnished with better inhabitants.

For Nero the Alexandrians built baths in the city, when they expected a visit from him in his way to Egypt; and because Cæcina Tuscus, the son of his nurse, whom he had made præfect of Egypt, presumed to make use of them, he was condemned to banishment. To Alexandria belonged the honour of being the first place where Vespasian was acknowledged and proclaimed, A. D. 69, and the emperor remained here whilst his generals and armies were fighting against Vitellius: and though he came hither for the purpose of starving Italy, by preventing its supplies of foreign corn, yet as soon as he heard of the death of Vitellius, and that Rome had submitted, the best ships of Alexandria were immediately laden with corn, and ordered to sail for their supply. While Vespasian continued in this city, he received ambassadors from the Vologeses, who offered him 40,000 Parthian horse; but peace was then restored to the Roman empire. The emperor Severus, in his visit to Egypt, A. D. 202, granted the Alexandrians a council, the members of which had the title and privileges of senators, and assisted in the administration of public affairs, and thus mitigated the rigour of the despotic government of the præfect instituted by Augustus. He also changed several laws in their favour; and they erected a column as a monument of their gratitude, called by Abulfeda the Pillar of Severus. Caracalla, whose vanity they ridiculed, because, though of small stature, deformed, and destitute of military merit, he had compared himself to Achilles and to Alexander, is said to have conceived an irreconcileable dislike to the Alexandrians. Whilst they were preparing to receive him with joy and magnificence, when he visited the temple of Serapis, and the tomb of Alexander, he was meditating cruel retaliation. In the midst of peace, and on the slightest provocation, he issued his commands for a general massacre, A. D. 215. From a secure part of the temple of Serapis, he viewed and directed the slaughter of many thousand citizens, as well as strangers, without distinguishing either the number or the crime of the sufferers; since, as he coolly informed the senate, all the Alexandrians, those who had perished and those who had escaped, were alike guilty. Dion., lib. lxxvii. p. 1307, represents it as a cruel massacre; Herodian, lib. iv. p. 155, says, that it was also perfidious. The massacre was accompanied with the plunder both of temples and houses; and all strangers, except merchants, were driven from the city.—The societies of learned men, who were maintained in the Museum, were abolished; and the different quarters of the city were separated from each other, by walls and towers to prevent all communication between them. Caracalla, however, being soon after killed, Alexandria recovered its splendour, and became again the second city of the empire. Under the reign of Gallienus, Æmilian, who had been prefect of Egypt for some years, assumed the imperial purple, on occasion of a violent sedition, which terminated in a ruinous war. All communication between the different quarters of Alexandria was cut off, and it was easier, says St. Dionysius, to go from one end of the world to the other than from Alexandria to Alexandria. The streets were filled with blood, the dead bodies putrefied, and by their infection brought on the plague.—Æmilian, in vain, endeavoured to appease the people. They were exasperated against him, and attacked him with stones and darts; upon which, in order to avert the imminent danger that threatened him, he declared himself emperor.—The soldiers and the people, happy in the prospect of being rescued from the yoke of Gallienus, acknowledged his sovereign authority. At length he was attacked and defeated by Theodotus, the minister of Gallienus's vengeance.—Upon this he retired to the Bruchium, a quarter of Alexandria, and sustained a siege, in which Anatolius and St. Eusebius, intimate friends, and afterwards bishops of Laodicea, were admired for their ingenious charity in comforting

and relieving the unhappy besieged, who perished with hunger. Anatolius was shut up in Bruchium, and Eusebius remained with the Romans. The former, moved with compassion to the wants and misery of the besieged, applied to the latter in order to obtain amnesty for those who should leave the garrison and surrender themselves. Having succeeded in his application, he immediately proposed surrendering the place, and making peace with the besiegers. The answer was, that no peace should be made. Anatolius then proposed, that all who were of no service should leave the place in disguise, and they were kindly received and seasonably supplied by Eusebius. Æmilius was afterwards taken by Theodotus and sent to Gallienus, who ordered him to be strangled in prison. The various misfortunes that befel Alexandria so depopulated this great city, that, after these calamities, the number of its inhabitants, from four to fourscore years of age, was not equal to that which had been usually reckoned before of those who were between forty and seventy.—This difference was known by the registers that were kept for the gratuitous distribution of corn. Eusebius, Eccl. Hist. vii. 21. Dioclesian, A. D. 296, marched against Achilleus, who had usurped the government of Egypt; and, having driven him to Alexandria, besieged the city, cut off the aqueducts which conveyed the waters of the Nile into every quarter of that immense city, and rendering his camp impregnable to the sallies of the besieged multitude, he pushed his reiterated attacks with caution and vigour. After a siege of eight months, Alexandria, wasted by the sword and by fire, implored the clemency of the conqueror, but it experienced the full extent of his severity. Many thousands of the citizens perished in a promiscuous slaughter, and there were few obnoxious persons in Egypt, who escaped a sentence either of death, or at least of exile. Eutropius, ix. 24. Orosius, vii. 25, says, that he gave up the city to be plundered.—As an apology for the severity of this emperor, it has been alleged that the seditions of Alexandria had often affected the tranquillity and subsistence of Rome itself, and that his severity was counterbalanced by salutary regulations.—In 302, he established, for the benefit of this city, a perpetual distribution of corn. Constantine, with a view of establishing his new city of Constantinople, distributed every day 80,000 bushels of corn brought from Alexandria; and he employed the Alexandrian fleet in victualling New Rome, as it was called, leaving to Old Rome only that of Africa. Socrat. ii. 13.—Alexandria suffered in common with other places by the violent and destructive earthquake which shook the greatest part of the Roman empire, July 21st, A. D. 365; and this city annually commemorated this fatal day, when 50,000 persons had lost their lives in the inundation.

It was in Alexandria chiefly that the Grecian philosophy was engrafted upon the stock of ancient oriental wisdom. The Egyptian method of teaching by allegory was peculiarly favourable to such an union. This influence of the Grecian upon the oriental philosophy continued long after the time of Alexander, and was one principal occasion of the confusion of opinions that occurs in the history of the Alexandrian and Christian schools. Alexander, when he built the city with a determination to make it the seat of his empire, opened a new mart of philosophy, which emulated the fame of Athens itself. A general indulgence was granted to the promiscuous crowd assembled in this rising city, whether Egyptians, Grecians, Jews, or others, to profess their respective systems of philosophy without molestation. The consequence was, that Egypt was soon filled with religious and philosophical sectaries of every kind; and particularly, that almost every Grecian sect found an advocate and professor in Alexandria. The family of the Ptolemies, as we have seen, who obtained the government of Egypt after Alexander, from motives of policy, encouraged this new establishment. Ptolemy Lagus, who had obtained the crown of Egypt by usurpation, invited philosophers from every part of Greece to settle in Egypt, and removed the schools of Athens to Alexandria. This enlightened prince spared no pains to raise the literary, as well as the civil, military, and commercial credit of his country. Under the patronage first of the Egyptian princes and afterwards of the Roman emperors, Alexandria long continued to enjoy great celebrity as the seat of learning, and to send forth eminent philosophers of every sect to distant countries. It remained a school of learning, as well as a commercial emporium, till it was taken, as we shall see in the sequel of this article, and plundered of its literary treasures by the Saracens. Philosophy, during this period, suffered a grievous corruption from the attempt which was made by philosophers of different sects and countries, Grecian, Egyptian, and oriental, who were assembled at Alexandria, to frame, from their different tenets, one general system of opinions. The respect which had long been universally paid to the schools of Greece, and the honours with which they were now adorned by the Egyptian princes, induced other wise men, and even the Egyptian priests and philosophers themselves, to submit to this innovation. Hence arose an heterogeneous mass of opinions, under the name of Eclectic philosophy, and which has been the fountain of endless confusion, error, and absurdity, not only in the Alexandrian school, but among Jews and Christians; producing among the former that specious kind of philosophy, which they called their Cabbala, and among the latter innumerable corruptions of the Christian faith. The Alexandrian school is celebrated by Strabo, lib. xvii.; and by Ammianus, xxii. 6. *Brucker's History of Philosophy, by Enfield*, vol. i. p. 500.

At Alexandria there was, in a very early period of the Christian æra, a Christian school of considerable eminence. St. Jerome says, that a school at Alexandria had been in being from the time of St. Mark. Pantænus, placed by Lardner at the year 192, presided in it. St. Clement of Alexandria succeeded Pantænus in this school about the year 190; and he was succeeded by Origen. Lardner's Works, vol. ii. p. 203. The theological system of Plato was introduced into both the philosophical and Christian schools of Alexandria; and many of his sentiments and de-

pressions blended with the opinions and language of the professors.

In the year 638, Amrou, the general of Omar, invaded Egypt; and in the following year he commenced the siege of Alexandria. This siege is perhaps the most arduous and important enterprise in the annals of Saracen conquests. The first trading city in the world was abundantly replenished with the means of subsistence and defence. Her numerous inhabitants fought for the dearest of human rights, religion and property. The sea was continually open; and if Heraclius had been awake to the public distress, fresh armies of Romans and barbarians might have been poured into the harbour, to save the second capital of the empire. A circumference of ten miles would have scattered the forces of the Greeks, and favoured the stratagems of an active enemy; but the two sides of an oblong square were covered by the sea and the lake Mareotis, and each of the narrow ends exposed a front of no more than ten furlongs. The efforts of the Arabs, however, were not inadequate to the difficulty of the attempt. The faithful natives devoted their labours to the services of Amrou; and in every attack his sword and banner glittered in the van of the Moslems. The general, having been released from a temporary captivity, into which his imprudent valour had betrayed him, advanced towards the city doomed to destruction. At length, after a siege of fourteen months, and the loss of 23,000 men, the Saracens prevailed; the Greeks embarked their dispirited and diminished numbers; and the standard of Mahomet was planted on the walls of the capital of Egypt, December 22, A. D. 640. 'I have taken,' said Amrou to the caliph, 'the great city of the west. It is impossible for me to enumerate the variety of its riches and beauty; I shall content myself with observing, that it contains 4000 palaces, 4000 baths, 400 theatres, or places of amusement, 12,000 shops for the sale of vegetable foods, and 40,000 tributary Jews. The town has been subdued by force of arms, without treaty or capitulation, and the Moslems are impatient to see the fruits of their victory.' According to the Arabian historians, Alexandria, at this time, consisted of three cities, viz. Menna, or the port, which included Pharos and the adjacent parts; Alexandria, properly so called, where the modern Scanderia stands; and Nekita, or the Necropolis of Josephus and Strabo.

The intelligence of this disgraceful and calamitous event afflicted the declining health of the emperor, and Heraclius died of a dropsy about seven weeks after the loss of Alexandria. Under the minority of his grandson, the clamours of a people deprived of their daily sustenance, compelled the Byzantine court to undertake the recovery of the capital of Egypt. In the space of four years the harbour and fortifications of Alexandria were twice occupied by a fleet and army of Romans; who were twice expelled by the valour of Amrou. But the facility of the attempt, the repetition of the insult, and the obstinacy of the resistance, provoked him to swear, that if a third time he drove the infidels into the sea, he would render Alexandria as accessible on all sides as the house of a prostitute. Faithful to his promise, he dismantled several parts of the walls and towers, but the people were spared; and the mosch of mercy was erected on the spot where the victorious general stopped the fury of his troops. For the fate of the library, see ALEXANDRIAN LIBRARY.

Under the domination of the Arabs, Alexandria gradually lost its splendour. In the year 924 it was taken by the Magrebians, two years after the destruction by fire of its great church, called by the Arabs, Al Kaisaria, or Cæsarea, which had been formerly a Pagan temple, erected by queen Cleopatra, in honour of Saturn. The city was soon abandoned by the Magrebians, and in 928 the possession of it was again resumed. But when their fleet was afterwards defeated by that of the Caliph, the Magrebian general, Abul Kasem, retired from Alexandria, leaving in it a garrison of 300 men, who, with the remaining inhabitants, were removed by the Caliph's admiral, Thmaal, to an island in the Nile, called Aboukir. According to Eutychius, more than 200,000 of the wretched inhabitants perished this year.

In the year 875 the old walls had been demolished; its extent contracted to half its ancient dimensions, and those walls were built which exist at the present day. This second Alexandria, which may be called, says Savary, that of the Arabs, presented, by the disposition of its streets, the form of a chequer. It had preserved a part of its public places and of its monuments. The pharos still existed; and Alexandria, in its decline, still presented an air of grandeur and magnificence that excited admiration.

The dominion of the Turks, and the discovery of the Cape of Good Hope, in 1499, however, completed its ruin, and from that time it has fallen into decay. Its large buildings fell into ruins; and, under a government which discouraged even the appearance of wealth, no person could venture to repair them.

The present state of Alexandria affords a scene of magnificent ruin and desolation. It is divided into the new and old town; the latter of which is incomparably the most extensive. It is partly enclosed within walls, which are evidently of Saracenic structure, of great thickness and solidity, and flanked by a hundred towers. They are supposed, by Dr. Pocock, to have been built in 1212, by one of the successors of Saladin, who employed in them the wreck of the ancient city. Part of them is composed, in a singular manner, of a species of shelly concretions, so cemented together as to appear a simple composition. These walls are two French leagues, or nearly six miles in circumference; but the space which they enclose, forms only a small part of the ancient city of the Ptolemies, whose ruins can be distinctly traced over more than three times that circuit. Even of the enclosure within the walls, by much the greater part is composed of ruins. No traveller has described, in so lively a manner as Volney, the aspect of ancient Alexandria. 'In our country,' says he, 'ruins are an object of curiosity. Scarcely can we discover, in unfrequented places, some ancient

castle, whose decay announces rather the desertion of its master, than the wretchedness of the neighbourhood. In Alexandria, on the contrary, we no sooner leave the new town, than we are astonished at the sight of an immense extent of ground overspread with ruins. The earth is covered with the remains of lofty buildings destroyed; whole fronts crumbled down, roofs fallen in, battlements decayed, and the stones disfigured and corroded by saltpetre. The traveller passes over a vast plain, furrowed with trenches, pierced with wells, divided by walls in ruins, covered over with ancient columns and modern tombs, amid palm trees and nopals, and where no living creature is to be met with, but owls, bats, and jackals. The inhabitants, accustomed to this scene, behold it without emotion; but the stranger, in whom the recollection of ancient ages is revived oy the novelty of the objects around him, feels a sensation, which not unfrequently dissolves him into tears, inspiring reflections which fill his heart with sadness, while his soul is elevated by their sublimity.'

Amid this total wreck of ancient grandeur, a few objects only rise distinguishable through the surrounding desolation. Of these, the most remarkable by far is that called 'Pompey's Pillar.' All travellers have been struck with the loftiness and grandeur of this monument. Norden considers it as the finest column that the Corinthian order has ever produced, and Sonnini reckons it superior to any in the world. The height has been estimated at 117 feet, but appears, by more careful measurements, not to exceed ninety-four or ninety-five. It is composed of three pieces of the finest granite, one of which serves for the pedestal, the other for the shaft, and the third for the capital. The mean diameter is seven feet nine inches, so that the entire contents of the column may be estimated at 6000 feet. It is uninjured, unless in the pedestal and some part of the bottom of the shaft. Denon conceives the body of the column to be much the finest part of it; the capital, and still more the pedestal, he represents as of inferior workmanship. The name expresses the general belief, that it was erected by Cæsar, to commemorate his victory over Pompey; but this derivation seems very uncertain; and the opinions respecting its origin and date are exceedingly various. Denon imagines, that it formed only part of a more extensive building, the traces of which, in its vicinity, appeared to him distinctly visible.

In the space of two leagues enclosed by walls, nothing is to be seen but the remains of pilasters, of capitals, and of obelisks, and of whole mountains of shattered columns and monuments of ancient art, heaped one upon another, and accumulated to a greater height than that of the houses. The famous tower of Pharos has been long since demolished, and a square castle, without taste, ornament, or strength, called Farillon, erected in its place. The mole which joined the continent to the isle of Pharos is enlarged, and is now become a part of the main land. The island of Anti-Rhodes is in the middle of the present town, and is discoverable only by an eminence covered with ruins. The harbour Kibotos is choked up. The canal which conveyed the waters of Mareotis has disappeared. This lake itself, through the negligence of the Turks in preserving the canals which conveyed the waters of the Nile, is no longer in existence, but is entirely occupied by the sands of Lybia. The canal of Faoué, the only one which at present communicates with Alexandria, and without which that town could not subsist, since it has not a drop of fresh water, is half filled with mud and sand. Under the Roman empire, and even under the domination of the Arabs, it was navigable all the year, and served for the conveyance of merchandize. Its banks were shaded with date-trees, covered with vineyards, and adorned with country houses. At present it has no water till about the end of August, and its supply is hardly sufficient to fill the cisterns of the town. The fields adjoining to it are deserted; the groves and gardens which surrounded the ancient city have disappeared, and without the walls there are only a few scattered trees, some sycamores and fig trees, some date and caper trees, and kali, that hide the burning sands, which would be otherwise insupportable to the sight. Nevertheless, every trace of ancient magnificence is not obliterated. Some parts of the old walls are yet standing; and they are flanked with large towers, at the distance of about 200 paces from each other, and with smaller intermediate ones. Below are magnificent casemates, which may serve for galleries in which to walk. In the lower part of the towers is a large square hall, whose roof is supported by thick columns of Thebaic stone; and above this are several rooms, over which are platforms more than twenty paces square. The reservoirs, vaulted with much art, and extending under the whole town, are almost entire at the end of 2000 years. Of Cæsar's palace there remain only a few porphyry pillars, and the front, which is almost entire, and appears very beautiful. The palace of Cleopatra was built upon the walls facing the port, having a gallery on the outside, supported by several fine columns. Towards the eastern part of the palace are two obelisks, vulgarly called Cleopatra's Needles. They are of Thebaic stone, and covered with hieroglyphics; one is overturned, broken, and lying under the sand; the other is on its pedestal. These two obelisks, each of them of a single stone, are about sixty feet high, by seven feet square at the base. Towards the gate of Rosetta are five columns of marble, on the place formerly occupied by the porticoes of the Gymnasium. The rest of the colonade, the design of which was discoverable 100 years ago by Maillet, has been since destroyed by the barbarism of the Turks. The canal of the Nile, already mentioned, is about seventy paces from Pompey's pillar; and on the top of the hill is a tower, in which a centinel is placed, who gives notice by a flag, of the ships that are coming into port. On the sea-coast there is a large basin, cut out of the rock that forms the shore, having on its sides two beautiful saloons that are hewn out by the chissel, with benches across them. A canal of a ziz-zag form, for the purpose of stopping the progress of the sand by its different windings, conveys into them the water of the sea, pure and transparent as crystal. The water

rises a little above the waist, when a person is seated on the stone bench, and the feet rest on a fine sand The waves of the sea dash against the rock, and foam in the canal. The swell enters, raises you up, and leaves you; and thus alternately entering and retiring, furnishes a constant supply of fresh water, and a coolness, which is grateful and delicious under a burning sky. This place is vulgarly called the Bath of Cleopatra; and some ruins indicate its having been formerly ornamented.

A more useful, and even more magnificent labour, consisted in the reservoirs with which ancient Alexandria was supplied with water. The construction of these excavated the whole ground upon which that city stood. A conduit, communicating with the canal of Cleopatra, extended the whole length of the city. When this was judged to be filled with the overflowings of the Nile, the chiefs of the city went in great ceremony to open it, and admit the water into the cisterns. These reservoirs, which were formerly very numerous, are now reduced to half a dozen, which however are sufficient for the reduced consumption of the city.

The catacombs are a still more extraordinary monument; they begin at the extremity of the old city, and extend some distance along the coast, forming what was called the Necropolis, or city of the dead. They consist of small sepulchral grottoes, cut in the rock. The interior of the galleries is plastered by mortar. Most of these cavities have been the subject of discovery, and each has been found to contain three coffins piled over each other. The Arabs report, that there is a subterraneous communication between this quarter and the ancient city of Memphis; but this statement seems to require confirmation.

The modern Alexandria is built near the brink of the sea, on a kind of peninsula, situate between the two ports above mentioned. The new port assigned to Europeans, is clogged up with sand, which renders the entrance into it both difficult and dangerous, and, in the stormy weather, endangers the bulging of the ships; and the bottom is rocky, so that the cables soon chafe and part; and thus vessels are frequently driven against one another, and are sometimes lost. An instance of this happened in March, 1773, when more than forty vessels were dashed to pieces on the mole by a north-west gale. Similar accidents have also happened at different times; and under the Turkish government, which, as it is said, ruins the labours of past ages, and destroys the hopes of future time, no provision is likely to be made for preventing their occurring again. The other port, or the Eunostus of the ancients, to the westward of the Pharos, is called the port of Africa; it is much larger than the former, and lies immediately under part of the town of Alexandria. The new Alexandria, even in its state of decay, is still to Europeans the most interesting of the cities of Egypt. It is built chiefly along the coast, and occupies only a small portion of the space enclosed within the Saracenic walls. Alexandria, says a modern traveller, now exhibits very few marks by which it could be recognised as one of the principal monuments of the magnificence of the conqueror of Asia. Its houses, like all those of the Levant, have flat terraced roofs; the place of windows is supplied by apertures which themselves are almost entirely obstructed by a projecting wooden lattice, through which the light can scarcely penetrate. The streets, narrow and aukwardly disposed, have neither pavement nor police; the eye of the traveller is arrested by no public nor private edifice; and but for the ruins of the old city, there would be nothing to attract a moment's attention.

The population of modern Alexandria has been variously estimated. Some have carried it so high as 20,000, while others assert that the stationary numbers cannot exceed 5000; in addition to which, however, there is a continual resort of strangers from all quarters of the world. The basis of the population consists of Turks, Copts, and Jews. The Turks compose the officers of government and the garrison; the rest are chiefly artizans and shopkeepers, in easy circumstances, but few of whom carry on any extensive trade. The Copts are numerous, but held in contempt; a few of them only have acquired some wealth by commerce. But the mercantile transactions of Alexandria are almost entirely in the hands of the Jews. Although they pay a higher per centage to the custom-house than the European merchants, they yet find means to sell their goods cheaper. The customs being let in farm every two years, they agree with the farmer for a composition, which he is obliged to make favourable, otherwise the Jews would delay the greater part of their importations, till the end of his period. There are about twelve great Jew-merchants in Alexandria, who exercise a species of sovereignty over their countrymen, both by the extent of their capital and commercial transactions, and by becoming umpires in their disputes.

The commerce of Alexandria is still not inconsiderable; since it includes all which the European states carry on with Egypt. It was at first nearly monopolized by the Venetians and Genoese; but after the discovery of the Cape of Good Hope, their establishments rapidly declined, and fell at last into a state of total bankruptcy. The whole trade then fell into the hands of the French and the English. The former, previous to the revolution and the late war, carried it on to the greatest extent, and had a considerable number of merchants residing there. The approach to Alexandria from the west is attended with considerable difficulty, the Lybian shore being completely a dead flat, presenting no object that is perceptible at the smallest distance. A vessel, which has this shore to leeward, must keep a strict watch, as there is neither port nor road to afford any shelter. The first land-mark consists in two eminences, with a tower on each, called Aboukir, or by Europeans the Tower of the Arabs. The immediate approach to Alexandria is announced by the appearance of Pompey's pillar. There are two harbours, the old and the new. The former, though somewhat difficult of entrance, is safe, and affords sufficient depth of water. Unfortunately, it is considered too sacred to be entered by any but the disciples of

Mahomet. Christians are obliged to content themselves with the new harbour, which is shallow, has a rocky bottom, and is exposed to the north wind, which often blows with great violence.

Volney describes Alexandria as wholly unable to resist any attack; and, accordingly, on the landing of the French, it surrendered without striking a blow. They seem, however, to have been industrious in placing it in a state of defence, and so far succeeded, that the English, in 1801, after gaining two victories in front of it, did not venture to attack the city, but turned their arms against Cairo, the reduction of which led to the general evacuation of Egypt. Alexandria, however, was taken by the English in 1806, without difficulty, though it did not remain long in their possession. Long. 30°. 5′. E. Lat. 31°. 16′. N.

The language spoken at Alexandria is the Arabic; but most of the Alexandrians, and those in particular whom commerce leads into an intercourse with the merchants of Europe, speak likewise the Italian. The moresco or lingua franca, which is a compound of bad Italian, Spanish, and Arabic, is likewise spoken in this place. The government of Alexandria is like that of other places in Egypt; and is conducted by an aga, who has under him a kadi and subbasha, all nominated by the chief basha. It has a small garrison of soldiers, part of which are Janissaries and Assaffs; who are haughty and insolent, not only to strangers, but to the mercantile and industrious part of the people. These are lodged in the farillons or castles that guard the port, where the aga or governor that commands them also resides. But though the Pharos, according to established regulations, ought to be garrisoned by 500 janissaries, it has never half that number; and not more than four canons for its defence. The whole of the fortifications might easily be beaten down by a single frigate; but a foreign army would experience great difficulty in maintaning possession of Alexandria for want of water. Alexandria was taken by assault on the fourth of July, 1798, by the French army under the command of Buonaparte, at that time prime consul of France; after putting to flight the Arabs and Mamalukes who defended it, and killing about 300 of them. The troops that were left in possession of the town, when the army began its march across the desert, having been forbidden, under penalty of death, from entering the houses or mosques of the Turks, or committing any violence on their persons, or those of their families, built huts of palm-branches without the city, to shelter themselves from the sun. The men of science, who accompanied the army, were lodged in the houses of the few Europeans resident at Alexandria; but a dozen of them were crowded together in one chamber, under the heat of a torrid climate. Miserably supplied both with food and water, molested with the stings of insects, and surrounded with filth and wretchedness, they at the same time contemplated, in a city once renowned for industry, commerce, and activity, nothing but ruins, barbarism, and poverty; stupid-looking citizens, with long pipes, indolently sitting in the public places; half starved and naked children, and the forms of bare-footed women, in blue serge gowns, and [illegible] stuff veils, flying the approach, or turning away with precipitation, whenever they met a Frenchman. The French beheld every where monuments of antiquity, but every where mutilated: pillars of granite, inscribed with Egyptian hieroglyphics, strewed the streets, or divided by the saw, served for their holds and benches; marble and porphyry bases and capitals, baths and catacombs, were found in ruins, with nothing entire but a bath of black granite, destined for the Museum of Paris; the pillar of Pompey, and the obelisk of Cleopatra, which were yet in perfect preservation.

The christian zeal against all the idols of the heathen world was exercised so unsparingly at Alexandria, at the close of the fourth century, as to produce the greatest public disorders. The temple of Serapis was converted into a church to the honour of the martyrs; and over the tomb of Alexander, a christian church is said to have been erected to the memory of St. Athanasius, that distinguished relic itself being conveyed into a cistern. On the conquest of Alexandria by the Saracens, happily, as Dr. Clarke thinks for the identity of this monument, the church only changed its name for the mosque of St. Athanasius: and the fame of the founder of the city, throughout the eastern world, was naturally transferred to his tomb. Celebrated in many eastern writings, as 'the lord of the two ends of the world,' 'the king of kings,' &c.; for ages reverenced as a god by the Egyptians, and spoken of with distinction in the Koran, the veneration now paid to this relic of Alexander seems to have been uninterrupted for centuries. Benjamin, of Toledo, a Spanish Jew, who visited Alexandria in the thirteenth century, speaks of 'a marble sepulchre, on which were sculptured all sorts of birds, and other animals, with an inscription of the ancients which no one can read:' but 'they have a conjecture,' he adds, 'that some king, before the deluge, was buried there; the length of which sepulchre was fifteen spans, the breadth six.' Johannes Leo, in 1517, expressly mentions 'a small edifice, built like a chapel, worthy of notice, on account of a remarkable tomb, held in high honour by the Mahommedans; in which sepulchre, they assert, is interred the body of Alexander the Great, an eminent prophet and king, as they read in the Koran.' We now trace it through the testimony of Marmol, the Spaniard; Jahai Ben Abdallatiff (1270); Sir George Sandys, in 1611; the reports and enquiries of Dr. Pococke, in 1737; Irwin, Sonnini, Brown, and Denon. Through a period of upwards of 2000 years, it is thus attempted to be shown, that the shrine of the son of Ammon has survived himself. Several objections are still taken by antiquaries, however, against the conclusions of our enterprising traveller: that there should not be a single Greek inscription on this alleged tomb of the greatest of the Greeks: that Eutychius, who composed, at Alexandria 'Annals of that City in the Tenth Century,' should mention the body of Alexander being brought here, without stating, that his tomb remained: the silence of

Furer, Boucher, Vansleb, and Niehbuhr, are circumstances that have been thought to weigh strongly against its claims; but, in conformity with our general principle, of furnishing an impartial record of such opinions (and, because, we are rather among the unbelievers, than the converts, of Dr. C.'s arguments, we have given them the more fully,) we have now placed the whole of this interesting enquiry before the reader; and must leave the decision upon the claims of this monument to the further light that may be thrown on its numerous hieroglyphics, and—himself.

When the blockade of the port, by the English fleet, after the famous battle of Aboukir, cut off the communication with Rosetta, and the supply of water was thus impeded, Buonaparte caused the canal, which led from Rhamania to Alexandria, across a desert of forty miles, to be cleansed; by which means, not only this city received a larger supply of water and provisions, but the artillery was conveyed expeditiously and conveniently, by water, to the general deposit at Gisa. Buonaparte also drew plans for the better defence of the port of Alexandria, and the city of Cairo; formed a great establishment for the mechanical arts; and, with the concurrence of the scientific men who attended him, formed a national academy, called the Institute. In the year 1801 Alexandria was taken by the English army, under the command of general Hutchinson, the news of which was announced soon after the preliminaries of peace between England and France were signed, by the respective agents of the two countries; by one article of which, Egypt is to be delivered up to the Sublime Ottoman Porte. The symbols employed by the Alexandrians on their medals, were, the ibis, Hippopotamus, ears of corn, the lion, and others, which were common to the whole country, or to Africa.

A medal of Adrian represents Alexandria in the form of a woman, sitting on the ground, having, on her right side, and at her feet, ears of corn, and resting on a basket full of fruits. *Goltz. Numm. Imperat.*

Alexandria is situated in N. lat. 31°. 11′. 20″. E. long. 30°. 16′. 30″.—*Nautical Almanac.* According to *Bruce's Travels*, vol. i, p. 16, N. lat. 31°. 11′. 32″. E. long. 30°. 17′. 30″. *Anc. and Mod. Un. Hist. Rollin's Anc. Hist. Savary's Letters on Egypt*, vol. i. letter 2. *Sonnini's Travels through Upper and Lower Egypt. Gibbon's Decline, &c of the Rom. Emp.*

ALEXANDRIA was also a name given to several other cities, viz. a city of Arachosia, on the river Arachotus, the Alexandropolis of Isidore, (Stephanus); thought by some to be the modern Cabul:—another of Gedrosia, both built by order of Alexander the Great, Pliny, H. N. lib. vi. c. 23.—A third of Aria, near the lake Arius, according to Ptolemy; but, according to Pliny, lib. vi. c. 23, on the river Arius, built by Alexander, who settled a colony of Macedonians there, Strabo, lib. xv.; Ammianus, lib. 22.—A fourth in Bactriana, so called, according to Pliny, lib. vi. c. 23, from its builder.—A fifth, an inland town of Carmania, built by Alexander, and mentioned by Ptolemy, Ammianus, and Pliny.—A sixth, in the country of the Dahæ, in Sogdiana, Isidorus Characenus.—A seventh, in India, at the confluence of the Acesines and Indus, Arrian, lib. v. c. 15.—An eighth, built by Alexander the Great, between Issus and the straits which lead from Cilicia into Syria, called also Alexandretta, and now Scanderoon.—A ninth, in Margiana, built by Alexander, and rebuilt (after it was demolished,) by Antiochus, the son of Seleucus, and hence called Antiocha of Syria; and also Seleucia, watered by the river Mergus; seventy stadia in circuit, according to Pliny, lib. vi. c. 16; who adds, that, after the defeat of Crassus, Orodes conveyed the captives to this place.—A tenth, of the Oxiana, in Sogdiana, built by Alexander, on the Oxus, near the confines of Bactria, Pliny, lib. vi. c. 16.—An eleventh, built by Alexander, at the foot of Mount Paropamisus, which was called Caucasus, Pliny, lib. vi. c. 23.—A twelfth, in Troas, called also Troas and Antigonia, built by Alexander, in commemoration of Troy; Antigonus, one of his lieutenants, laid the foundations of it, and gave his name to the city; but the name of Alexander was restored by Lysimachus, who afterwards embellished, and extended it. It became, under Augustus, one of the handsomest cities of the east. Under Adrian, Herodes Atticus constructed a superb aqueduct, some traces of which are still visible. The walls of the city, houses, temples, and other monuments, are built of a hard shelly stone. The marble of Paros, and that of Marmora, also several sorts of granite, are common here. Near the rivulet, to the south of the city, are two springs of mineral water, resorted to by the Turks and Greeks, recommended for disorders of the skin, the leprosy, and syphilis. The harbour, of narrow extent, is almost choked up with sand. History does not mention the epoch in which this city was destroyed; but it was before the Turks established themselves in this country. The environs present a fruitful soil, forming a plain, in which the velani oak grows without culture. The ruins of this city are six leagues to the south of Cape Sigæum. Olivier's Travels, &c. vol. ii. p. 46.—A thirteenth, Alexandria, built by Alexander, on the Jaxartes, bounding his victories towards Scythia.—A fifteenth, in Adiabene, mentioned by Pliny; and, as Hardouin suggests, designed to perpetuate the remembrance of the defeat of Darius.—A sixteenth, on the northern coast of the island of Cyprus, south of the promontory of Callinusa.—A seventeenth, in Palestine, on the river Scham, and near the sea, to the south of Tyre.

ALEXANDRIA, or ALESSANDRIA, surnamed Della Paglia, because the inhabitants use stubble for fuel, instead of wood; or, because the Germans contemptuously called it Palearis, or a fortress of straw, a city of Italy, in the district of Alexandrin, or Alessandrino, belonging to the duchy of Milan. It has a castle, and is situated in a marshy country, on the river Tenaro. It was built in honour of pope Alexander III. in 1170, and is said to have 12,000 inhabitants. By this pope, it was made a bishopric, suffragan of Milan, with several privileges annexed. The

citadel is strong, but the fortifications are indifferent. It was ceded to the duke of Savoy, in 1703; taken by prince Eugene, after three days siege, 1706; by the French, in 1745; and retaken by the king of Sardinia, in 1746, to whom by the treaty of Utrecht it belongs. It is thirty-eight miles east of Turin, and thirty-seven south-south-west of Milan. N. lat. 44°. 48′. E. long. 8°. 39′.

ALEXANDRIA, in modern geography, the principal Russian settlement in the Aleutian islands, and the residence of the governor on the island of Kodiak. The harbour is excellent and capacious, being sheltered by several small islands lying to the south-west. Alexandria consists of about fifty houses built of logs, the rooms of which are caulked with moss, and covered with grass. This is the principal depôt belonging to the Russian African company, and where the furs are collected. The town is called St. Paul by captain Lisiansky. It contains a church, a barrack for the Russian convicts, a school, and several store-houses belonging to the North-West Company.

ALEXANDRIA, in North America, a town of Virginia, on the south bank of the river Potowmak. The situation is elevated and pleasant, and the streets are laid out regularly upon the plan of Philadelphia. It is situated [illegible] north from Richmond, and contains upwards of 300 houses, many of which are elegant; population is rapidly increasing. Long. 77° W. Lat. 38°. 30′. N.

ALEXANDRIA, (Patriarch of,) in ecclesiastical history. See PATRIARCH.

ALEXANDRIAN, in a particular sense, is applied to all those who professed or taught the sciences in the school of Alexandria.

Thus, Clemens is called Alexandrinus, or the Alexandrian, though some say he was born at Athens: the same epithet is applied to [illegible] born at Oasis; and to Aristarchus, by birth a Samothracian. The chief Alexandrian philosophers were, Euclid, the famous geometrician; two ancient astronomers, Aristillus and Timocharis; Eratosthenes, Apollonius Pergæus, Hipparchus, Ctesibius, Heron, Possidonius, Pappus, Theon, Hypathia, the daughter of Theon, Ptolemy; and Philoponus and Dalmatius, the last mathematicians of this school. To these may add, Ammonius, Plotinus, Origen, Porphyry, Jamblichus, Sopater, Maximus, and Dexippus.

ALEXANDRIAN is more particularly used for a stood of a college of priests, consecrated to the vice of Alexander Severus, after his deification

ALEXANDRIAN COPY.

ALEXANDRIAN COPY, is a manuscript, consisting of four volumes, in a large quarto, or rather folio size, containing the whole Bible in Greek, including the two Testaments and the Apocrypha. 'Of the few manuscripts known to be extant,' says an intelligent author, 'which contain the Greek scriptures, (that is the Old Testament according to the Septuagint version, and the New Testament;) there are two which pre-eminently demand the attention of the biblical student, for their antiquity and intrinsic value, viz.:—the Alexandrian manuscript which is preserved in the British Museum, and the Vatican manuscript, deposited in the library of the Vatican palace at Rome.'

The Codex Alexandrinus, noted by the letter A. in Wetstein's and Griesbach's critical editions of the New Testament, includes within the three first volumes the books of the old Testament and the Apocrypha. In the fourth volume are found, the New Testament, the first epistle of Clement to the Corinthians, and the Apocryphal Psalms ascribed to Solomon. In the New Testament are wanting the beginning as far as Matthew xxv. 6, ὁ νυμφιος ερχεται; likewise from John vi. 50, to viii. 52; and from 2 Cor. iv. 13, to xii. 7. The Psalms are preceded by the epistle of Athanasius to Marcellinus, and followed by a catalogue containing those which are to be used in a prayer for each hour, both of the day and the night; also by fourteen hymns, partly apochryphal, partly biblical, the eleventh of which is a hymn, in praise of the Virgin Mary, entitled προσευχη Μαριας της θεοτοκε. The arguments of Eusebius are annexed to the Psalms and his canons to gospels.

This manuscript is now preserved in the British Museum, where it was deposited [illegible] It was sent as a present to king Charles I. by Cyrillus Lucaris, a native of Crete, and patriarch of Constantinople, by Sir Thomas Roe, ambassador from England, to the grand seignior in the year 1628. Cyrillus brought it with him from Alexandria, where, probably, it was written.

In a schedule, annexed to it, he gives an account: that it was written, as tradition informed him, by Thecla, a noble Egyptian lady, [illegible] thirteen hundred years ago, a little after the council of Nice. He adds, that the name of Thecla, at the end of the book, was erased; that this was the case with other books of the Christians, after christianity was extinct in Egypt by the Mahommedans: and that the tradition records the fact of the laceration or erasure of Thecla's name. The proprietor of this manuscript, before it came into the hands of Cyrillus Lucaris, had written an Arabic inscription, expressing that this book was said to have been written with the pen of Thecla the martyr. Various disputes have arisen with regard to the place whence it was brought, and where it was written, to its antiquity, and of course, to its real value. Some critics have bestowed upon it the highest commendation, while it has been equally depreciated by others. Of its most strenuous adversaries, Wetstein seems to have been the principal. The place and

which it was sent to England was, without doubt, Alexandria, and hence it has been called Codex Alexandrinus. As to the place where it was written, there is a considerable difference of opinion. Matthæus Muttis, who was a cotemporary, friend, and deacon of Cyrillus, and who afterwards instructed in the Greek language John Rudolph Wetstein, uncle to the celebrated editor of the Greek Testament, bears testimony, in a letter written to Martin Bogdan, a physician in Bern, dated January 14, 1664, that it had been brought from one of the twenty-two monasteries in mount Athos, which the Turks never destroyed, but allowed to continue upon the payment of tribute. Dr. Woide endeavours to weaken the evidence of Muttis, and to render the testimony of the elder Wetstein suspicious: but Spohn, in his Notitia Codicis Alexandrini, p. 10—13, shews, that the objections of Woide are ungrounded. Allowing their reality, we cannot infer that Cyrillus found this manuscript in Alexandria. Before he went to Alexandria, he spent some time on Mount Athos, the repository and manufactory of manuscripts of the New Testament, whence a great number have been brought into the west of Europe, and a still greater number have been sent to Moscow. It is therefore probable, independently of the evidence of Muttis, that Cyrillus procured it there either by purchase or by present, took it with him to Alexandria, and brought it thence on his return to Constantinople. But the question recurs, where was this copy written? The Arabic subscription above cited clearly proves that it had been in Egypt, at some period or other, before it fell into the hands of Cyrillus. This subscription shews that it once belonged to an Egyptian, or that during some time it was preserved in Egypt, where Arabic has been spoken since the seventh century. Besides, it is well known that a great number of manuscripts of the Greek Bible have been written in Egypt. Woide has also pointed out a remarkable coincidence between the Cod. Alex. and the writings of the Copts. Michaelis alleges another circumstance as a probable argument of its having been written in Egypt. In Ezekiel xxvii. 18, both in the Hebrew and Greek text, the Tyrians are said to have fetched their wine from Chelbom, or, according to Bochart, Chalybon. But as Chalybon, though celebrated for its wine, was unknown to the writer of this manuscript, he has altered it by a fanciful conjecture to οινον εκ Χεβρων, wine from Hebron. This alteration was probably made by an Egyptian copyist, because Egypt was formerly supplied with wine from Hebron. The subscription, before mentioned, ascribes the writing of it to Thecla, an Egyptian lady of high rank, who could not have been, as Michaelis supposes, the martyress Thecla, placed in the time of St. Paul: but Woide replies that a distinction must be made between Thecla martyr, and Thecla proto-martyr.

With regard to these subscriptions we may observe, with a learned writer (Bp. Marsh), that the true state of the case appears to be as follows: 'Some centuries after the Codex Alexandrinus had been written, and the Greek subscriptions, and perhaps those other parts where it is more defective, already lost, it fell into the hands of a Christian inhabitant of Egypt, who, not finding the usual Greek subscription of the copyist, added in Arabic, his native language, the tradition, either true or false, which had been preserved in the family or families to which the manuscript had belonged, 'Memorant hunc codicem scriptum esse calamo Theclæ martyris.' In the 17th century, when oral tradition respecting this manuscript had probably ceased, it became the property of Cyrillus Lucaris; but whether in Alexdria, or Mount Athos, is of no importance to the present enquiry. On examining the manuscript, he finds that the Greek subscription is lost, but that there is a tradition recorded in Arabic by a former proprietor, which simply related that it was written by one Thecla a martyress, which is what he means by 'memoria et traditio recens.' Taking therefore upon trust, that one Thecla the martyress was really the copyist, he consults the annals of the church to discover in what age and country a person of this name and character existed, finds that an Egyptian lady of rank, called Thecla, suffered martyrdom between the time of holding the council of Nice, and the close of the fourth century; and concludes, without further ceremony, that she was the very identical copyist. Not satisfied with this discovery, he attempts to account for the loss of the Greek subscription, and ascribes it to the malice of the Saracens; being weak enough to believe that the enemies of Christianity would exert their vengeance on the name of a poor transcriber, and leave the four folio volumes themselves unhurt. Woide, who transcribed and published this manuscript, and must be better acquainted with it than any other person, asserts, that it was written by two different copyists; for he has observed a difference in the ink, and, which is of greater moment, even in the strokes of the letters. The conjecture of Oudin, adopted by Wetstein, that the manuscript was written by an Acœmet is, in the judgment of Michaelis, worthy of attention, see ACOEMETÆ, and he adds, that this conjecture does not contradict the account that Thecla was the copyist, since there were not only monks but nuns of this order.

The antiquity of this manuscript has been also the subject of controversy. Grabe and Schulze think that it might have been written before the end of the fourth century, which, says Michaelis, is the very utmost period that can be allowed, because it contains the epistles of Athanasius. Oudin places it in the tenth century. Wetstein refers it to the fifth, and supposes that it was one of the manuscripts collected at Alexandria in 615, for the Syriac version. Dr. Semler refers it to the seventh century. Montfaucon is of opinion, that neither the Cod. Alex. nor any Greek manuscript, can be said with great probability to be much prior to the sixth century. Palæog. Græc. i. p. 185. Michaelis apprehends, that this manuscript was written after Arabic was become the native language of the Egyptians, that is, one, or rather two centuries after Alexandria was taken by the Saracens, which happened in the year 640, because the transcriber frequently confounds M. and B. which is often done in the Arabic: and

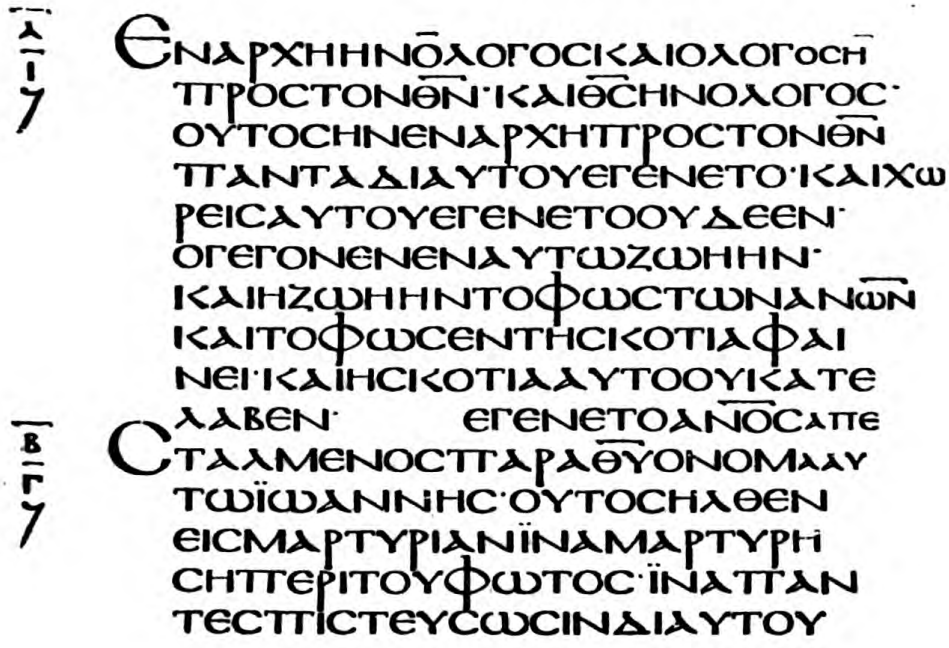
he concludes, that it is not more ancient than the eighth century. Woide, after a great display of learning (with which he examines the evidence for the antiquity of the Cod. Alex.) concludes, that it was written between the middle and the end of the fourth century. It cannot be allowed a greater antiquity, because it has not only the τιτλοι or κεφαλαια majora, but the κεφαλαια minora, or Ammonian sections, accompanied with the references to the canons of Eusebius. Woide's arguments have been objected to by Spohn, in p. 42—109, of his edition of Woide's Notitia Codicis Alexandrini. Some of the principal arguments advanced by those who refer this manuscript to the fourth or fifth centuries are: that the epistles of St. Paul are not divided into chapters like the gospels, though this division took place so early as 396, when to each chapter was prefixed a superscription. The Cod. Alex. has the epistles of Clement of Rome; but these were forbidden to be read in the churches, by the council of Laodicea, in 364, and that of Carthage, in 419. Hence Schulze has inferred, that it was written before the year 364; and he produces a new argument for its antiquity, deduced from the last of the fourteen hymns found in it after the psalms, which is superscribed υμνος εωθινος, and is called the grand doxology; for this hymn has not the clause αγιος ο θεος, αγιος ισχυρος, αγιος αθανατος, ελεησον ημας, which was used between the years 434 and 446; and therefore the manuscript must have been written before this time. Wetstein thinks that it must have been written before the time of Jerome, because the Greek text of this manuscript was altered from the old Italic. He adds, that the transcriber was ignorant that the Arabs were called Hagarenes, because he has written, 1 Chron. v. 20. αγοραιοι for Αγαραιοι. Others allege that αγοραιοι is a mere erratum; because Αγαραιων occurs in the preceding verse, Αγαριτης in 1 Chron. xxvii. 31, and Αγαρηνοι in Ps. lxxxii. 7. These arguments, says Michaelis, afford no certainty, because the Cod. Alex. must have been copied from a still more ancient manuscript; and, if this were faithfully copied, the arguments apply rather to this than to the Alexandrian manuscript itself. It is the hand-writing alone, or the formation of the letters, with the want of accents, which can lead to any probable decision. The arguments alleged to prove that it is not so ancient as the fourth century, are such as these. Dr. Semler thinks that the epistle of Athanasius, on the value and excellency of the Psalms, would hardly have been prefixed to them during his life. But it ought to be recollected, that Athanasius had many warm and strenuous advocates. From this epistle Oudin has attempted to deduce an argument, that the manuscript was written in the tenth century. This epistle, he says, is spurious, and could not have been forged during the life of Athanasius, and the tenth century was fertile in spurious productions. Again, the Virgin Mary, in the superscription of the song of the Blessed Virgin, is stiled θεοτοκτος, a name which Wetstein says betrays the fifth century. Further, from the probable conjecture, that this manuscript was written by one of the order of the Acœmetæ, Oudin concludes against its antiquity; but Wetstein contents himself with [illegible] that it could not have been written [illegible] fifth century, because Alexander, who [illegible] this order, lived about the year 420. [illegible] statement, pursued more at large, Mi[illegible] duces a reason for paying less deference [illegible] Cod. Alex. than many eminent critics [illegible] and for the preference that is due in many [illegible] spects, to ancient versions, before any single [illegible] nuscript, because the antiquity of the [illegible] which is in general greater than that of the [illegible] ter, can be determined with more precision.

The value of this manuscript has been [illegible] ferently appreciated by different writers. [illegible] stein, though he denotes it by A, the first [illegible] of the alphabet, is no great admirer of it; [illegible] does Michaelis estimate it highly, either on [illegible] count of its internal excellence or the value [illegible] its readings. The principal charge which [illegible] been produced against the Alexandrian manu[illegible] script, and which has been strongly urged [illegible] Wetstein, is its having been altered from the [illegible] tin version. It is incredible, says Michaelis, [illegible] once agreed in opinion with Wetstein, but [illegible] occasion to alter his sentiments, that a transcriber [illegible] who lived in Egypt, should have altered [illegible] Greek text from a Latin version, because [illegible] belonged to the Greek diocese, and Latin [illegible] not understood there. On this subject Wetstein [illegible] has eminently displayed his critical abilities, [illegible] ably defended the Greek manuscripts in general [illegible] and the Codex Alexandrinus in particular, [illegible] the charge of having been corrupted from the [illegible] tin. Griesbach, in his Symbolæ Criticæ, vol. [illegible] p. 110—117, concurs with Woide; and [illegible] have contributed to confirm Michaelis in his [illegible] opinion. If this manuscript has been corrupted [illegible] from a version, it is more reasonable to suspect the Coptic, the version of the country in which it was written. Griesbach has observed, that this manuscript follows three different editions: the Byzantine in the gospels, where its readings are of the least value; the western edition in the Acts of the Apostles, and the Catholic Epistles, which form the middle revision of this manuscript; and the Alexandrian in the Epistles of St. Paul. The transcriber, if this assertion be true, must have copied the different parts of the Greek Testament from three different manuscripts, of three different editions. It is observable, that the readings of the Cod. Alex. coincide very frequently, not only with the Coptic and the old Syriac, but with the new Syriac and the Ethiopic; and this circumstance favours the hypothesis, that the manuscript was written in Egypt, because the new Syriac version has been collated with Egyptian manuscripts of the Greek Testament, and the Ethiopic version having taken immediately from them, have necessarily the readings of the Alexandrian edition.

This manuscript has neither accents nor marks of aspirations; it is written with capital letters, as they are called, uncial letters; and there are no intervals between the words, but the sense of the passage is sometimes terminated by a point, sometimes by a vacant space. Although the abbreviations are not very numerous, yet this manuscript abbreviates ανθρωπος, δαβιδ, ιησους, ισραηλ, κυριος, μητηρ, πατηρ, σωτηρ, σταυρος

ρος,σωτηρ, νιος, χριστος; and it has also other marks of abbreviation. Dr. Semler supposes, that the more ancient manuscripts from which the Cod. Alex. was copied, had a much greater number; from a false method of decyphering which marks, he explains many errors committed by the copyist of the latter. (See note thirty-three to Wetstein's Prolegomena). Of these abbreviations, and the points annexed to certain letters, which before appeared unintelligible; and of the large initial letters, which are sometimes placed in a very extraordinary manner; and of other particulars, an account may be seen in Woide's Preface, who has given an accurate description of the manuscript in general. No manuscript has been more frequently and more accurately collated; and it was supposed, that the last extracts, made by Wetstein, would have rendered future labours of this kind superfluous; but Woide informs us, that Wetstein is chargeable with several omissions and errors, and has admitted into his collection of readings the mistakes of Mill. We are now in possession of a perfect impression of this manuscript, accompanied with so complete and so critical a collection of various readings, as is hardly to be expected from the edition of any other manuscript. Dr Woide, principal librarian of the British Museum, published it in 1786, with types cast for the purpose, line for line, without intervals between the words, as in the manuscript itself: the copy, whose title is 'Novum Testamentum Græcum é Codice MS. Alexandrino qui Londini in Bibliotheca Musei Britannici asservatur descriptum. Alarolo Godofredo Woide. Londini exprelo Joannis Nichols Typis Jacksonianis MDCCLXXXVI,' is so perfect a resemblance of the original, that it may supply its place. It is a very splendid folio. Twelve copies were printed on vellum. The fac-simile itself fills 260 pages, and the preface, comprising twenty-two pages, contains an excellent description of the manuscript. It is illustrated by an engraving which represents the style of writing in various manuscripts; to this is subjoined an exact list of all its various readings, in eighty-nine pages, and each reading is accompanied with a remark, giving an account of what his predecessors, Junius (i. e. Patrick Young), Bishop Walton, Doctors Mill, and Grabe, and Wetstein, had performed or neglected. To complete this work, however, the following should be added:— Appendix ad editionem Novi Testamenti Græci, e Codice Alexandrino descripti a C. G. Woide, in qua continentur Fragmenta Novi Testamenti juxta interpretationem dialecti superioris Ægypti quæ Thebaica vel Sahidica appellatur, e Codd. Oxoniens. maxima ex parte desumpta cum dissertatione de Versione Bibliorum Ægyptiaca, quibus subjicitur Codicis Vaticani collatio. Oxonii: E. Typographeo Clarendoniano, 1799, folio. This work was edited by the Rev. Dr. Ford. The following specimen of the first seven verses of St. John's Gospel, will convey to the reader an idea of this manuscript; and we have to acknowledge the politeness of the Rev. T. H. Horne, in favouring us with his types, taken from those of the Rev. H. Baber, on this occasion.

FAC-SIMILE OF THE ALEXANDRIAN MANUSCRIPT.



In 1812 the Rev. H. H. Baber, one of the librarians of the British Museum, published, by subscription, a fac-simile of the book of Psalms, from the manuscript now under consideration of which twelve copies are on vellum, to match with the copies of the New Testament. To complete the Old Testament in a similar manner, the British Parliament, at the recommendation of several church dignitaries, and the two universities, engaged to defray the expenses of completing this noble undertaking. The Pentateuch, and the notes belonging, we understand, were published at the price of seven guineas. The work is executed in a splendid folio size, so as to render every iota of the original manuscript in the most faithful manner. The better to preserve the identity of the original, instead of spinning out the contracted various readings in the margin by letters in the full, after the manner of Dr. Woide, fac-similes of such various readings, cut in wood, are inserted precisely in the places where they occur, filling up only the same space with the original. The tail pieces, or rude Arabesque ornaments, at the end of each book, are also represented by fac-similes in wood. The edition is limited to 250 copies. For further information concerning the Alexandrian manuscript, the reader is referred to Dr. Grabe's Prolegomena, in his edition of the Greek Septuagint, and the Prolegomena of Dr. Woide; also to those of Dr. Mill and Wetstein, prefixed to their editions of the New Testament; also Michaelis's Introduction to the New Testament, vol. ii. p. i. pp. 186—209. Bishop Marsh's notes in part ii. pp. 648—660. Dr. Lardner has given the table of contents of this manuscript, in his credibility of the Gospel History, part ii. chap. 147. (Works, 8vo. vol. v. pp. 253—256. 4to. vol. iv. pp. 44—46.)

Alexandrian Library, called by Livy, 'Elegantiæ regum curæque egregium opus,' was first founded by Ptolemy Soter, for the use of an academy, or society of learned men, in A. D. 304. Beside the books which he procured, his son Ptolemy Philadelphus added many more, and left in this library at his death a hundred thousand volumes; the succeeding princes of this race enlarged it still more, till at length the books lodged in it amounted to the number of seven hundred thousand volumes. In the collection of these books they are said to have seized all books that were brought by the Greeks, and other foreigners, into Egypt, and to have sent them to the Academy, or Museum, where they were transcribed by persons employed for that purpose. The transcripts were then delivered to the proprietors, and the originals laid up in the library. Ptolemy Euergetes, having borrowed of the Athenians the works of Sophocles, Euripides, and Æschylus, only returned them the copies, which he caused to be transcribed in as beautiful a manner as possible; retaining the originals for his own library, and presenting the Athenians with fifteen talents, or three thousand pounds sterling, for the exchange. As the Museum was at first in the quarter of the city called Bruchion, the library was placed there; but when the number of books amounted to four hundred thousand volumes, another library was erected within the Serapeum, by way of supplement, and therefore called the daughter library. The books lodged in this increased to the number of 300,000 volumes, and the two, making up 700,000, formed the royal libraries of the Ptolemies. In the war which Julius Cæsar waged with Alexandria, the library of Bruchion was accidentally burnt. But the library in the Serapeum still remained, and there Cleopatra deposited the two hundred thousand volumes of the Pergamean library, with which she was presented by Marc Antony. These, and others added to them from time to time, rendered the library of Alexandria more numerous and considerable than at any former period, and though plundered more than once during the revolutions which happened in the Roman empire, yet it was as frequently supplied, and continued for many ages to be of the highest utility, till it was burnt by the Saracens in the 642nd year of the Christian æra. Abulpharagius, in his history of the tenth dynasty, gives the following account of this catastrophe. John Philoponus, surnamed the Grammarian, a famous Peripatetic philosopher, being at Alexandria when the city was taken by the Saracens, was admitted to familiar intercourse with Amrou, the Arabian general, and presumed to solicit a gift, inestimable in his opinion, but contemptible in that of the barbarians; and this was the royal library. Amrou was inclined to gratify his wish, but his rigid integrity scrupled to alienate the least object without the consent of the caliph. He accordingly wrote to Omar, whose well known answer was dictated by the ignorance of a fanatic. 'If these writings of the Greeks agree with the Koran, or book of God, they are useless, and need not be preserved; if they disagree, they are pernicious, and ought to be destroyed.' The sentence of destruction was executed with blind obedience; the volumes of paper or parchment were distributed to the four thousand baths of the city; and such was their number, that six months were barely sufficient for the consumption of this precious fuel. Since the dynasties of Abulpharagius have been given to the world in a Latin version, this tale, as Mr. Gibbon, Hist. vol. ix. p. 440., calls it, has been repeatedly transcribed; and every scholar has deplored this irreparable wreck of learning, arts, and antiquities, 'For my own part,' says this historian, adopting the scepticism of Renaudot, Hist. Alex. Patriarch, p. 170, 'I am strongly tempted to deny both the fact and the consequences; the fact is indeed marvellous.' 'Read and wonder!' says the historian himself; 'and the solitary report of a stranger who wrote at the end of six hundred years in the confines of Media, is overbalanced by the silence of two annalists of a more early date, both Christians, both natives of Egypt, and the most ancient of whom, the patriarch Eutychius, has amply de-

scribed the conquest of Alexandria. But this curious anecdote will be vainly sought in the annals of Eutychius, and the Saracenic history of Elmacin. The silence of Abulfeda, Murtadi, and a crowd of Moslems, is less conclusive from their ignorance of Christian literature. The rigid sentence of Omar is repugnant to the sound and orthodox precept of the Mahommedan casuists: they expressly declare, 'that the religious books of the Jews and Christians, which are acquired by the right of war, should never be committed to the flames; and that the works of profane science, historians or poets, physicians or philosophers, may be lawfully applied to the use of the faithful.' Reland de Jure Militari Mohammedanorum, in the third volume of Dissertations, p. 37. The reason for not burning the religious books of the Jews or Christians, is derived from the respect that is due to the name of God. However, the positive evidence of an historian, of such unquestionable credit as Abulpharagius, cannot be set aside by an argument merely negative. Mr. G. acknowledges, 'that a more destructive zeal may perhaps be attributed to the first successors of Mahomet.' His reference to A. Gellius, Noctes Atticæ, l. vi. c. 17, Ammian. Marcell., l. xxii. c. 16. and Orosius, l. vi. c. 15, as speaking of the Alexandrian libraries in the past tense, are foreign from the purpose; these writers only referring to the destruction of books at Alexandria in the time of Julius Cæsar; after which, large libraries were continually accumulating, schools of philosophy flourishing, and new institutions arising from obscurity on almost every subject. *Brucker's Hist. Philos. by Enfield*, vol. ii. p. 228. *Ammian. Marcellin.* l. xxii. c. 16. p. 266. ed. *Gronov. Dion. Cass.* l. xlii. 38. tom. i. p. 327. ed. *Reimari. Plutarch in Jul. Cæs. Oper.* tom. i. p. 731. *Tertullian in Apolog.* c. 18. p. 18. ed. *Rigalt. Euseb. in chron. Gellius*, l. vi. c. 17. *Isidor. Orig.* l. vi. c. 3. *Orosii. Hist.* l. vi. c. 15. p. 421. ed. *Haverc. Plut. in Anton.* op. vol. i. p. 943. *Newton's Diss. on the Prophecies.—Works* vol. vii. p. 357. 8vo. *Anc. Un. Hist.* vol. viii. p. 166.

ALEXANDRIN, in geography, a small district of Italy, in the duchy of Milan, in the environs of Alexandria della Paglia, to which it owes its name.

ALEXANDRIN, or ALEXANDRIAN, in poetry, the name of a verse which consists of six feet or six feet and a half, equal to twelve or thirteen syllables; the rest, or pause, being always on the sixth syllable.

It is said to have taken its name from a poem on the life of Alexander, entitled, the Alexandriad; written, or at least translated into this kind of verse, by some French poets; though others will have it so denominated from one of the translators, Alexander Paris.

This verse is thought, by some, very proper in the epopœia, and the more sublime kinds of poetry: for which reason it is also called heroic verse. It answers in our language to the hexameters in the Greek and Latin; though, according to some, it rather answers to the senarii of the ancient tragic poets.—Chapman's translation of Homer consists wholly of Alexandrians.

The advantages of the Alexandrian verse, are its keeping the rhymes from coming so near, and consequently hindering them from being so much perceived. To this may be added, that coming nearer to the nature of prose, it is fitter for theatrical dialogues, and supplies the office of the ancient iambics better than any other verse in rhyme. This measure is used either to close a verse, or distich, as by Spenser at the end of each stanza of his Faerie Queene; or else, but more rarely, wholly to compose the poem, as by Drayton, in his Poly Albion, and by Chapman, in his Homer. The pause is always on the sixth syllable. In the former instance it has the beautiful effect of a chord at the close of an air in music, and ends the verse with a full sweep; and in the latter it answers nearly to the hexameter of the classic verse, and is a sort of recitative in poetry. The etymology of its name is very uncertain; we have given the best conjectures. Pope's satirical illustration of its abuse is well known:

A needless Alexandrine ends the song,
Which, like a wounded snake, drags its slow length along.

ALEXANDROVKA, a settlement of Asiatic Russia, on the banks of the river Kuma, being one of a long range of settlements which Catharine II. directed to be established with a view to the peopling that country, and thereby to strengthen her Caucasian frontier. It contains about 450 inhabitants.

ALEXANDROVSKAIA, á Russian fortress in the government of of Ekaterinoslav, situated on the Dnieper forty miles below Ekaterinoslav, and 114 miles north-east of Cherson.

ALEXANDROW, the chief town of a circle in Russia, in the government of Vladimir, where the czar John Wassiljewitsch erected the first printing-press in Russia. It lies forty-eight miles east of Moscow.

ALEXICASON, or ALEXICACUS, from αλεξω to drive away, and κακον, or κακος, evil, an antidote against evil. Constantine Rhodocanaces gave this name to the spirit of sea-salt, and published a work on the subject under this title.

ALEXICACUS, in antiquity, an attribute of Neptune, whom the tunny fishers used to invoke, that their nets might be preserved from the ξιφιας, or sword-fish, which used to tear them; and that he might prevent the assistance which, it was believed, the dolphins gave the tunnies on such occasions.

ALEXIPHARMICS, from αλεξω, *arceo*, to expel, and φαρμακον, poison, in medicine, are properly remedies for expelling or preventing the ill effects of poison. Some of the moderns having imagined that the animal spirits, in acute distempers, were affected by a malignant poison, the term has been understood to mean medicines adapted to expel this poison, by the cutaneous pores, in the form of sweat. In this sense alexipharmics are the same as sudorifics. It has also been occasionally used for amulets, and various real or supposed remedies against disease. Alexipharmic medicines are in general aromatic and pungent, although some acid plants and juices, from their use in malignant and colliquative fevers, have been classed under this title. The principal alexipharmics in the animal king-

dom, are hartshorn, bezoars, and the bones and teeth of different animals. In the vegetable kingdom, the leaves and flowers of all the aromatic plants, especially such as are umbelliferous. In the mineral kingdom, the different preparations of antimony, the dulcified spirit of vitriol, together with alcohol in all its forms and combinations. They chiefly act by exciting or increasing a diaphoresis, or perspiration; or by supporting the vigorous motion of the heart and arteries, which is always diminished in malignant diseases unattended by inflammation. In this latter sense wine may be reckoned among the principal alexipharmics. These medicines are also esteemed preservatives against malignant and pestilential fevers; but they are to be used with caution.

ALEXIS, (Michaelovitch,) of Russia, born in 1630, and succeeded his father Michael as czar, in 1646, was the father of Peter the Great, an able monarch, and the first Russian ruler who acted on the policy of a more intimate connexion with the other states and nations of Europe. He preceded his celebrated son in measures for the civilization and political and commercial improvement of Russia, and by his diversion of the Turkish arms, greatly contributed to the celebrated victory over that nation, obtained by John Sobeiski, king of Poland, near Choskni. He died at the age of forty-six in the year 1677, was succeeded by Peter the Great, his son by his wife Natalia.

ALEXIS, a native of Piedmont, and author of a book of secrets, which was printed at Basle 1536, in 8vo. and translated from Italian into Latin by Wecher. It has also been translated into French, and printed several times with additions. There is a preface to the piece, wherein Alexis informs us, that he was born of a noble family; that he had from his early years applied himself to study; that he had learned the Greek, the Latin, the Hebrew, the Chaldean, the Arabian, and several other languages: and having an extreme curiosity to be acquainted with the secrets of nature, he had collected as much as he could during his travels for fifty-seven years. That he had piqued himself upon not communicating them to any person; but that when he was eighty-two years of age, having seen a poor man who had died of a sickness, which might have been cured, had he communicated the recipe to the surgeon who took care of him, he was touched with such a remorse of conscience, that he lived almost like a hermit; and it was in this solitude that he arranged his secrets in order to be published

ALEXIS, grand duke of Russia, the unfortunate son of Peter the Great, called also PETROVICH, which see.

ALEYN, (Charles,) an English poet in the reign of Charles I. In 1631, he published two poems on the famous victories of Cressy and Poictiers. He succeeded his father as clerk of the ordnance, and was commissary general of the artillery to the king at the battle of Edge-hill. He also wrote a poem on that victory which placed Henry VII. on the throne of England. In 1639, the year before he died, he translated the history of Eurialius and Lucretia, from the Latin epistles of Æneas Sylvius.

ALFADER, the Danish name for the [illegible] sal father and creator of all things. See [illegible] *Book of the Church*, vol i. p. 67.

ALFAQUES, among the Moors, the [illegible] generally used for their clergy, or [illegible] teach the Mahommedan religion; in opp[illegible] the Moabites, who answer to monks [illegible] Christians.

ALFARO Y GAMON, (Don Juan [illegible] Spanish painter, was born at Cordova, [illegible] he studied successively under Castillo [illegible] lasquez, to whose style he adhered, but [illegible] portraits he adopted the manner of V[illegible] Two of his finest pieces, are a picture of [illegible] tivity, and the Guardian Angel. He [illegible] himself to the admiral of Castile, and [illegible] his family on terms of friendship, till the [illegible] that grandee's exile in 1678, when he left M[illegible] and retired to his native city. Here he [illegible] obscurity, until an edict was published, levy[illegible] tax upon paintings, when Alfaro laid [illegible] pencil. He suffered great distress, until [illegible] mation reached him in 1680, that his patro[illegible] released, when he hastened to Madrid, and repairing to the house of the admiral, was [illegible] admission, when he retired, and in a few [illegible] died of a broken heart. 'Thus perished,' Pilkington, 'one of the most ingenious and [illegible] gant artists that Spain ever produced: a man described to have been of refined [illegible] and of a most tender and susceptible spirit.

ALFATERNA, in ancient geography, the town of Campania, beyond Vesuvius: the [illegible] with NOCERA, which see.

ALFECCA, in astronomy, the star other[illegible] called Alpheccar and Lucida corona.

ALFENUS, (Varus), a Roman lawyer, [illegible] of Cremona, and a disciple of Servius Sul[illegible] who flourished about the year one of the Chr[illegible] tian æra. He is mentioned by Horace as [illegible] formerly been a shoemaker, and as [illegible] quitted that trade for the profession in which [illegible] obtained his reputation. Hor. Sat. iii. v 13[illegible] He wrote several works, of which Paulus [illegible] civilian made an abridgment, and he is refer[illegible] to as an authority in matters of law by Ammian[illegible] Marcellinus; and Aulus Gellius mentions [illegible] as a diligent enquirer into antiquities. Some [illegible] that he was consul, and was buried at the [illegible] expense.

ALFET, in our ancient Anglo-Saxon law[illegible] from *ælan* to burn, and *fat*, a vessel, Sax. [illegible] dron full of boiling water, wherein an accus[illegible] person, by way of trial or purgation, [illegible] his arm up to the elbow, and held it there [illegible] time. If he was hurt he was held guilty; [illegible] he was acquitted.

ALFIDENA, an ancient town of Italy, [illegible] kingdom of Naples, and in the citerior A[illegible] fifteen miles south-south-west of Salmona. [illegible] was famous in the wars of the Samnites, [illegible] the Romans. It gives title to a marquis. [illegible] 14°. 10′ E. Lat. 41°. 48′. N.

ALFIERI, (Victorio,) the Italian Sop[illegible] was born in Aste, a city of Piedmont, [illegible] half way between Turin and Alepondria, [illegible] 17th of January 1749, of a noble fami[illegible] has favoured the world with an account [illegible] self and his writings, carried nearly down [illegible]

the period of his death; from which we shall select a sketch of the principal incidents and employments by which his remarkable life was distinguished. When an author becomes his own biographer, he can boast at least of possessing the most intimate knowledge of his subject, whatever be his other qualifications for the task he undertakes, and whatever other claims he may have upon the faith of his readers. In the present instance, we have the testimony of his contemporaries, in support of the veracity and candour with which this extraordinary man details his own history, in addition to the internal evidence of its own fearless frankness and bold disclosures. Alfieri divides his own history into almost as many eras as Shakspeare's seven ages; but in the two first of these, which he styles his infancy and adolescence, there is nothing particularly worthy of notice, except taken in connection with the talents he afterwards displayed, and the celebrity he acquired. His father, Anthony Alfieri, was a nobleman, who was distinguished for no knowledge or information. He married the mother of our poet, when above fifty years of age; and the first fruit of this marriage was a daughter, the second the subject of this memoir. The father of Alfieri survived this latter event only a year, when his widow married again. Alfieri when very young was committed to the care of a priest, called father Ivaldi, for the purpose of being taught Latin, from whom he learned but little. On one occasion he had to submit to the dreadful suffering of walking to the church with a silk night-cap, for having told a lie; and he philosophically ascribes his candour and regard to truth, in subsequent life, to this disgraceful punishment. If this be correct, we owe the confidence with which we may read his history to a very trifling cause; and whenever we cannot lend implicit credit to his testimony, we must suppose that he has forgotten the night-cap. At the age of nearly ten years, he was taken from under the tuition of his domestic pedagogue, and sent to Turin, to be under the care of his uncle, and to receive his education at the academy. Here he speaks of learning as little as under father Ivaldi. At his thirteenth year, he was fitted for the university; and there he entered upon philosophy and geometry. In the peripatetic philosophy, he made such progress, that he was able to answer almost all the questions asked him by his teachers; and he committed the whole six books of Euclid to memory, without being able to comprehend the fourth proposition. He had even at this age a contempt for the useless and pedantic jargon of logic, which he was forced to acquire. Though he had at this time read none of the Italian poets but a part of Ariosto and Metastasio, he composed his first sonnet, which not being approved of by his uncle, deterred him for twelve years from the services of the muses. His paternal uncle, who was governor of Sardinia, died about this time; and he was led to meditate upon plans for spending with eclat that more liberal portion of his fortune which it was now permitted him to enjoy. He had enrolled himself as an officer of the militia; but he now only thought of those methods of employing his time, which would acquire him the greatest distinction, or bring him the greatest pleasure.

Travelling was one of those pursuits which obviously offered the greatest allurements to his restless disposition; and he accordingly determined to seize the earliest opportunity of commencing his rambles. He had frequently heard the students from England, Germany, Poland, and Prussia, describe the wonders of their various countries; and he was inspired, either with the curiosity of seeing them, or with the ambition of being as far travelled as his companions.—But his first excursion from home was confined to Italy. An opportunity occurred of being able to traverse Italy to Rome and Naples, under the care of an English catholic, who had the charge of two Dutch pupils—his school-fellows in the academy; and he prevailed upon his brother-in-law to solicit permission from the king for that purpose. His Sardinian majesty, it would appear, allowed none of his nobility to leave his dominions without obtaining his consent. This permission being obtained, on the 4th of October 1766, our young poet left Turin for Naples, but as he had made no preparations for travelling with advantage, he avows he neither understood nor relished any works of the fine arts: and in a country where nothing else is read but poetry, he had not perused any of the poets but Ariosto and Metastasio: he could not even speak Italian with propriety, and although he spoke French with facility, he had not studied its structure, nor attempted to attain its elegance. When at Florence he began to learn English—a language in which he never made any proficiency, and which, together with the French, he afterwards despised and disliked. Although his ignorance rendered his travels of little importance to his mental improvement, yet the circumstance of his keeping a journal of his observations, and the anxiety he felt from classical recollections before he entered Rome, are indications of reflections and feelings which could not belong to every idle youth of eighteen. At Naples he got quit of his tutor, the English catholic, and of his two Dutch companions, and commenced his rambling alone. He visited Venice; and, without returning to Piedmont, passed by Genoa and Marseilles to Paris, where he arrived in August 1757. We find him soon afterwards in London; and during the four months he remained there, he had it in his power, by means of the Spanish ambassador (who was originally a Piedmontese) and his own fortune, to satisfy his thirst for dissipation, and his propensity to jockeyism. 'My amusement,' says he, 'during the winter, consisted in being on horseback five or six hours every morning, and being seated in the coach-box for two or three hours every evening, whatever might be the state of the weather.' He felt the attractions of England at one time so powerful, that he resolved to fix his residence in it; but his resolution was abandoned almost as soon as formed. At the Hague he made a friend of the Portuguese ambassador, and became enamoured of a Dutch lady. The violence of his passion could scarcely

obtain credit, did we not take into account the previous instances of his ardent temperament. When the lady was obliged to leave the Hague to join her husband in Switzerland, he committed a thousand follies, called on death to his aid, and, among other extravagancies, after causing himself to be bled by a surgeon, he tore the bandage from his arm; and, if his servant had not interposed, would have destroyed himself. He was at this time importuned by his friends to marry, but he felt a 'reluctance to have his children born at Turin,' and did not pursue his suit with the ardour necessary to ensure success: he again, after settling his affairs, resolved to travel. Without following him in his rambling career, it will be sufficient to state, that in this second erratic sally he visited successively, Germany, Hungary, Denmark, and Sweden; Russia, Prussia, Holland, and England; Spain and Portugal. In Turin he again took up his residence; and having fitted up a splendid house, he began to entertain his friends, and to live in a style of elegance and luxury. These friends, who consisted principally of young men who had been his college-fellows, constituted themselves into a society, with something of the formalities of free-masonry, and agreed to meet at one another's houses several times in the week, for the purpose of conversation upon any subject that might occur, or for reading small essays at composition, to which the members should anonymously contribute. Alfieri was here the greatest contributor to the society's amusement, and gave in several papers, which were read with eclat. He had by this time, although his life was principally spent in dissipation, acquired a considerable acquaintance with French literature; he had studied latterly some of the best Italian authors; had seen much of mankind; and he possessed a power of fancy and invention that could render his acquirements useful or entertaining. He even began at this time, from the praises he received, to imbibe a greater confidence in his own faculties, and to rise to the hope of being able to execute some work for immortality. The abbe Caluso, whom he met with at Lisbon in the suite of the Piedmontese ambassador, and who continued the friend of his subsequent life, almost convinced him that he was a poet, and now was drawing near the time when he was destined to prove his title to that character. A sonnet was the first poetical offspring of his genius. Having once accidentally composed a dialogue on the subject of Cleopatra, and hearing the work of an obscure author on the same subject praised by one of his friends, which he thought inferior to his own, the state of his mind, and the circumstances in which he was placed, recommended it to him as a theme for his first dramatic effort: and, accordingly, after much consultation with those in whose opinions he confided, he produced, in the twenty-seventh year of his age, the tragedy of Cleopatra, which was represented at Turin on the 16th of June 1775. Having now become a candidate for literary and dramatic fame, he prosecuted the means of success with his characteristic ardour; and the laborious assiduity of the latter part of his life forms a perfect contrast to the idleness and dissipation of the former. The subsequent history of his life is little more than an account of his labours and publications. He transferred his property to his sister for an equivalent, that he might have no more to do with Piedmont. He studied the Latin classics with the greatest ardour; he composed upwards of twenty tragedies, besides satires, odes, sonnets, and prose works on government and literature; he studied afterwards Greek, when upwards of fifty, and wrote comedies; he finished various translations of prose and poetical authors; he devoted a portion of his time to the reading of Hebrew; and, after more than twenty years of toil and glory, which our limits will not permit us to dwell upon, he died one of the most accomplished characters of his age, on the 8th of October, 1803. He was interred in the Franciscan church of St. Croce in Florence, a sanctuary where repose the ashes of Galileo, Michael Angelo, Arretino, and many other illustrious men; and over him there is placed a monument, representing Italia mourning for his loss, a work of the great Conova. The majestic figure of Italy is invested with flowing robes, and adorned with a turreted crown; which circumstances gave rise to an epigram, repeated to the author of this article by one of the monks, purporting, that this clothed figure was by no means a true representation, and that the statuary had forgotten that she was stript by Buonaparte. The style of his tragedies is peculiarly his own. He keeps one subject in view, and pursues it from the beginning to the end of the piece without digression, without trifling or delay. The persons he introduces are few, and all are necessary to the development of the plot. He allows no under plot, nor gossiping among servants. The language is always vigorous and energetic, but destitute of imagery or ornament; seldom very smooth, but always elegant and varied. The understanding of Alfieri was as comprehensive and penetrating as his imagination was inventive, and enabled him particularly to shine in disquisitions concerning government, history, and criticism.—Though, during the latter period of his life, he devoted his time chiefly to recluse study, he was not an inattentive spectator of the events that were passing around him. He had early imbibed a love of liberty, and he added to it afterwards a love of Italy. These two passions constituted a fever which continually boiled in his veins, and imparted much heat to his conversation, his poetry, and political sentiments.—Never had freedom a more ardent worshipper at her shrine, nor had ever Italy a more fond admirer; but these feelings were rather guided by his imagination than his reason, and acted more in sharpening his hatred of those whom he considered as oppressors, than in suggesting remedies against oppression. The French domination he cordially detested; and, preparing in return to expect persecution, he made his will, and settled his affairs before they entered Florence. His passions, as will be seen, during the whole of his life, were violent; and, in the early part of it, made his history almost the history of a hurricane. He sometimes surrendered his mind to the dominion of caprice, without capitulation or

condition, and obeyed her dictates without attempting resistance; but where his affections were engaged by a worthy object, he was steady and unchangeable. He had a strong propensity to satire and sarcasm; but he never indulged it at the expense of those whose attachment he enjoyed and valued. Of his mother he always spoke with affectionate regard; and his friends had reason to delight in his unreserved communication when living, and to cherish his memory when dead. His works consist of twenty tragedies, six comedies, sonnets, odes on liberty, &c.

ALFORD, a town in Lincolnshire, with a market on Tuesdays for provisions and corn; and two fairs, on Whit-Tuesday, and November 8th, for cattle and sheep. It is seated on a small brook that runs through the town, and is a compact well built place. A salt spring was discovered here in 1670, from the pigeons which flew thither in great numbers to drink the water; these birds being known to be fond of salt. It contains a purging salt, together with a portion of sea-salt, and is recommended as cooling, cleansing, and attenuating. Alford is 6 miles from the sea, 20 north of Boston, and 140 north of London. Long. 0°. 15′. E. Lat. 53°. 30.′ N.

ALFORD, a district of Aberdeenshire, eleven miles long from east to west, and between four and six miles long from north to south, reckoning from the tops of the mountains. It comprehends five parishes, viz. Forbes, Keig, Tillynessle, Tough,and Alford; and the easternmost part of it is situated twenty miles west from Aberdeen. The Don is the principal river in this district.

ALFRAGAN, AHMED EBN KOTHEIR AL FARGANI, or, as others call him, MOHAMMED EBN KETIR AL FORGANI, in biography, a celebrated Arabian astronomer, born at Fergan, in Sogdiana, now Samarcand, and flourished in the beginning of the ninth century, under the Caliphate of Al-Mamon. His principal work, in Arabic, entitled, Rudimenta Astronomica, consists of thirty chapters or sections, and is formed upon the principles of Ptolemy, whom the author often cites. Of this work we have a Latin translation by Johannes Hispaliensis.

ALFRED, commonly called THE GREAT, an Anglo Saxon monarch, one of the most illustrious on record in the history of nations. He was the youngest son of Ethelwolf, king of the West Saxons, and born at Wantage, Berks. A.D. 849. At the age of five years he was sent by his father to Rome, when he was confirmed, and, as some writers assert, royally anointed by pope Leo IV. Soon after his return, he accompanied his father again to the same capital. It was by this early travelling that his dawning faculties received that favourable direction by which they were, in future life, so admirably distinguished. Alfred was in his tenth year when Ethelwolf died, and was succeeded successively by his elder sons Ethelbald, Ethelbert, and Ethelred, by the last of whom Alfred was employed as chief minister and general. In 871, when a Danish force, which had successfully invaded England in 866, under the command of Hubba and Hinguar, marched to Reading, and mastered both town and castle, Ethelred and Alfred collected a force, and obtained a victory over the invaders, but were soon however routed, near Devizes; when Ethelred, receiving a wound which terminated his existence, left the crown of England to Alfred, then in his twenty-second year. The first conflict of this prince with the Danes, at Wilton, was unsuccessful; but they were subsequently compelled to agree to a peace. This they violated; but, in consequence of a great naval victory obtained by Alfred, were reduced, a second time, to the same terms. The arrival of new hordes, however, so increased their number in Wiltshire, that the Saxons could not withstand them; and Alfred himself, laying aside all marks of royalty, took shelter in the house of one of his neatherds. While in this obscure retreat, a little adventure occurred, of which most of our English historians take notice. The woman of the house having placed some cakes before the fire to toast, ordered Alfred to attend them. Intent on trimming his bow, the king suffered the cakes to burn without observation, which so enraged the good woman, that she rated him soundly, and doubted not that he would be ready enough to eat them, though so little inclined to attend to them. Soon after, collecting a few faithful followers, he took possession of the small isle of Athelney, formed by the confluence of the Tone and the Parrot, in Somersetshire, whence he sallied out occasionally upon the unguarded quarters of the Danes in his neighbourhood. At length, understanding that Odun, earl of Devonshire, had obtained a signal victory over the Danish leader Hubba, and taken the famous magical standard of the raven, he left his retreat, and proceeding towards the camp of Guthrum, the Danish prince, in the disguise of a harper, remained several days making observations. He then summoned his nobles, with their followers, to a general rendezvous on the borders of Selwood Forest, and defeating the enemy in battle, surrounded their camp, and compelled them to surrender. It was the policy of Alfred, if possible, to transform them into subjects, and for that purpose he gave them settlements in East Anglia and Northumberland, on condition of allegiance and conversion to Christianity. It is said the king himself stood sponsor for Guthrum at the font. On this happy re-establishment, Alfred exerted himself for the defence of his kingdom. He erected castles and fortresses, formed a militia, and got together an armed fleet of 100 sail, which he manned partly with his subjects, and partly with Frisians. He also besieged and recovered the city of London, which he found in a miserable condition, but he repaired and maintained it as a fortress. In 893, an interval of some years having elapsed, a Danish fleet, after ravaging the coast of France, disembarked a large force in Kent, which was, however, checked by the vigilance of Alfred. He had then turned his attention to the rebellious operations of his new subjects in East Anglia and Northumberland, who appeared suddenly with a fleet off the western coast; and having put down all these annoyances, he closed the whole warfare by the capture of some Northumbrian Danes, who were ravaging the west, and whom, after a legal trial, he executed as pirates. The remainder of the life of Alfred was

peaceable; for such was now his character, that the Danish settlers, on the east and the north, humbly submitted. The Welsh also acknowledged his authority; and after fifty-six battles, in which he had been personally engaged by sea and land, he found himself undisputed king of the island as far as the frontiers of Scotland. Great and active, however, as Alfred appears in warlike exploits; as a legislator, a reformer of manners, and a promoter of learning and the arts, his exertions were still more extraordinary. He laid the foundation of the common law of England. The institution of the trial by jury, attributed to him, Sir William Blackstone conjectures he only adopted and improved: the same observation is extended by Whitaker and others to the division of the country into shires, hundreds, and tithings, for purposes of judicature and police. It is certain, however, that the general survey of the kingdom, called the Winchester Book, the origin of that of Doomsday, was compiled by the order of Alfred. Judicial administration seems to have engaged no small share of the attention of this monarch; for, in addition to his regulations in favour of general and equal justice, he severely punished delinquency in any of its departments. The political constitution of England is also presumed to be indebted to Alfred for the settlement of one of its principal regulations, viz. a regular convocation of the states. His great council, consisting of bishops, earls, aldermen, and thanes, was by an express law called together twice a year in London, for the better government of the realm. In other circumstances he also showed a paternal regard for the welfare of his people, dedicating a large portion of his revenues to the rebuilding of cities ruined by the Danes, the erecting of new ones, and the restoring of monasteries and other religious foundations. His encouragement of learning was as distinguished as his own proficiency therein; of the ecclesiastics, Alfred complained that there were very few south of the Humber who either understood the service of the church, or could translate a single piece of Latin into English. To remedy this defect, he invited men of learning to his court, from all parts, and placed them at the head of seminaries in various parts of his kingdom. He has been called the founder of the University of Oxford, or at all events is said to have founded University College, Oxon; but there is reason to believe, from the recent researches of Whitaker and Smith, that these assertions are not absolutely correct; it is however admitted that he greatly improved the system of education there. Alfred himself may be said to stand at the head of the list of royal authors; so many works indeed are attributed to him, that, in order to keep within the bounds of credibility, it must be presumed that he only patronized many of the voluminous translations which bear his name. Versions of Orosius, of Bede, of Boëthius, of several pieces of St. Gregory, of Æsop's Fables, of various religious works, including the Psalter, together with several collections of legal and historical matters are attributed to his pen. In the translation of Orosius is also an account of a voyage, made under his patronage, for the discovery of a north-east passage; and he even fitted out an expedition to carry alms to the Christians of St. Thomas in the East Indies, and received back the commodities of the country. To accomplish all these things, as the nicest distribution of his time and his power was essential, he entered into the strictest arrangement for the employment of both. To crown his great public character, Alfred is described as one of the most mild and amiable men in private life; of a serene temper, cheerful, affable, kind, and merciful; eminently so in his own conduct and manners, yet not cold to society, or to innocent recreation. He was personally well-favoured, possessing a handsome and vigorous form, dignified by a commanding and engaging aspect. After reigning twenty-eight years and a half, this prince died, according to some accounts, A. D. 900, although others say 901. By his queen Ælswitha he had six sons and three daughters; one of his sons died in his father's life time; the second, Edward the Elder, succeeded him. One of his daughters named Æthelfleda, married to an earl of Mercia, is said to have inherited the greatest portion of his talents. In this age of critical research some doubts have been thrown on the accounts of the unmixed panegyric of the monkish annalists from whose writings this history of Alfred is chiefly drawn. His benefactions to the church and to religious and learned men may be supposed to have influenced them—borne on by the strength of a character, it was scarcely in their nature to conceive or to *invent*; for the qualities and actions ascribed to him are of a nobler class than those which usually form the theme of monkish adulation. But since there is no contradiction of their general testimony in other quarters, it is not well to cavil at the attributes of an exalted character, whose name is associated with the origin of some of the most important institutions in the country, either of hypercriticism on the one hand, or of predilection on the other. At present, the history of Alfred presents an almost perfect model of monarch, patriot, and man—one of those rare examples of the admixture of the true elements of greatness and of goodness, which are sometimes witnessed among mankind, but which occasionally exist as blessings in their own age, and models for all posterity.

'The merit of this prince both in private and public life,' says Hume, 'may be set in true opposition to that of any monarch or citizen whom the annals of any age or any nation can present to us. He seems indeed to be the model of that perfect character, which, under the denomination of sage or wise man, philosophers have been fond of delineating rather as a work of their imagination, than in hopes of ever seeing it really existing. So happily were all his virtues tempered together; so justly were they blended, and so powerfully did each prevent the other from exceeding its proper boundaries! He knew how to reconcile the most enterprising spirit with the coolest moderation; the most obstinate perseverance with the easiest flexibility; the most sincere justice with the greatest lenity; the greatest vigour in commanding, with the most perfect affability of deportment; the...

capacity and inclination for science, with the most shining talents for action. His civil and military virtues are almost equally the objects of our admiration, excepting only that the former being more rare amongst princes, as well as more useful, seem chiefly to challenge our applause. Nature also, as if desirous that so bright a production of her skill, should be set in the fairest light, had bestowed on him every bodily accomplishment, vigour of limbs, dignity of shape and air, with a pleasing, engaging and open countenance. Fortune alone, by throwing him into that barbarous age, deprived him of historians worthy to transmit his fame to posterity; and we wish to see him delineated in more lively colours, and with more particular strokes, that we may at least perceive some of those small sparks and blemishes, from which, as a man, it is impossible he could be entirely exempted.' *Hume's Hist.* vol. 1, p. 100, 101.

ALFRETON, from Ælfredtun, Sax. i. e. Alfred's town, a town in Derbyshire, built by Alfred the Great, pleasantly situated on a small hill, six miles from Chesterfield, thirteen north of Derby, and 142 north-west of London. The manufactures are stockings and brown earthenware. It has a weekly market on Monday, and an annual fair 20th July, for horses and horned cattle.

ALGÆ, Flags, one of the seven families, or natural tribes, into which the whole vegetable kingdom is divided by Linnæus, in his Philosophia Botanica. They are defined to be plants, whose root, leaf, and stem are all one. Under this description are comprehended all the sea weeds, and some other aquatic plants. In the sexual system, they constitute the third order of the twenty-fourth class Cryptogamia; in Tournefort, the second genus of the second section, Marinæ, aut fluviatiles, of the twenty-seventh class, Aspermæ vulgo habitæ; and the fifty-seventh order in Linnæus's Fragments of a Natural Method. The algæ are distributed by Lamarch into three divisions: the first of which comprehends all those plants, whose fructification seems doubtful. These commonly live in water, or upon moist bodies, and are membranous, gelatinous, or filamentous. To this division are referred the byssi, conferva, ulva, tremella and varec. The plants of the second division are distinguished by their apparent fructification, although it be little known, and are formed of parts which have no particular and sensible opening or explosion at any determined period; their substance is ordinarily crustaceous or coriaceous. They include the tassella, ceratosperma and lichen. The third division comprises plants, whose fructification is very apparent, and which are distinguished by constituent parts which open, at a certain period of maturity, for the escape of the fecundating dust or seeds. These plants are more herbaceous, both as to their substance and colour, than those of the other two divisions, and are more nearly related to mosses from which they do not essentially differ. Their flowers are often contained in articulated and very elastic filaments. This division includes the riccia, blasia, anthoceros, targiona, hepatica, and jungermanna. In the Linnæan system the algæ are divided into two classes the terrestres and aquaticæ. The former include the anthoceros, blasia, riccia, lichen, and byssus; and the latter are the ulva, fucus and conferva. The fructification of the algæ, and particularly of those called aquaticæ, has been denominated the opprobrium botanicorum.

ALGAGLIOLA, a small sea-port town in the island of Corsica, fortified with walls and bastions. It was almost destroyed by the malcontents in 1731, but has since been repaired. Lon. 9°. 45'. E. lat. 42°. 10. N.

ALGARDI, Alessandro, in biography, an eminent artist, as a sculptor and archtitect, born at Bologna in 1598. He became a disciple of Julius Cæsar Conventi, and acquired a reputation in sculpture little inferior to that of Michael Angelo Buonaroti. He also frequented the school of the Caraccii, from whom he probably learned the art of engraving, as his style resembles that of Augustino Caracci, being slight and free, and his execution with the graver is bold and open. In 1625, when at Rome, he became acquainted with Domenichino, who obtained for him the statuary work of the chapel Bandini, which he was painting. For some years before he had been chiefly employed in repairing antiques and modelling for goldsmiths; but his talents and reputation now procured him superior work. The first display of his powers was a statue of St Philip de Neri, in the sacristy of the oratory at Rome. His group of the decollation of St. Paul for the Barnabite church at Bologna, and the tomb of Leo XI. at St. Peter's were among the first efforts of his genius. One of his principal performances was a bas-relief in this cathedral, thirty-two feet by eighteen, representing the story of Attila, the labour of four years, and which, when finished, gained him universal applause, also the honour of knighthood and the golden cross. His bronze figure of Innocent XI. is reckoned the finest of all the statues of the popes in Rome. A crucifix likewise, called by way of distinction, Algardi's crucifix, has been much admired, and often copied. He was assiduous and quick in execution, but, becoming infirm, he was compelled to avail himself of the assistance of his pupils, of whom he formed an eminent school. He died in 1654, at the age of fifty-two years. He lived in celibacy, and left his property to his sister. His works are held in high estimation, though the air of his heads are esteemed too studied.

ALGAROTH, powder of, is a white oxyd of antimony, which may be obtained by precipitating the oxymuriate of antimony in pure water. The precipitate when dried is called algaroth. Although the ease with which it may be obtained might render it advantageous as an antimonial medicine, the London practice has entirely rejected it, but it is used at Edinburgh and on the continent as the basis of emetic tartar or tartarized antimony.

ALGAROTTI, (Count,) a celebrated Italian writer, a native of Padua. Led by curiosity and a desire of improvement, he travelled early into foreign countries; and was very young when he arrived in France in 1736. Here he composed

his Newtonianismo pour des Dames. He was noticed by Frederic, king of Prussia, who conferred on him the honour of knighthood, a consulship, and the post of chamberlain. He died at Pisa in 1764; and ordered his own mausoleum with this inscription to be fixed upon it: 'Hic jacet Algarettus, sed non omnis.' i. e. 'Here lies Algarotti; but not the whole of him.' He was a great connoisseur in painting, sculpture, and architecture, and contributed much to the reformation of the Italian opera. His works are numerous, and upon a variety of subjects, abounding with vivacity, elegance, and wit:—According to the last and most correct edition of Venice, 1790 and 1794, they form seventeen volumes 8vo., and consist of Memoirs of his Life and Writings; An Analysis of the Newtonian System; Pieces on Architecture, &c.; Travels in Russia; Letters on Painting, &c. &c.

ALGARVA, once an independent kingdom, and now a southern province in the kingdom of Portugal, sixty-seven miles in length and twenty in breadth; bounded on the south and west by the sea, on the east by the Guadiana, and on the north by Alentejo. It is very fertile in figs, almonds, dates, olives, and excellent wines; the fishery also is extensive. The capital town is Pharo. It contains four cities, twelve towns, sixty-seven parishes, and about 96,000 inhabitants.

ALGATES', } Sax. algeatep, all-ways. Gate
ALGETE'. } is the same as via, a way. Todd's Johnson. Tooke supposes it to mean all-gett, and says, get is sometimes spelt by Chaucer geate. Geate, pronounced as here written, is used for gate in the rustic dialect of the western counties. Does this favour Johnson's etymology? By all means, notwithstanding.

> Alfrede was eldest, non mot his wille withhald
> To London he wild *allegate* to speke with kyng Harald. *R. Brunne*, p. 52.
>
> He wolde, *algate*, his trouth holde,
> As euery knight thereto is holde,
> What hap soeuer him is befall.
> *Gower. Con. A.* book i.
>
> Bifore alle thingis haue ye charite ech to othire, in yousilff *algatis* lastinge for charite keuerith the multitude of synnes. *Wicklif.* 1 *Peter*, c. iv.
>
> Nor had the boaster ever risen more,
> But that Renaldo's horse ev'n then down fell;
> And, with the fall, his leg oppress'd so sore;
> That, for a space, there must he *algates* dwell.
> *Fairfax.*

ALGAVAREIA, the language anciently spoken by the Moors, or Moriscoes in Spain.—It was a dialect of Arabic, and stood contradistinguished from the ALGAMEIA.

ALGEBRA.

ETYMOLOGY, DEFINITION, AND HISTORY OF ALGEBRA.

We cannot introduce this science better, than by the derivations and definition of the word, and the account of the origin of the art, given by Dr. Johnson.

ALGEBRA, *n. s.* an Arabic word of uncertain etymology; derived, by some, from *Geber* the philosopher; by some, from *gefr*, parchment; by others, from *algehista*, a bone-setter; by Menage, from *algiabarat*, the restitution of things broken. This is a peculiar kind of arithmetic, which considers the quantity sought, as if it were known, and by means of its relation to one or more quantities given, proceeds by consequence, till the quantity at first only supposed to be known, is found to be equal to some quantity or quantities which are known, and consequently itself is known. This art was in use among the Arabs, long before it came into this part of the world; and they are supposed to have borrowed it from the Persians, and the Persians from the Indians. The first Greek author of algebra, was Diaphantus, who, about the year 800, wrote thirteen books. In 1494, Lucas Pacciolus, or Lucas de Burgos, a cordelier, printed a treatise on algebra, in Italian, at Venice. He says, that algebra came originally from the Arabs. After several improvements, by Vieta, Oughtred, Harriot, and Descartes, Sir Isaac Newton brought this art to the height at which it still continues. *Trevoux, Chambers.*

To be more particular, algebra is defined, by authors who have written expressly upon the subject, to be a general method of computation, by means of signs and symbols, commonly the letters of the alphabet, by which numbers or any other quantities are represented, and hence it is called universal arithmetic, literal arithmetic, and the arithmetic of signs.

Besides the derivations above quoted, several other fanciful etymologies have been given of the word algebra. By the Arabians it is coupled with the word macabelah, signifying opposition and comparison. Thus, algebra almacabelah is used by them to express what we properly call algebra; and which is explained to be the act of restitution and comparison, or opposition and comparison, or resolution and equation. Some, with great probability, derive it from geber, by prefixing the article al, which properly signifies the reduction of fractions to a whole number.

ALGEBRA seems not to have been wholly unknown to the ancient mathematicians. We see the traces and the effects of it, in many places, though it looks as if they had designedly concealed it. Something of it there seems to be in Euclid, or at least in Theon upon Euclid, who observes that Plato had begun to teach it. There are instances of it in Pappus, and more in Archimedes and Apollonius. But the analysis used by those authors is rather geometrical than algebraical; as appears by the examples we find in their works: so that we may safely say, that Diophantus is the first and only author among the Greeks, who has treated of algebra professedly. It was known, however, among the Arabs, much earlier than

among the Greeks; and the Arabs carried it into Spain; whence, some are of opinion, that it passed into England, before Diophantus was known among us. Only six of Diophantus's books are extant. They were translated into Latin, by Xylander, in 1575; and published in 1621, in Greek and Latin by M. Bachet and Fermat. This algebra of Diophantus only extends to the solution of arithmetical indeterminate problems. The first European writer on algebra is Lucas Pacciolus, or Lucas de Burgos, a Minorite friar, who, having previously given small treatises, published at Venice, in the year 1494, his principal work in Italian on algebra. He makes mention of Leonardus Pisanus, and some others, of whom he had learned the art; and adds, that algebra came originally from the Arabs; but, as he never mentions Diophantus, it is probable, that that author was not then known in Europe. His algebra goes no farther than simple and quadratic equations, and positive roots only are used. After him came Stifelius, Scipio Ferreus, Cardan, Tartaglia, and some others, who reached as far as the solution of some cubic equations. Bombelli followed these, and went a little farther. Nunnius, Ramus, Schoner, Salignac, Clavius, &c. took different courses, but none of them went farther than quadratics. In 1590, Vieta introduced his Specious Arithmetic, denoting the quantities, both known and unknown, by symbols or letters. He also gave an ingenious method of extracting the roots of equations, by approximations; since greatly improved and facilitated by Raphson, Halley, Maclaurin, Simpson, and others. Oughtred, an Englishman, in his Clavis Mathematica, printed in 1631, improved Vieta's method, and invented several compendious characters, to show the sums, differences, rectangles, squares, cubes, &c. Harriot, another Englishman, cotemporary with Oughtred, left at his death, a work on Algebra, which was printed in 1631. In it Vieta's method is put into a form, which is still in estimation. In 1657, Des Cartes published his geometry, in which he applied Harriot's method to the higher geometry, explaining the nature of curves by equations, and adding the constructions of cubic, biquadratic, and other higher equations. From the time of Des Cartes, continual improvements have been made in the science, by Baker, Fermat, Schooten, Slucius, Wallis, Newton, Mercator, Demoivre, Maclaurin, Landen, Euler, Waring, Lorgna, Bernouilli, Prestet, Ozanam, Kersey, Roberval, Guisnee, Ghetaldus, Pell, Ward, Hammond, Saunderson, Le Gendre, Arbogast, Vince, Waring, Herschel, Babbage, &c. &c.

PART I.

Introduction.

Algebra is of two kinds, numeral and literal.

Algebra, numeral or vulgar, is that of the ancients, which only had place in the resolution of arithmetical questions. In this, the quantity sought is represented by some letter or character; but all the given quantities are expressed by numbers. This is thought by some to have proved an introduction to the art of keeping merchants' accounts by double entry.

Algebra, specious or literal, or the new algebra, is that wherein both the known and unknown quantities are represented by symbols, or by letters of the alphabet. This eases the memory of that effort, otherwise required to keep several matters necessary for the discovery of the object of research, present to the mind: hence, this art may be properly denominated metaphysical geometry.

Quantities which can be measured, are the object of mathematics. They may be divided into two kinds, number and extension. The former is treated of in arithmetic: the latter in geometry. Numbers are ranged in a scale by the continued repetition of some one number, which is called the root; and, in consequence of this order, they are conveniently expressed in words, and denoted by characters. Investigations by common arithmetic are greatly limited, from the want of characters to express the quantities that are unknown, and their relations to each other and to such as are known. Hence letters and other convenient symbols have been introduced to supply this defect; and thus gradually has arisen the science of algebra, or universal arithmetic. In common arithmetic, too, the given numbers disappear in the course of the operation, so that general rules can seldom be derived from it; but, in algebra, the known quantities, as well as the unknown, may be expressed by letters, which, through the whole operation, retain their original form; and hence every particular example furnishes a general rule for all like cases, and the mutual dependence of the several quantities concerned, is always apparent. This general method of expressing quantities, and the general reasonings concerning their connections which may be founded on it, have rendered this science not less useful in the demonstration of theorems, than in the resolution of problems. If geometrical quantities be supposed to be divided into equal parts, their relations, or their proportions, may be expressed by numbers; one of these equal parts being denoted by the unit. Arithmetic, however, is used in expressing only the conclusions of geometrical propositions; and it is by algebra that the bounds and application of geometry have, of late, been so far extended. The proper objects of mathematical science are number and extension; but mathematical enquiries may be instituted also concerning any physical quantities, that are capable of being measured or expressed by numbers and extended magnitudes: and as the application of algebra may be equally universal, it has been called the Science of Quantity in general.

Definitions.

1. Known quantities are generally represented by the first letters of the alphabet, as a, b, c, &c. Unknown by the last letters, as x, y, z, &c.

2. The sign $+$ *(plus)* is a mark of addition. Thus $a + b$ denotes the sum of a and b; $3 + 5$ denotes the sum of 3 and 5; or 8. When no sign is expressed, $+$ is understood.

3. The sign $-$ *(minus)* denotes subtraction. Thus $a - b$ denotes the excess of a above b; $6 - 2$ is the excess of 6 above 2, or 4.

4. Quantities with the sign + prefixed to them are called positive or affirmative; with the sign — prefixed to them are called negative.

5. The sign × denotes multiplication. Thus 5 × 4 means 5 multiplied into 4, or 20; $a \times b$ means a multiplied by b; and when two letters are adjacent without any mark, multiplication is understood. Thus ab means $a \times b$.

6. ÷ is the mark of division; thus $a \div b$ means a divided by b: or the quotient of two quantities is denoted by placing the dividend above a small line and the divisor below it in the form of a fraction. Thus $\frac{18}{3}$ is the quotient of 18 divided by 3; or 6.

7. A number prefixed to a letter is called its numeral co-efficient, and it expresses the product of the quantity by that number. When no number is prefixed, unit is understood.

8. A simple quantity consists of one part or term, as $+ a, -abc$; a compound quantity consists of more than one term, connected by the signs + or —. Thus $a + b$, $a - b + c$, are compound quantities. If there are two terms, it is called a binomial; if three, a trinomial, &c.

9. Like quantities consist of the same letter or letters, equally repeated. Thus $+ ab$, $- 5ab$, are like quantities; but $+ ab$, and $+ aab$ are unlike.

10. The sign = is the mark of equality. Thus $x + a = b - c$ means, that the sum of x and a is equal to the excess of b above c.

11. When several quantities are multiplied together, any of them is called a factor of the product.

12. The products arising from the continual multiplication of the same quantity are called the powers of that quantity, which is the root. Thus aa, aaa, $aaaa$, &c. are powers of the root a; and are expressed, by placing above the root, to the right hand, a figure called the index or exponent, denoting how often the root is repeated. Thus,

a, aa, aaa, $aaaa$ are called the 1st, 2d, 3d, 4th. Power of the root a, and is otherwise expressed by a^1 or a, a^2, a^3, a^4.

The 2d and 3d powers are generally called the square and the cube; and the 4th, 5th, and 6th, are sometimes respectively called the biquadrate, sursolid, and cubocube.

CHAP. I.

Sect. I. Fundamental Operations.

The fundamental operations in Algebra are performed by addition, subtraction, multiplication, and division.

Prob. I. *To add algebraic quantities.*

Simple quantities, or the terms of compound quantities, to be added together, may be like with like signs, like with unlike signs, or they may be unlike.

Case 1. To add terms that are like and have like signs.

Rule. Add together the co-efficients, to their sum prefix the common sign, and subjoin the common letter or letters.

Examp. To $5ab$
Add $4ab$
Sum $9ab$

Case 2. To add terms that are like, but have unlike signs.

Rule. Subtract the less co-efficient from the greater, prefix the sign of the greater to the remainder, and subjoin the common letter or letters.

Ex.

$-4a$	$+7bc$	$-5d$
$+7a$	$-3bc$	$+3d$
$+3a$	$+bc$	$+3d$
	$+5bc$	

Case 3. To add terms that are unlike.

Rule. Set them down, one after another, with their signs and co-efficients prefixed.

$$2a + 3b - 5c + 8$$

Compound quantities are added together, by uniting the several terms of which they consist by the preceding rules.

Ex. The sum of $\begin{cases} 5ab - 3xy - 12cd \\ 7xy - ab + 15 \\ 9cd - 4xy - 4mn \end{cases}$ is $4ab - 3cd + 15 - 4m$

Prob. II. *To subtract algebraic quantities.*

General Rule. Change the signs of the quantity to be subtracted into the contrary signs, and then add it, so changed, to the quantity from which it was to be subtracted; the sum arising by this addition is the remainder.

Ex.

From	$+5a$	$7ab - 16bc$
Subtract	$+3a$	$3ab + mb$
Rem.	$+2a$	$4ab - 16bc - m$

When a positive quantity is to be subtracted, the rule is obvious. In order to show it, when the negative part of a quantity is to be subtracted, let $c - d$ be subtracted from a, the remainder according to the rule, is $a - c + d$. For if c is subtracted from a, the remainder is $a - c$; but this is too small, because c is subtracted instead of $c - d$, which is less than it by d; the remainder therefore is too small by d; and d being added, it is $a - c + d$, according to the rule.

Prob. III. *To multiply algebraic quantities.*

General Rule for the Signs. When the signs of the two terms to be multiplied are like, the sign of the product is +; but when the signs are unlike, the sign of the product is —.

Case 1. To multiply two terms.

Rule. Find the sign of the product by the general rule; after it place the product of the numeral co-efficients, and set down the letters one after another.

Mult.	$+a$	$+5b$	$-5ax$
By	$+b$	$-3c$	$-7ab$
	$+ab$	$-15bc$	$+35abx$

The reason of this rule is derived from Def. 5. and from the nature of multiplication, which is a repeated addition of one of the quantities to be multiplied as often as there are units in

the other. Hence also the letters in two terms to be multiplied together may be placed in any order, and therefore the order of the alphabet is generally preferred.

Case 2. To multiply compound quantities.

Rule. Multiply every term of the multiplicand by all the terms of the multiplier, one after another, according to the preceding rule, and then collect all the products into one sum; the sum is the product required.

Ex. 1. Mult. $2a + 3b$
By $3ax - 4by$

$$6aax + 9abx$$
$$- 8aby - 12bby$$

Prod. $6aax + 9abx - 8aby - 12bby$

Ex. 2. Mult. $m + x$
By $m - x$

$$mm + mx$$
$$- mx. - xx.$$

Prod. $mm \quad * \quad - xx.$

Ex. 3. Mult. $a - b$
By $c - d$

$$ac - cb$$
$$- ad + db$$

Prod. $ac - cb - ad + db$

Powers of the same root are multiplied by adding their exponents. Thus, $a^2 \times a^3 = a^5$, or $aa \times aaa = aaaaa$, $b^3 \times b = b^4$.

On the General Rule for the Signs.

The reason of the rule will appear from the last mentioned example of $a - b$ multiplied by $c - d$, in which every case of it occurs.

Since multiplication is a repeated addition of the multiplicand, as often as there are units in the multiplier, if $a - b$ is to multiplied by c, $a - b$ must be added to itself as often as there are units in c, and the product therefore must be $ca - cb$.

But this product is too great; for $a - b$ is to be multiplied, not by c, but by $c - d$ only, which is the excess of c above d; d times $a - b$ therefore, or $da - db$, has been too much; hence this quantity must be subtracted from the former part of the product, and the remainder, which is $ca - cb - da + db$, will be the true product required.

Scholium.

Sometimes the multiplication of quantities is expressed by setting them down with the sign ($\times$) between them, without performing the operation according to the preceding rules; thus $\overline{a - b} \times \overline{c - d}$ expresses the product of $a - b$, multiplied by $c - d$; and the line drawn over any number of terms of a compound quantity, is called a vinculum, the quantities under the vinculum being collectively considered as one quantity.

Thus also $\overline{a + b}^2$ expresses the second power of $a + b$, or the product of that quantity multiplied by itself; whereas $a + b^2$ would express only the sum of a and b^2. By some writers a parenthesis ( ) is used as a vinculum, and $(a + b)^2$ is the same thing as $\overline{a + b}^2$.

Prob. IV. *To divide algebraic quantities.*

General Rule for the Signs. If the signs of the divisor and dividend are alike, the sign of the quotient is $+$; if they are unlike, the sign of the quotient is $-$.

This rule is easily deduced from that given in Prob. III. for, from the nature of division, the quotient must be such a quantity as, multiplied by the divisor, should produce the dividend with its proper sign.

Case 1. When the divisor is simple, and a factor of all the terms of the dividend.

Rule. Expunge the letter or letters in the divisor from each term of the dividend, divide the co-efficient of each term by the co-efficient of the divisor; and the quantity resulting is the quotient.

Ex. $a)ab(b.\ 2a^2b)\ 6a^3bc - 4a^2bdm\ (3ac - 2dm.$

The reason of this is evident from the nature of division, and from Def. 5. *Note.* It is obvious that powers of the same root are divided by subtracting their exponents.

Thus $a^2)a^3\ (a.\ a^3)a^7\ (a^4.$ Also $a^2b)a^3b^6\ (ab^5.$

Case 2. When the divisor is simple, but not a factor of the dividend.

Rule. The quotient is expressed by placing the dividend above a line, and the divisor below it.

Thus, the quotient of $3ab$ divided by $2mc$ is the fraction $\frac{3ab}{2mc}$

Case 3. When the divisor is compound.

Rule 1. Arrange the terms of the dividend according to the powers of some one of its letters; and those of the divisor, according to the powers of the same letter.

Thus, if $a^2 + 2ab + b^2$ is the dividend, and $a + b$ the divisor, they are ranged according to the powers of a.

2. Divide the first term of the dividend by the first term of the divisor; and set this quotient down as a part of the quotient wanted, multiply the whole divisor by it, and subtract the product from the dividend. If nothing remain, the division is finished: consider the remainder, if there is any, as a new dividend.

3. Divide the first term of this new dividend by the first term of the divisor as before, and join the quotient, with its proper sign, to the part already found: then multiply the divisor by this part of the quotient, and subtract the product from the new dividend; and thus the operation is to be continued till no remainder is left.

Thus, a^2, divided by a, gives a, which is the first part of the quotient wanted: and the product of this part by the whole divisor $a + b$, is $a^2 + ab$, which being subtracted from the given dividend, there remains $ab + b^2$ for a new dividend.

Then, $+ ab$, the first term of the new dividend, divided by a, gives b; the product of which, by $a + b$, being subtracted from $ab + b^2$, nothing remains, and $a + b$ is therefore the true quotient.

$$a + b)\ a^2 + 2ab + b^2\ (a + b$$
$$a^2 + \ ab$$
$$ab + b^2$$
$$ab + b^2$$

$$
\begin{array}{l}
1-a)\,1\,(\,1+a^2+a^3+a^3,\ \&c.\\
\quad 1-a\\
\quad\overline{}\\
\quad\ +a\\
\quad\ +a-a^2\\
\quad\overline{}\\
\qquad +a^2\\
\qquad +a^2-a^3\\
\qquad\overline{}\\
\qquad\qquad +a^3,\ \&c.
\end{array}
$$

In this example there is a remainder, from which the operation may be continued without end; the quotient is called an infinite series. By comparing a few of the first terms, the law of the series may be discovered, and it may be continued to any number of terms wanted.

Sect. II. On Algebraic Fractions.

Definition.

In a fraction, the quantity above the line is called the numerator; and that below it is called the denominator.

If both the numerator and denominator of the fraction be either multiplied or divided by the same quantity, the value of that fraction is the same.

Thus, let $\frac{a}{b}=c$, then $\frac{ma}{mb}=c$. For, from the nature of division, if the quotient $\frac{a}{b}(=c)$ be multiplied by the divisor b, the product must be the dividend a. Hence $\left(\frac{a}{b}\times b=\right)bc=a$, and likewise $ma=mbc$, and dividing both by mb, $\frac{ma}{mb}=c$. Conversely, if $\frac{ma}{mb}=c$, then also $\frac{a}{b}=c$.

Cor. 1. Hence a fraction may be reduced to another of the same value, but of a more simple form, by dividing both numerator and denominator by any common measure.

Thus, $\frac{30ax-54ay}{12ab}=\frac{5x-9y}{2b}$.

Cor. 2. A fraction is multiplied by any integer, by multiplying the numerator, or dividing the denominator by that integer; and conversely, a fraction is divided by any integer, by dividing the numerator, or multiplying the denominator by that integer.

Prob. I. *To find the greatest common measure of two quantities.*

1. Of pure numbers.

Rule. Divide the greater by the less; and, if there is no remainder, the less is the greatest common measure required. If there is a remainder, divide the last divisor by it; and thus proceed, continually dividing the last divisor by its remainder, till no remainder is left, and the last divisor is the greatest common measure required. The greatest common measure of 45 and 63 is 9; the greatest common measure of 187 and 391 is 17. Thus,

$$
\begin{array}{l}
45)\,63\,(\,1\\
\quad 45\\
\quad\overline{}\\
18)\,45\,(\,2\\
\quad 36\\
\quad\overline{}\\
9)\,18\,(\,2\\
\quad 18\\
\quad\overline{}\\
\quad\ 0
\end{array}
$$

The rule depends on the two following principles:

1. A quantity which measures both the divisor and remainder must measure the dividend.

2. A quantity which measures both the divisor and dividend must also measure the remainder.

For a quantity which measures two other quantities, must also measure both their sum and difference; and, from the nature of division, the dividend consists of the divisor repeated a certain number of times, together with the remainder. By the first it appears, that the number found by this rule is a common measure; and, by the second, it is plain there can be no greater common measure; for, if there were, it must necessarily measure the quantity already found less than itself, which is absurd.

When the greatest common measure of algebraical quantities is required, if either of them is simple, any common simple divisor is easily found by inspection. If they are both compound, any common simple divisor may also be found by inspection. But when the greatest compound divisor is wanted, the preceding rule is to be applied; only,

2. The simple divisors of each of the quantities are to be taken out, the remainders in the several operations are also to be divided by their simple divisors, and the quantities are always to be ranged according to the powers of the same letter.

The simple divisors in the given quantities, or in the remainders, do not affect a compound divisor which is wanted; and hence also, to make the division succeed, any of the dividends may be multiplied by a simple quantity. For the simple divisors in the remainders, not being found in the divisors from which they arise, can make no part of the common measure sought; and for the same reason, if in such a remainder there be any compound divisor, which does not measure the divisor from which it proceeds, it may be taken away.

Examples.

$$
\begin{array}{l}
a^2-b^2)\,a^2-2ab+b^2\,(\,1\\
\quad a^2-b^2\\
\quad\overline{}\\
\quad -2ab+2b^2\ \text{Remainder}\\
\text{divided by } -2b \text{ is } a-b)\,a^2-b^2\,(\,a+b\\
\qquad a^2-b^2\\
\qquad\overline{}\\
\qquad\qquad *\quad *
\end{array}
$$

If the quantities given are $8a^2b^2-10ab^3+2b^4$ and $9a^4b^3-9a^3b^2+3a^2b^3-3ab^4$. The simple divisors being expunged from each, viz. $2b^2$ from the first, it becomes $4a^2-5ab+b^2$, and $3ab$ from the second, it is $3a^3b^2-3a^2b+ab^2-b^3$. As the latter is to be divided by the former, it must be multiplied by 4, to make the operation succeed, and then it is as follows:

$a^2 - 5ab + b^2)12a^3 - 12a^2b + 4ab^2 - 4b^3(3a$
$12a^3 - 15a^2b + 3ab^2$
$3a^2b + ab^2 - 4b^3$

ivide this remainder by b, and multiply the dividend by 3, to make the division proceed. s,

$3a^2 + ab - 4b^2)12a^2 - 15ab + 3b^2(4$
$12a^2 + 4ab - 16b^2$
$-19ab + 19b^2$

s remainder divided by $-19b$, gives $a -$ hich, being made a divisor, divides $3a^2 + ab$ b^2 without a remainder, and therefore $a - b$ ie greatest compound divisor; but there is a ple divisor b, and therefore $\overline{a-b} \times b$ is the itest common measure required.

OB. II. *To reduce a fraction to its lowest terms.*

Rule. Divide both numerator and denominator their greatest common measure.

is, $\frac{75abc}{125bcx} = \frac{3a}{5x}$, $25bc$ being the greatest com- a measure; $\frac{a^4 - b^4}{a^5 - a^3b^2} = \frac{a^2 + b^2}{a^3}$.

OB. III. *To reduce an integer to a fraction.*

Rule. Multiply the given integer by any quan- for a numerator, and set that quantity under product for a denominator.

Thus, $a = \frac{ma}{m}$, $a + b = \frac{a^2 - b^2}{a - b}$.

The denominoter of an integer is unity.

OB. IV. *To reduce fractions with different denominators to fractions of equal value, that shall have the same denominator.*

Rule. Multiply each numerator, separately en, into all the denominators but its own, and products will be the new numerators; and ltiply all the denominators for the common nominator.

Example. Let the fractions be $\frac{a}{b}, \frac{c}{d}, \frac{e}{f}$; they are pectively equal to $\frac{adf}{bdf}, \frac{bcf}{bdf}, \frac{bde}{bdf}$.

The reason of the operation appears from the eceding proposition; for the numerator and nominator of each fraction are multiplied by same quantities; and the value of the fractions erefore is the same.

PROB. V. *To add and subtract fractions.*

Rule. Reduce them to a common denomina- r, then add or subtract the numerators; and e sum or difference placed over the common nominator is the sum or remainder required.

Ex. Add together $\frac{a}{b} \frac{c}{d} \frac{e}{f}$, the sum is $\frac{adf + bcf + bde}{bdf}$

From $\frac{a}{b}$ subt. $\frac{c}{d}$ the difference is $\frac{ad - bc}{bd}$.

Cor. 1. Integers and fractions may be added and subtracted by this rule, by considering unity as the denominator of the integers.

Thus, $b + \frac{c}{d} = \frac{bd + c}{d}$, and $a - \frac{a^2 - b^2}{2a} = \frac{2a^2 - a^2 + b^2}{2a} = \frac{a^2 + b^2}{2a}$.

Cor. 2. A fraction, whose numerator is a compound quantity, may be distinguished into parts, by dividing the numerator into several parts, setting each over the original denominator, and uniting the new fractions by the signs of their numerators.

Thus, $\frac{a^2 - 2ab + b^2}{2a} = \frac{a^2}{2a} - \frac{2ab}{2a} + \frac{b^2}{2a} = \frac{a}{2} - b + \frac{b^2}{2a}$.

PROB. VI. *To multiply fractions.*

Rule. Multiply their numerators together for the numerator of the product; and the denominators, for the denominator of the product.

Ex. $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$ $\frac{a+b}{c} \times \frac{a-b}{d} = \frac{a^2 - b^2}{cd}$.

Proof. Let $\frac{a}{b} = m$, and $\frac{c}{d} = n$. Then $a = bm$, and $c = dn$, and $ac = bdnm$, and $mn \left(= \frac{a}{b} \times \frac{c}{d}\right) = \frac{ac}{bd}$.

PROB. VII. *To divide fractions.*

Rule. Multiply the numerator of the dividend by the denominator of the divisor, for the numerator; and the denominator of the dividend by the numerator of the divisor, for the denominator of the quotient.

Thus, $\frac{c}{d} \div \frac{a}{b} = \frac{bc}{ad} = \frac{c}{d} \times \frac{b}{a}$.

Proof. Let $\frac{a}{b} = m$, and $\frac{c}{d} = n$; then $a = bm$, and $c = dn$; also $ad = bdm$ and $bc = bdn$; therefore, $\left(\frac{bdn}{bdm} =\right) \frac{n}{m} = \frac{bc}{ad}$.

CHAP. II.

SECT. I. OF EQUATIONS.

Definitions.

1. An equation is a proposition asserting the equality of two quantities, and is expressed by placing the sign $=$ between them.

2. Equations containing only one unknown quantity and its powers, are divided into orders,

according to the highest power of the unknown quantity to be found in any of its terms.

If the highest power of the unknown quantity in any term be the { 1st, 2d, 3d, &c. } { The equation is called { *Simple*, *Quadratic* *Cubic*, &c.

It is here supposed that the exponents of the unknown quantity are integers, and that the equation is cleared of such fractions as the unknown quantity in the denominator.

Thus, $x + a = \frac{3x - b}{c}$ is a simple equation;

$3x - \frac{5}{2x} = 12$, when cleared of the fraction by multiplying both sides by $2x$, becomes $6x^2 - 5 = 24x$ is a quadratic, $x^3 - 2x^4 = x^6 - 20$ is an equation of the sixth order, &c.

To resolve an equation is to find the value of the unknown term.

§ 1. *Of simple equations, and rules for their resolution.*

Rule 1. Any quantity may be transposed from one side of an equation to the other, by changing its sign.

Thus, if $3x - 10 = 2x + 5$
Then, $3x - 2x = 10 + 5$ or $x = 15$
Thus also, $5x + b = a + 2x$
By transp. $3x = a - b$.

For equal quantities are thus added to or subtracted from both sides.

Cor. The signs of all the terms of an equation may be changed into the contrary signs, and it will continue to be true.

Rule 2. Any quantity, by which the unknown quantity is multiplied, may be taken away, by dividing all the other quantities of the equation by it.

Thus, if $ax = b$

$$x = \frac{b}{a}$$

Also, if $mx + nb = am$

$$x + \frac{nb}{m} = a$$

For if equal quantities are divided by the same quantity, the quotients are equal.

Rule 3. If a term of an equation is fractional, its denominator may be taken away by multiplying all the other terms by it.

Thus, if $\frac{x}{a} = b + c$.

$$x = ab + ac$$

Also, if $a - \frac{b}{x} = c$

$$ax - b = cx$$

And by trans. $ax - cx = b$

And by div. $x = \frac{b}{a - c}$.

For if all the terms of the equation are multiplied by the same quantity, the quantities on each side will be equal.

Cor. If any quantity be found on both sides of the equation, with the same sign, it may be taken away from both.

Also, if all the terms in the equation are multiplied or divided by the same quantity, it may by taken out of them all.

Ex. If $3x + a = a + b$, then $3x = b$.
If $2ax + 3ab = ma + a^2$, then $2x + 3b = m + a$.

If $\frac{x}{3} - \frac{4}{3} = \frac{16}{3}$, then $x - 4 = 16$.

By these rules the unknown term may be separated from the known, and the equation resolved.

Examples of simple equations resolved by these rules.

Ex. 1. If $3x + 5 = x + 9$

$$2x = 4$$

$$x = \frac{4}{2} = 2.$$

Ex. 2. If $5x - \frac{5x}{2} + 12 = \frac{4x}{3} + 26$

$$5x - \frac{5x}{2} - \frac{4x}{3} = 26 - 12 = 14$$

$$30x - 15x - 8x = 84.$$

Or $7x = 84$

$$x = \frac{84}{7} = 12.$$

Ex. 3. If $\frac{5}{x} + \frac{9}{4} = 16$

$$\frac{20}{x} + 9 = 64$$

$$20 + 9x = 64x$$

$$20 = 64x - 9x = 55x$$

$$x = \frac{20}{55} = \frac{4}{11}.$$

§ 2. *Solution of questions producing simple equations.*

General Rule. The unknown quantities in the question proposed must be expressed by letters, and the relations of the known and unknown quantities contained in it, or the conditions of it, as they are called, must be expressed by equations. These equations being resolved give the answer to the question.

For example, if the question is concerning two numbers, they may be called x and y, and the conditions from which they are to be investigated must be expressible by equations.

Thus, if it be required that the sum of two numbers sought be 60, that condition is expressed thus: $x + y = 60$
If their difference must be 24, then $x - y = 24$
If their product is 1640, then $xy = 1640$
If their quotient must be 6, then $\frac{x}{y} = 6$

Case 1. When there is only one unknown quantity to be found.

Rule. An equation involving the unknown quantity must be deduced from the question; and it is obvious, that when there is only one un-

known quantity, there must be only one independent equation contained in the question; for any other would be unnecessary, and might be contradictory to the former.

Example 1. To find a number, to which if there be added a half, a third part, and a fourth part of itself, the sum will be fifty.

Let it be z; then half of it is $\frac{z}{2}$, a third of it is $\frac{z}{3}$, &c.

Therefore, $z + \frac{z}{2} + \frac{z}{3} + \frac{z}{4} = 50$

$24z + 12z + 8z + 6z = 1200$

$50z = 1200$

$z = 24$

Case 2. When there are two unknown quantities.

Rule. Two independent equations involving the two unknown quantities, must be derived from the question. A value of one of the unknown quantities must be derived from each of the equations; and these two values being put equal to each other, a new equation will arise, involving only one unknown quantity.

Example 2. Two persons, A and B, were talking of their ages: says A to B, seven years ago I was just three times as old as you were, and seven years hence I shall be just twice as old as you will be. What are their present ages?

Let A's age $= x$, and B's age $= y$;
then by the condition of the question we have $x - 7 = 3 \cdot \overline{y - 7}$ and $x + 7 = 2 \cdot \overline{y + 7}$.
Subtracting the first of these equations from the second, we have

$2 \cdot \overline{y + 7} - 3 \cdot \overline{y - 7} = 14$;
or $7 - y = 14$, or $y = 21$.
Whence $x = 49$.

The ages of A and B then are forty-nine and twenty-one.

Example 3. A gentleman distributing money among some poor people, found he wanted ten shillings to be able to give five shillings to each; he therefore gave each four shillings only, and found he had five shillings left. To find the number of shillings and poor people.

If any question such as this, in which there are two quantities sought, can be resolved by means of one letter, the solution is, in general, more simple than when two are employed. There must be, however, two independent conditions; one of which is used in the notation of one of the unknown quantities, and the other gives an equation.

Let the number of poor $= z$, then each of the equations $5z - 10$ and $4z + 5$ will represent the number of shillings.

Hence $5z - 10 = 4z + 5$, whence $z = 15$,
and, consequently, the number of shillings is sixty-five.

Case 3. When there are three or more unknown quantities.

Rule. When there are three unknown quantities, there must be three independent equations arising from the question; and from each of these a value of one of the unknown quantities must be obtained. By comparing these three values, two equations will arise, involving only two unknown quantities; and in like manner may the rule be extended to such questions as contain four or more unknown quantities. Hence, it may be inferred, that when just as many independent equations may be derived from a question as there are unknown quantities in it, these quantities may be found by the resolution of equations.

Example 4. To find three numbers, such, that the first, with half the other two, the second with one third of the other two, and the third with one fourth of the other two, may each be equal to thirty-four.

Let the numbers be x, y, z, and the equations are

$$x + \frac{y + z}{2} = 34,$$

$$y + \frac{x + z}{3} = 34,$$

$$\text{and } z + \frac{x + y}{4} = 34.$$

We have, hence,

$$x = 34 - \frac{y + z}{2},$$

$$x = 102 - 3y - z$$

$$\text{and } x = 136 - 4z - y.$$

By equating the first two of these latter equations, we find $y = \frac{136 - z}{5}$; by equating the last two, we find $y = \frac{3z - 34}{2}$.

Hence $\frac{3z - 34}{2} = \frac{136 - z}{5}$, or

$15z - 170 = 272 - 2z$, or $17z = 442$, or $z = 26$;
whence $y = 22$ and $x = 10$.

Scholium.

On many occasions, by particular contrivances, the operations by the preceding rules may be much abridged. This, however, must be left to the skill and practice of the learner. A few examples are the following.

1. It is often easy to employ fewer letters than there are unknown quantities, by expressing some of them from their relation to others, contained in the conditions of the question.

2. Sometimes it is convenient to express by letters, not the unknown quantities themselves, but some other quantities connected with them, as their sum, difference, &c. from which they may be easily derived.

3. In the operation, also, circumstances will sometimes suggest a more easy method than that pointed out by the general rules. Two of the original equations may be added together, or may be subtracted; sometimes they must be previously multiplied by some quantity, to render some addition or subtraction effectual, in exterminating one of the unknown quantities, or otherwise facilitating the solution. Substitutions may be made of the values of quantities, in place of quantities themselves, and various other

such contrivances may be used, to render the solution less complicated.

Sect. II. General Solution of Problems.

In the solutions of the questions in the preceding part, the given quantities (being numbers) disappear in the last conclusion, so that no general rules for the like cases can be deduced from them. But if letters be used to denote the known, as well as the unknown, quantities, a general solution will be obtained, because during the whole course of the operation, they retain their original form. Hence, also, the connection of the quantities will appear, in such a manner as to discover the necessary limitations of the data, when there are any, which is necessary to the perfect solution of a problem.

Example 5. To find two numbers, of which the sum and difference are given.

Let s be the sum given, and d the given difference. Also, let x and y be the two numbers sought.

Then $x + y = s$ and $x - y = d$,
whence $x = s - y$ and $x = d + y$, consequently $d + y = s - y$, or $2y = s - d$,

or $y = \frac{s-d}{2}$; and hence $x = \frac{s+d}{2}$.

Thus, let the given sum be 100, and the difference 24.

Then $x = \frac{s+d}{2} = \frac{124}{2} = 62$.

And $y = \frac{s-d}{2} = \frac{76}{2} = 38$.

CHAP. III.

Of Involution and Evolution

Lemma.

The reciprocals of the powers of a quantity may be expressed by that quantity, with negative exponents of the same denomination. That is, the series a, 1, $\frac{1}{a}$, $\frac{1}{a^2}$, $\frac{1}{a^3}$, $\frac{1}{a^m}$, &c. may be expressed by a^1, a^0, a^{-1}, a^{-2}, a^{-3}, a^{-m}, &c.

For the powers of the same root are divided by subtracting their exponents; if then the index of the divisor be greater than that of the dividend, the index of the quotient will be negative.

Thus, $\frac{a^2}{a^3} = a^{2-3} = a^{-1}$.

Also, $\frac{a^2}{a^2} = \frac{1}{a^1}$, $\frac{a^m}{a^m} = a^{m-m} = a^0$.

Also, $\frac{a^m}{a^m} = 1$, and so on of others

Cor. These negative powers, as they are called, are multiplied by adding, and divided by subtracting, the exponents.

Thus, $a^{-2} \times a^{-3} = a^{-5}$.

Or, $\frac{1}{a^2} \times \frac{1}{a^3} = \frac{1}{a^5} = a^{-5}$.

$\frac{a^{-1}}{a^{-3}} = a$. Or $\frac{1}{a^2}) \frac{1}{a} (\frac{a^3}{a} = a^2$.

1. *Of Involution.*

To find any power of a quantity is the business of involution.

Case 1. When the quantity is simple.

Rule. Multiply the exponent of the letters by the index of the power required, and raise the co-efficient to the same power.

Thus, the second power of a is $a^{1\times 2} = a^2$.

The third power of $2a^2$ is $8a^{2\times 3} = 8a^6$.

For the multiplication would be performed by the continual addition of the exponents; and this multiplication of them is equivalent.

If the sign of the given quantity is +, all its powers will be positive. If the sign is —, then the powers whose exponents are even numbers are positive; and those whose exponents are odd numbers are negative.

This is obvious from the rule for the signs in multiplication.

Case 2. When the quantity is compound.

Rule. The powers must be found by a continual multiplication of the quantity by itself.

Thus the square of $x + \frac{a}{2}$ found by multiplying it into itself is $x^2 + ax + \frac{a^2}{4}$. The cube is got by multiplying the square already found by the root, &c.

The involution of compound quantities is rendered much easier by the binomial theorem; for which see Chap. VII.

2. *Of Evolution.*

Evolution is the reverse of involution, and by it powers are resolved into their roots.

Def. The root of any quantity is expressed by placing before it $\sqrt{\ }$ (called a radical sign) with a small figure above it, denoting the denomination of that root

Thus, the square root of a is $\sqrt[2]{a}$ or $\sqrt{a}$.

The cube root of bc is $\sqrt[3]{bc}$.

The fourth root of $a^2b - x^3$, is $\sqrt[4]{a^2b - x^3}$.

The mth root of $c^2 - dx$, is $\sqrt[m]{c^2 - dx}$.

General rules for the signs.

1. The root of any positive power may be either positive or negative, if it is denominated by an even number; if the root is denominated by an odd number, it is positive only.

2. If the power is negative, the root also is negative, when it is denominated by an odd number.

3. If the power is negative, and the denomination of the root even, then no root can be assigned.

This rule is derived from the change of signs in multiplication. When the quantity, whose root is to be found, is negative, it is convenient

to set the radical sign before the negative quantity, and then it is called an impossible or imaginary root.

Thus, the square root of $-a^2$ is denoted $\sqrt{-a^2}$.

The root of a positive power, denominated by an even number, has often the sign $\pm$ before it, denoting that it may have either $+$ or $-$.

Case 1. When the quantity is simple.

Rule. Divide the exponents of the letters by the index of the required root, and prefix the root of the numeral co-efficient.

1. The exponents of the letters may be multiples of the index of the root, and the root of the co-efficient may be extracted

Thus, the square root of $a^4 = a^{\frac{4}{2}} = \pm a^2$.

$$\sqrt[3]{27a^6} = 3a^{\frac{6}{3}} = 3a^2.$$

2. The exponents of the letters may not be multiples of the index of the root, and then they become fractions; and when the root of the co-efficient cannot be extracted, it may also be expressed by a fractional exponent, its original index being understood to be 1.

Thus, $\sqrt{16a^3b^2} = 4a^{\frac{3}{2}}b$

$$\sqrt[3]{7ax^3} = 7^{\frac{1}{3}}a^{\frac{1}{3}}x = xa^{\frac{1}{3}}\sqrt[3]{7}.$$

Case 2. When the quantity is compound.

1. *To extract the square root.*

Rule. 1. Range the given quantity according to the powers of some letter, as in division.

2. Extract the square root of the first term from the first part of the root sought. Subtract its square from the given quantity, and divide the first term of the remainder by double the part already found, and the quotient is the second term of the root.

3. Add this second part to double of the first, and multiply the sum by the second part: subtract the product from the last remainder, and if nothing remain, the square root is obtained. But if there is a remainder, it must be divided by the double of the parts already found, and the quotient will give the third part of the root; and so on.

The operation is as follows.

$$\begin{array}{l} a^2 + 2ab + b^2 \,(a + b \\ a^2 \\ \hline 2a + b \;\big|\; 2ab + b^2 \\ \times\; b \;\big|\; 2ab + b^2 \\ \hline \qquad\qquad * \end{array}$$

$$\begin{array}{l} x^4 - ax^3 + \frac{a^2}{4}\Big(x^2 - \frac{a}{2} \\ x^4 \\ \hline 2x^2 - \frac{a}{2} \;\big|\; -ax^2 + \frac{a^2}{4} \\ \times\; -\frac{a}{2} \;\big|\; -ax^2 + \frac{a^2}{4} \\ \hline \qquad\qquad * \end{array}$$

The reason of this rule appears from the composition of a square.

2. *To extract any other root.*

Rule. Range the quantity according to the dimensions of its letters, and extract the required root of the first term, and it will be the first member of the root required. Then raise this root to a dimension lower by unity than the number that denotes the required root, and multiply the power that arises by that number itself. Divide the second term of the given quantity by the product, and the quotient will be the second member of the root required. In like manner are the other parts to be found, by considering those already got as making one term.

Thus, the fifth root of

$$\begin{array}{l} a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + b^5 \,(a + b \\ a^5 \\ \hline 5a^4) \; 5a^4b \end{array}$$

And $a + b$ raised to the fifth power is the given quantity, and therefore it is the root sought.

It often happens, that the operation will not terminate, and the root will be expressed by a series.

Thus, the square root of $a^2 + x^2$ becomes a series.

$$\begin{array}{l} a^2 + x^2 \,(a + \frac{x^2}{2a} - \frac{x^4}{8a^3} + \frac{x^6}{16a^5}, \text{\&c.} \\ a^2 \\ \hline 2a + \frac{x^2}{2a} \;\big|\; x^2 \\ \times\; \frac{x^2}{2a} \;\big|\; = x^2 + \frac{x^4}{4a^2} \\ \hline 2a + \frac{x^2}{a} - \frac{x^4}{8a^3} \;\big|\; -\frac{x^4}{4a^2} \\ \times\; -\frac{x^4}{8a^3} \;\big|\; = -\frac{x^4}{4a^2} - \frac{x^6}{8a^4} + \frac{x^8}{64a^6}, \\ \hline \qquad\qquad \frac{x^6}{8a^4} + \frac{x^8}{64a^6}, \text{\&c.} \end{array}$$

3. *Of Surds.*

Def. Quantities with fractional exponents are called surds, or imperfect powers.

Such quantities are also called irrational; in opposition to others with integral exponents, which are called rational.

The operations concerning surds depend on the following principle: If the numerator and denominator of a fractional exponent be both multiplied or both divided by the same quantity, the value of the power is the same.

Lemma. A rational quantity may be put into the form of a surd, by reducing its index to the form of a fraction of the same value

Thus, $a = a^{\frac{2}{2}} = \sqrt{a^2}$

$$a^2b = a^{\frac{6}{3}}b^{\frac{3}{3}} = \sqrt[3]{a^6b^3}.$$

PROB. I. *To reduce surds of different denominators to others of the same value, and of the same denomination.*

Rule. Reduce the fractional exponents to others of the same value, and having the same common denominator.

Example. $\sqrt{a}, \sqrt[3]{b^2}$ or $a^{\frac{1}{2}}, b^{\frac{2}{3}}$;

but $a^{\frac{1}{2}} = a^{\frac{3}{6}}$ and $b^{\frac{2}{3}} = b^{\frac{4}{6}}$,

therefore $\sqrt{a}$, and $\sqrt[3]{b^2}$ are respectively equal to $\sqrt[6]{a^3}$ and $\sqrt[6]{b^4}$.

PROB. II. *To multiply and divide surds.*

1. When they are surds of the same rational quantity, they are multiplied by adding, and divided by subtracting, their exponents.

Thus, $a^{\frac{1}{3}} \times a^{\frac{3}{4}} = a^{\frac{1}{3}+\frac{3}{4}} = a^{\frac{13}{12}} = \sqrt[12]{a^{13}}$.

2. If they are surds of different rational quantities, let them be brought to others of the same denomination. Then, by multiplying or dividing these rational quantities their product or quotient may be set under the common radical sign.

Thus, $\sqrt[m]{a} \times \sqrt[n]{b} = a^{\frac{1}{m}} b^{\frac{1}{n}} = \sqrt[mn]{a^n b^m}$.

$$\frac{\sqrt{a^2 - b^2}}{\sqrt{a+b}} = \sqrt{\frac{a^2-b^2}{a+b}} = \sqrt{a-b}.$$

If the surds have any rational co-efficients, their product or quotient must be prefixed.

Thus, $a\sqrt{m} \times b\sqrt{n} = ab\sqrt{mn}$.

Cor. If a rational co-efficient be prefixed to a radical sign, it may be reduced to the form of a surd by the lemma; and conversely, if the quantity under the radical sign be divisible by a perfect power of the same denomination, it may be taken out, and its root prefixed as a co-efficient.

$$a\sqrt{b} = \sqrt{a^2 b}; \quad 2 \times \sqrt[3]{a} = \sqrt[3]{8a}$$

Converse $\sqrt{a^2 b^3} = ab\sqrt{b}$; $\sqrt{4a^2 - 8a^2 b} = 2a\sqrt{1-2b}$.

Even when the quantity under the radical sign is not divisible by a perfect power, it may be useful sometimes to divide surds into their component factors by reversing the operation of this problem.

Thus, $\sqrt{ab} = \sqrt{a} \times \sqrt{b}$, $\sqrt[3]{a^2 b} - b\sqrt[3]{x^2} =$

$$\sqrt[3]{ba - bx} \times \sqrt[3]{a+x} =$$

$$b^{\frac{1}{3}} \times \sqrt[3]{a-x} \times \sqrt[3]{a+x}.$$

PROB. III. *To involve or evolve surds.*

This is performed by the same rules as in other quantities, by multiplying or dividing their exponents by the index of the power or root required.

Scholium.

If a member of an equation be a surd root, then the equation may be freed from any surd, by bringing that member first to stand alone upon one side of the equation, and then taking away the radical sign from it, and raising the other side to the power denoted by the index of that surd.

Example. If $3\sqrt{x^2 - a^2} + 2y = a + y$.

Then $3\sqrt{x^2 - a^2} = a - y$.

And $9 \times x^2 - a^2 = a^2 - 2ay + y^2$.

If the unknown quantity be found only under the radical sign, and only of the first dimension, the equation becomes simple.

Thus, if $\sqrt[3]{4x + 16} + 5 = 9$

Then $\sqrt[3]{4x + 16} = 4$

And $4x + 16 = 64$

$4x = 48$

And $x = 12$

If $\sqrt[m]{a^2 x} - b^2 x = a$

Then $a^2 x - b^2 x = a^m$

$$x = \frac{a^m}{a^2 - b^2}$$

In general if $x^{\frac{p}{q}} + x^{\frac{m}{n}} = a$, by reducing the surds to the same denomination $x^{\frac{pn}{qn}} + x^{\frac{qm}{qn}} = a$, and making $x^{\frac{1}{qn}} = z$, the equation is $z^{pn} + z^{qm} = a$, in which the exponents of z are integers; and z being found, x is to be found from the equation $x^{\frac{1}{qn}} = z$.

CHAP. V.

OF QUADRATIC EQUATIONS.

Quadratic equations are either pure or adfected.

Definitions.

1. A pure equation is that in which only one power of the unknown quantity is found.

2. An adfected equation is that in which different powers of the unknown quantity are found in the several terms.

Thus, $a^2 + ax^2 = b^3$, $ax^2 - b^2 = m^2 + x^2$ are pure equations.

$x^2 - ax = b^2$, $x^3 + x^2 = 17$. are adfected equations.

Solution of Pure Equations.

Rule. Make the power of the unknown quantity to stand alone by the rules formerly given, and then extract the root of the same denomination on both sides, and the value of the unknown quantity will be obtained.

Examples.

If $a^2 - ax^2 = b^3$

$ax^2 = b^3 - a^2$

$x^2 = \frac{b^3 - a^2}{a}$

$x = \sqrt{\frac{b^3 - a^2}{a}}$

$ax^m - b = x^m - c$

$ax^m - x^m = b - c$

$x^m = \frac{b-c}{a-1}$

$x = \sqrt[m]{\frac{b-c}{a-1}}$

Solution of adfected quadratic equations.

An adfected quadratic equation (commonly called a quadratic) involves the unknown quantity itself and also its square.

Rule 1. Transpose all the terms involving the unknown quantity to one side, and the known terms to the other; and so that the term containing the square of the unknown quantity may be positive.

2. If the square of the unknown quantity is multiplied by any co-efficient, divide all the terms of the equation by it, so that the co-efficient of the square of the unknown quantity may be 1.

3. Add to both sides the square of half the co-efficient of the unknown quantity, and the side of the equation involving the unknown quantity will be a complete square.

4. Extract the square root from both sides of the equation, and by transposing the abovementioned half co-efficient, the value of the unknown quantity will be obtained.

The reason of this rule is manifest from the composition of the square of a binomial, for it consists of the squares of the two parts, and twice the product of the two parts.

The different forms of quadratic equations, expressed in general terms, being reduced by the first and second parts of the rule, are these.

1. $x^2 + ax = b^2$
2. $x^2 - ax = b^2$
3. $x^2 - ax = -b^2$

Case 1. $x^2 + ax = b^2$

$$x^2 + ax + \frac{a^2}{4} = b^2 + \frac{a^2}{4}$$

$$x + \frac{a}{2} = \pm\sqrt{b^2 + \frac{a^2}{4}}$$

$$x = \pm\sqrt{b^2 + \frac{a^2}{4}} - \frac{a}{2}$$

Case 2. $x^2 - ax = b^2$

$$x^2 - ax + \frac{a^2}{4} = b^2 + \frac{a^2}{4}$$

$$x - \frac{a}{2} = \pm\sqrt{b^2 + \frac{a^2}{4}}$$

$$x = \frac{a}{2} \pm \sqrt{b^2 + \frac{a^2}{4}}.$$

Case 3. $x^2 - ax = -b^2$

$$x^2 - ax + \frac{a^2}{4} = \frac{a^2}{4} - b^2$$

$$a - \frac{a}{2} = \pm\sqrt{\frac{a^2}{4} - b^2}$$

$$x = \frac{a}{2} \pm \sqrt{\frac{a^2}{4} - b^2}$$

1. Every quadratic equation will have two roots, except those of the third form, whose roots become impossible.

2. In the first two forms, one of the roots will be positive, and the other negative.

3 In the third form, if $\frac{a^2}{4}$, or the square of half the co-efficient of the unknown quantity, be greater than b^2, the known quantity, the two roots will be positive. If $\frac{a^2}{4}$ be equal to b^2, the two roots become equal; but if $\frac{a^2}{4}$ is less than b^2, the quantity under the radical sign becomes negative and the two roots are impossible.

4. If the equation express the relation of magnitudes abstractedly considered, where a contrariety cannot be supposed to take place, the negative roots cannot be of use, or rather there are no such roots; for then a negative quantity by itself is unintelligible, and therefore the square root of a positive quantity must be positive only.

Solution of questions producing quadratic Equations.

Example 1. One laid out a certain sum of money in goods, which he sold again for twenty-four pounds, and gained as much per cent. as the goods cost him. What did they cost him?

Let the money laid out $= y$, then $24 - y$ is the gain; and $y : 24 - y :: 100 : \frac{2400 - 100y}{y}$ = the gain per cent. which by the question is equal to y.

$$\text{Hence } y = \frac{2400 - 100y}{y},$$

$$\text{or } y^2 = 2400 - 100y,$$

$$\text{or } y^2 + 100y = 2400;$$

whence, by adding to each side of the equation 2500, the square of $\frac{100}{2}$,

$$\text{we have } y^2 + 100y + 2500 = 4900;$$

and hence, by extracting the square root, we have $y + 50 = \pm 70$, or $y = \pm 70 - 50 = 20$, or -120. The answer therefore is 20, the negative result from the nature of the problem being excluded.

The answer is twenty pounds, which succeeds. The other root, — 120, has no place in this example, a negative number being here unintelligible.

Example 2. To find two numbers whose sum is 100, and whose product is 2059.

Let the given sum $100 = a$ the product $2059 = b$, and let one of the numbers sought be x, the other will be $a - x$, and their product

$$ax - x^2.$$

$$\text{Hence } ax - x^2 = b,$$

$$\text{or } x^2 - ax = -b;$$

and, by completing the square, we have

$$x^2 - ax + \frac{a^2}{4} = \frac{a^2}{4} - b.$$

Then, by extracting the square root, there results

$$x - \frac{a}{2} = \pm\sqrt{\frac{a^2}{4} - b}.$$

$$\text{Whence } x = \frac{a}{2} \pm \sqrt{\frac{a^2}{4} - b} = \frac{a \pm \sqrt{a^2 - 4b}}{2}$$

By substituting for a and b their numerical values as given in the question, we find $x = 71$ or 29,

and $a - x = 29$ or 71, which are the two numbers required.

But in this example, by a different mode of substitution, an adfected equation may be avoided. Let $a =$ half the sum, and $x =$ half the difference of the required numbers; then the numbers will be represented by $a + x$ and $a - x$.

Hence $\overline{a+x} \cdot \overline{a-x} = b$, or $a^2 - x^2 = b$;

whence $x = \pm\sqrt{a^2 - b} =$ (with the given numbers) 21; whence the numbers are as before 71 and 29.

In the first solution it may be observed, that b must not be greater than $\frac{a^2}{4}$, for the roots of the equation would then be impossible; that is, the given product must not be greater than the square of half the given sum of the numbers sought. This limitation can easily be shown from other principles; for the greatest product of the two parts into which any number may be divided, is, when each of them is a half of it. If b be equal to $\frac{a^2}{4}$, there is only one solution, viz. $x = \frac{a}{2}$, also $a - x = \frac{a}{2}$.

CHAP. VI.

Of Indeterminate Problems.

It has already been observed, that if there are more unknown quantities in a question than equations, by which their relations are expressed, the question is indetermined. The method of solving such problems may be better learnt by examples than by any general rules; and, indeed, no general rules can be given for the purpose, each individual example forming in itself an especial and distinct case.

Example 1. To divide a given square number into two parts, each of which shall be a square number.

There are two quantities sought in this question, and there is only one equation expressing their relation; but it is required also that they may be rational, which circumstance cannot be expressed by an equation: another condition, therefore, must be assumed, to obtain a solution in rational numbers.

Let the given square be a^2; let one of the squares sought be x^2, the other is $a^2 - x^2$. Let $rx - a$ also be a side of the last square,

therefore $r^2x^2 - 2rxa + a^2 = a^2 - x^2$

by transp. $r^2x^2 + x^2 = 2rxa$

divide by x $r^2x + x = 2ra$

$$\text{Therefore } x = \frac{2ra}{r^2 + 1}$$

$$\text{And } rx - a = \frac{2r^2a}{r^2 + 1} - a$$

$$= \frac{r^2 - 1}{r^2 + 1}a.$$

Let r therefore be assumed at pleasure, and $\frac{2ra}{r^2 + 1}, \frac{r^2 - 1}{r^2 + 1}a$, which must always be rational, will be the sides of the two squares required.

Thus, if $a^2 = 100$; then if $r^2 = 3$, the sides of the two squares are 6 and 8, for $36 + 64 = 100$.

Also, let $a^2 = 64$. Then if $r = 2$, the sides of the squares are $\frac{32}{5}$ and $\frac{24}{5}$; and $\frac{1024}{25} + \frac{576}{25} = \frac{1600}{25} = 64$.

The reason of the assumption of $rx - a$ as a side of the square $a^2 - x^2$, is, that being squared and put equal to this last, the equation manifestly will be simple, and the root of such an equation is always rational.

Example 2. To find two square numbers whose difference is given.

Let x^2 and y^2 be the square numbers, and a their difference.

$$\text{Put } \frac{z + v}{2} = x,$$

$$\text{and } \frac{z - v}{2} = y,$$

$$\frac{z^2 + 2zv + v^2}{4} = x^2$$

$$\frac{z^2 - 2zv + v^2}{4} = y^2$$

$$zv = a.$$

If x and y are required only to be rational, then take v at pleasure, and $z = \frac{a}{v}$, whence x and y are known.

But if x and y are required to be whole numbers, take for z and v any two factors that produce a, and are both even, or both odd numbers. And this is possible only where a is either an odd number greater than 1, or a number divisible by 4. Then $\frac{z + v}{2}$ and $\frac{z - v}{2}$ are the numbers sought.

For the product of two odd numbers is odd, and that of two even numbers is divisible by 4. Also if z and v are both odd, or both even, $\frac{z + v}{2}$ and $\frac{z - v}{2}$ must be integers.

Example 1. If $a = 27$, take $v = 1$, then $z = 27$, and the squares are 196 and 169. Or z may be 9 and $v = 3$, and then the squares are 36 and 9.

2. If $a = 12$, take $v = 2$, and $z = 6$; and the squares are 16 and 4.

Example 3. Find three integral affirmative numbers, of which the sum of all three shall be a cube, and the sum of every two a square number.

Let x, y and z represent the numbers, and

let $x + y = m^2a^2$,

$x + z = m^2b^2$,

and $y + z = m^2c^2$,

then three of the required conditions are fulfilled,

and there remains only to make

$$x + y + z = \frac{m^2}{2}\ (a^2 + b^2 + c^2) \text{ a cube,}$$

which it is when $m = \frac{1}{2}(a^2 + b^2 + c^2)$,
in which case $x = m^2(m - c^2)$,
$y = m^2(m - b^2)$,
and $z = m^2(m - a^2)$;

where a^2, b^2, c^2 must be so taken that the sum of every two of them may be greater than the third. If $a = 5$, $b = 6$, and $c = 7$, then $m = 55$, $x = 18150$, $y = 57475$, and $z = 90750$.

As an example of the various ways in which questions of this kind may be considered, we add another solution of this question.

Let the numbers be represented by

$2(x^2 + y^2 - z^2)$,
$2(x^2 + z^2 - y^2)$,
and $2(z^2 + y^2 - x^2)$;
then $2(x^2 + y^2 + z^2) = a^3$.

Put $a = 2p^2$,
then $x^2 = 4p^6 - y^2 - z^2 = n^2 - z^2$ (if n^2 be put for $4p^6 - y^2$.) Assume

$$n^2 - z^2 = mz - n^2 = m^2z^2 - 2mnz + n^2,$$

then $z = \frac{m^2 + 1}{2mn}$.

As $n^2 = 4p^6 - y^2$, $y^2 = 4p^6 - n^2$.
Let this be assumed

$$= (cn - 2p^3)^2 = c^2n^2 - 4cp^3n + 4p^6,$$

then $n = \frac{c^2 + 1}{4p^3c}$,

$y = cn - 2p^3$,

$z = \frac{m^2 + 1}{2mn}$

and $x = mz - n$, z being found from the previous expression.

On continued fractions.

A continued fraction is one which has for its denominator a mixed number, or a whole number and a fraction, which fraction has, in like manner, for its denominator, a whole number and a fraction, &c.

One of the greatest practical advantages derivable from the properties of formulæ of this class, is, in approximating to the values of ratios, which are expressed by large numbers, which is effected by dividing the greater number by the less, the last divisor by the last remainder, &c. as in finding the greatest common measure of two numbers; the several quotients thus obtained being the denominators of the fractions, their numerators being always units.

Thus, to represent $\frac{a}{b}$ by a continued fraction, let b be contained, in a, p times with a remainder c; let c be contained in b, q times with a remainder d; d in c, r times with a remainder e, &c. as in the following operation.

$b)\ a\ (p$

$c)\ b\ (q$

$d)\ c\ (r$

$e)\ d\ (s$

f, &c.

Then, we have $\frac{a}{b} = p + \frac{c}{b}$,

$\frac{b}{c} = q + \frac{d}{c}$,

$\frac{c}{d} = r + \frac{e}{d}$, &c.

where p, q, r, &c. are called quotients,

and $p + \frac{c}{b}$, $q + \frac{d}{c}$, &c. complete quotients.

And b being again divided by c, c by d, d by e, &c. we shall, by successive substitution, have

$$\frac{a}{b} = p + \frac{e}{b} = p + \frac{1}{q + \frac{d}{c}} = p + \frac{1}{q + \frac{1}{r + \frac{e}{d}}}, \text{ &c.}$$

and, by extending the number of terms, we have

$$\frac{a}{b} = p + \frac{1}{q + \frac{1}{r + \frac{1}{s}}}, \text{ &c.}$$

A continued fraction may be converted into its equivalent vulgar fraction by adding together a few of its leading terms, and observing the law of their formation.

Thus, if it were required to find a series of vulgar fractions successively approximating to the continued fraction.

$$x = \alpha + \frac{1}{\beta + \frac{1}{\gamma + \frac{1}{\delta}}}, \text{ &c.}$$

we have, first,

$$\alpha = \frac{\alpha}{1},\ \alpha + \frac{1}{\beta} = \frac{\alpha\beta + 1}{\beta},$$

$$\alpha + \frac{1}{\beta + \frac{1}{\gamma}} = \alpha + \frac{\gamma}{\beta\gamma + 1} = \frac{(\alpha\beta + 1)\gamma + \alpha}{\beta\gamma + 1},$$

$$\alpha + \frac{1}{\beta + \frac{1}{\gamma + \frac{1}{\delta}}} = \alpha + \frac{1}{\beta + \frac{\delta}{\gamma\delta + 1}} =$$

$$\frac{(\overline{\alpha\beta + 1} \times \gamma + \alpha)\delta + \alpha\beta + 1}{\overline{\beta\gamma + 1} \times \delta + \beta}, \text{ &c.}$$

Now the law of continuation of these successive fractions, may easily be discovered if the quotients α, β, γ, δ, &c. be placed in a line over the results, as follows:

$$\begin{matrix} & \alpha & \beta & \gamma & & \delta \\ \frac{1}{0}, & \frac{\alpha}{1}, & \frac{\alpha\beta + 1}{\beta}, & & \frac{\alpha\beta + \gamma + \alpha}{\beta\gamma + 1}, & \text{&c.} \end{matrix}$$

for it is evident that the product of each numerator, and the quotient above it, added to the preceding numerator, gives the numerator next following; and in like manner, the product of each denominator, and the quotient above it, added to the preceding denominator, gives the next succeeding denominator.

As an example of the application of continued fractions, let it be required to exhibit a series of fractions approximating to the ratio which the

diameter of a circle bears to its circumference, that ratio being expressed by the fraction $\frac{314159}{100000}$. By successive division, we find

$$a = 3, \beta = 7, \gamma = 1, \delta = 1, \text{ \&c.}$$

Hence $$\frac{a}{1} = \frac{3}{1}, \quad \frac{a\beta + 1}{\beta} = \frac{22}{7},$$

$$\frac{\overline{a\beta + 1}.\gamma + a}{\beta\gamma + 1} = \frac{25}{8},$$

$$\frac{(\overline{a\beta + 1}\,.\,\gamma + a)\delta + a\beta + 1}{\overline{\beta\gamma + 1}\,.\,\delta + \beta} = \frac{47}{15}, \text{ \&c.}$$

the successive fractions being $\frac{3}{1}, \frac{22}{7}, \frac{25}{8}, \frac{47}{15}, \frac{72}{23}, \frac{191}{61}$, all fractions of small terms approximating to the given one.

CHAP. VII.

I. Of Arithmetical Series.

Def. When quantities increase or decrease by the same common difference, they form an arithmetical series. Thus, a, $a + b$, $a + 2b$, $a + 3b$, &c. x, $x - b$, $x - 2b$, &c. Also 1, 2, 3, 4, 5, 6, &c. and 8, 6, 4, 2, &c.

Prop. In an arithmetical series, the sum of the first and last terms is equal to the sum of any two intermediate terms, equally distant from the extremes.

Let the first term be a, the last x, and b the common difference; then $a + b$ will be the second, and $x - b$ the last but one, &c.

Thus, a, $a + b$, $a + 2b$, $a + 3b$, $a + 4b$, &c.
x, $x - b$, $x - 2b$, $x - 3b$, $x - 4b$, &c.

It is plain, that the terms in the same perpendicular rank are equally distant from the extremes; and that the sum of any two in it is $a + x$, the sum of the first and last.

Cor. 1. Hence the sum of an arithmetical series is equal to the sum of the first and last terms multiplied into half the number of terms.

If n be the number of terms, and s the sum of the series: $s = \overline{a + x} \times \frac{n}{2}$. If $a = 0$, then $s = \frac{nx}{2}$.

Cor. 2. $x = a + \overline{n - 1} \times b$, and $s = \overline{\overline{2a + \overline{n - 1} \times b} \times \frac{n}{2}}$, or, $s = \frac{2an + n^2b - nb}{2}$.

Cor. 3. Of the first term, common difference, sum, and number of terms, any three being given, the fourth may be found by resolving the preceding equation; a, b, s, and n, being successively considered as the unknown quantity. In the first three cases the equation is simple, and in the last it is quadratic.

II. Of Geometrical Series.

Def. When quantities increase by the same multiplier, or decrease by the same divisor, they form a geometrical series. This common multiplier or divisor is called the common ratio.

Thus,

a, ar, ar^2, &c. a, $\frac{a}{r}$, $\frac{a}{r^2}$, $\frac{a}{r^3}$, &c. 1, 2, 4, 8, &c.

Prop. I. The product of the extremes in a geometrical series is equal to the product of any two terms, equally distant from the extremes.

Let a be the first term, y the last, r the common ratio: then the series is,

$$a, ar, ar^2, ar^3, ar^4, \text{ \&c.}$$

$$y, \frac{y}{r}, \frac{y}{r^2}, \frac{y}{r^3}, \frac{y}{r^4}, \text{ \&c.}$$

Each term in the upper rank is equally distant from the beginning as that below it from the end; and the product of any two such is equal to *ay*, the product of the first and last.

Prop. II. The sum of a geometrical series, wanting the first term, is equal to the sum of all but the last term multiplied by the common ratio.

For,

$$ar + ar^2 + ar^3, \text{ \&c.} \ldots + \frac{y}{r^3} + \frac{y}{r^2} + \frac{y}{r} + y$$

the series wanting the first term

$$= r \times a + ar^2, \text{ \&c.} \ldots + \frac{y}{r^4} + \frac{y}{r^3} + \frac{y}{r^2} + \frac{y}{r}$$

the series without the last term multiplied by r.

Cor. 1. Let s be the sum of the series

$$\overline{s - y} \times r = s - a. \quad \text{And } s = \frac{yr - a}{r - 1}.$$

Cor. Since the exponent of r in any term is equal to the number of terms preceding it; in the last term its exponent will be $n - 1$; the last term, therefore,

$$y = ar^{n-1}, \text{ and } s = \frac{ar^n - a}{r - 1} = a \times \frac{r^n - 1}{r - 1}.$$

Hence of these four, s, a, r, n, any three being given, the fourth may be found. If n is not a small number, it will be most conveniently found by logarithms.

Cor. 3. If the series decreases, and the number of terms is unlimited, then, according to this notation, $s = \frac{yr}{r - 1}$ a finite sum is the limit of the series.

Examp. Required the limit of the series 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, &c. Hence $y = 1$, and $r = 2$. Therefore $s = \frac{1 \times 2}{2 - 1} = 2$.

Repeating and circulating decimals are geometrically decreasing series, and their limits may be found by this rule.

Thus $\cdot 333$, &c. $= \frac{3}{10} + \frac{3}{100} +$, &c. $y = \frac{3}{10}$ and $r = 10$; therefore $s = \frac{yr}{r - 1} = \frac{3 \times 10}{10 \times \overline{10 - 1}} = \frac{1}{3}$

III. Of Infinite Series.

In many cases, if the division and evolution of compound quantities be actually performed, the quotients and roots can only be expressed by a series of terms, to be continued *ad infinitum*. By comparing a few of the first terms, the law of the progression of such a series will frequently be discovered. When this cannot be done, the work is much facilitated by several methods; the chief of which is that by the binomial theorem.

Theorem. Any binomial (as $a + b$) may be raised to any power (m) by the following rules.

1. From inspecting a table of the powers of a binomial obtained by multiplication, it appears that the terms without their co-efficients are a^m, $a^{m-1}b$, $a^{m-2}b^2$, $a^{m-3}b^3$, &c.

2. The co-efficients of these terms will be found by the following rule:

The co-efficient of any term multiplied into the exponent of a in it, and divided by the exponent of b increased by 1, will give the co-efficient of the next following term.

The co-efficient of the first term is always 1; and the co-efficients of the terms in order are as follows:

$1, m, m \times \frac{m-1}{2}, m \times \frac{m-1}{2} \times \frac{m-2}{3}$, &c.

or more conveniently expressed thus: 1. Am, B $\times \frac{m-1}{2}$, C $\times \frac{m-2}{3}$, D $\times \frac{m-3}{4}$, &c. the capitals denoting the preceding co-efficient. Hence

$$\overline{a+b}^m = a^m + Ama^{m-1}b + B \times \frac{m-1}{2} \times a^{m-2}b^2 + C \times \frac{m-2}{3} a^{m-3}b^3 \text{ &c.}$$

This theorem, perhaps the most useful in the whole circle of mathematical science, may be thus demonstrated:

First, it may be expedient to premise, that if two series, as

$$A + Bx + Cx^2 + Dx^3 + \text{&c.}$$
$$\text{and } A' + B'x + C'x^2 + D'x^3 + \text{&c.}$$

be always equal, whatever be the value of x; then the co-efficients of the corresponding series are also equal, viz.

$$A = A';\ B = B' \text{ &c.}$$

For since the series are equal, whatever value be given to x, they are equal when $x = 0$; in which case there results $A = A'$; hence the remaining parts

$$Bx + Cx^2 + \text{&c.}$$
$$\text{and } B'x + C'x^2 + \text{&c.}$$

are equal; or dividing each by x,

$$\text{then } B + Cx + Dx^2 + \text{&c.} = B' + C'x + D'x^2 + \text{&c.};$$

and supposing again that $x = 0$, there results as before, $B = B'$; and in the same way it may be shown, that $C = C'$, $D = D'$ &c.

Let us now endeavour to find the form of the expansion of $\overline{a+x}^m$,

or of its equal $a^m \left(1 + \frac{x}{a}\right)^m$,

m being any number whatever. Since every power or root of 1 is 1, the first term in the expansion of $\left(1 + \frac{x}{a}\right)^m$ must be 1;

whence the first term in the expansion of $a^m \left(1 + \frac{x}{a}\right)^m$ must be a^m.

If now $m + 1$, be put for m, then

as $\overline{a+x}^m \times \overline{a+x} = \overline{a+x}^{m+1}$,

the expansion of $\overline{a+x}^{m+1}$,

will be equal to each term in the expansion of $\overline{a+x}^m$ multiplied by $\overline{a+x}$, and consequently $a^m \overline{a+x} = a^{m+1} + a^m a$,

will be the first term in the expansion of $\overline{a+x}^{m+1}$,

and the literal point of its second term. Let the yet unknown co-efficient of this second term be represented by B, then $Ba^m x$ will be the second term.

If again we put $m + 2$ for m in the original expression,

we have $\left(a^{m+1} + Ba^m x\right) \times \overline{a+x} =$

$a^{m+2} + \overline{B+1} . a^{m+1} x + a^m a^2 =$

the first and second terms in the expansion of $\overline{a+x}^{m+2}$ with the literal part of its third term. In like manner by substituting

$$\overline{m+3},\ \overline{m+4} \text{ &c.}$$

successively for m, we shall have the literal parts in the expansion of

$$a^{m+n} + a^{m+n-1}x + a^{m+n-2}x^2 + a^{m+n-3}x^3, \text{ &c. continued to } m + 1 \text{ terms.}$$

With respect to the co-efficient, it appears that if the co-efficient of the second term in the expansion of $\overline{a+x}^{m+1}$ will be B,

that in the second term of the expansion of

$$\overline{a+x}^{m+2} \text{ will be } B + 1.$$

But $m + 1 - B = m + 2 - \overline{B+1}$,

or the difference between the exponent and the co-efficient of the second term, is constant in each successive expansion. But when $m = 0$, the co-efficient of the second term in the expansion of $\overline{a+x}^{m+1}$ is 1;

the difference between which and the exponent is 0: hence, with respect to the second term, the difference between its co-efficient and the exponent of the expansion is always 0; or the co-efficient of the second term of the expansion is equal to the exponent.

Let now $\overline{a+x}^r$ be represented as above, viz.

let $\overline{a+x}^r = a^r + Ba^{r-1}x + Ca^{r-2}x^2 + \text{&c.}$

where, as has been just shown, $B = r$, and C, D, &c. are to be determined. If each side of the equation be squared, we have

$$(a^2 + \overline{2ax+x^2})^r = (a^r + Ba^{r-1}x + Ca^{r-2}x^2 + \text{&c.})^2$$

and substituting $(2ax + x^2)$ for x in the expansion of $\overline{a+x}^r$, we have $(a + \overline{2ax + x^2})^r =$

$$\left.\begin{aligned} &a^{2r} + 2Ba^{2r-1}x + Ba^{2r-2}x^2 + 4Ca^{2r-3}x^3 + \text{&c.} \\ &\quad 4Ca^{2r-2}x^2 + 4Da^{2r-3}x^3 \text{ &c.} \end{aligned}\right\}$$

But $(a^r + Ba^{r-1}x + Ca^{r-2}x + \text{&c.})^2 =$

$$a^{2r}+Ba^{2r-1}x+Ca^{2r-2}x^2+Da^{2r-3}x^3+\&c.$$
$$Ba^{2r-1}x+B^2a^{2r-2}x^2+BCa^{2r-3}x^3+\&c.$$
$$Ca^{2r-2}x^2+BCa^{2r-3}x^3+\&c.$$
$$Da^{2r-3}x^3+\&c.$$

Now as these series are equal whatever be the value of x, the co-efficients of the like powers of x are equal, as has been shewn above.

Hence $2B = 2B$, or $B = B$; $B + 4C = 2C + B^2$, $C = \frac{B \cdot \overline{B-1}}{2}$, $4C + 8D = 2D + 2BC$; or,

$$D = \frac{C \cdot \overline{B-2}}{3} = \frac{B \cdot \overline{B-1} \cdot \overline{B-2}}{3},$$

and the law of continuation is manifest.

The expansion then of $\overline{a+x}^m$ in a series is

$$a^m + ma^{m-1}x + m \cdot \frac{m-1}{2} a^{m-2}x^2 + m \cdot \frac{m-1}{2} \cdot \frac{m-2}{3} a^{m-3}x^3 + \&c.$$

or A, B, C, &c. denoting the co-efficients of the preceding terms

$$\overline{a+x}^m = a^m + Ama^{m-1}x + B \cdot \frac{m-1}{2} \times a^{m-2}x^2 + C \cdot \frac{m-2}{3} a^{m-3}x^3, \&c.$$

where m may be any number, integral or fractional.

Examples of the application of the binomial theorem.

Example 1. Required the 7th power of $\overline{a+b}$, or the expansion of $\overline{a+b}^7$.

Here $m = 7$, and the literal parts of the term of the expansion are

$a^m = a^7, a^{m-1}b = a^6b, a^{m-2}b^2 = a^5b^2$, &c. to b^7; and the co-efficients are

$$A = 1, \quad A \cdot m = 7, \quad B \cdot \frac{m-1}{2} = \frac{7 \cdot 6}{2} = 21,$$
$$C \cdot \frac{m-2}{3} = \frac{21 \cdot 5}{3} = 35,$$
$$D \cdot \frac{m-3}{4} = \frac{35 \cdot 4}{4} = 35,$$
$$E \cdot \frac{m-4}{5} = \frac{35 \cdot 3}{5} = 21,$$
$$F \cdot \frac{m-5}{6} = \frac{21 \cdot 2}{6} = 7,$$
$$G \cdot \frac{m-6}{7} = \frac{7 \cdot 1}{7} = 1.$$

Whence

$$\overline{a+b}^7 = a^7 + 7a^6b + 21a^5b^2 + 35a^4b^3 + 35a^3b^4 + 21a^2b^5 + 7ab^6 + a^7.$$

Example 2. Extract the cube root of 9; or exhibit in a series the expansion of $\overline{8+1}^{\frac{1}{3}}$.

Here $m = \frac{1}{3}$, $a = 8$, and $x = 1$;

$a^m = 8^{\frac{1}{3}} = 2$, $ma^{m-1}x = \frac{1}{3}8^{\frac{1}{3}-1} \cdot 1 = \frac{1}{3} \cdot 8^{-\frac{2}{3}} = \frac{1}{3} \cdot 2^{-2} = \frac{1}{3 \cdot 2^2}$, $m \cdot \frac{m-8}{2} \times a^{m-2}x^2 = \frac{1}{3} \times -\frac{1}{3} \cdot 8^{-\frac{5}{3}} \cdot 1 = -\frac{1}{3.6.2^4}$; $m \cdot \frac{m-1}{2} \cdot \frac{m-2}{3} \cdot a^{m-3}x^3 = \frac{1}{3} \times -\frac{1}{3} \times -\frac{5}{3} \cdot 8^{-\frac{8}{3}} \cdot 1 = \frac{5}{3.6.9.2^7}$, &c.

Whence $\sqrt[3]{9} = 2 + \frac{1}{3 \cdot 2^2} - \frac{1}{3.6.2^4} + \frac{5}{3.6.9.2^7} - \&c.$

This theorem may be applied to quantities which consist of more than two parts, by supposing them distinguished into two, and then substituting for the powers of these compound parts their values.

Thus, $\overline{a+b+c}^2 = \overline{\overline{a+b}+c}^2$.

On the Method of Differences.

This method consists in finding any term of a series, or the sum of all the terms, the successive differences of the terms being known. From the limits to which we are confined, we must, on this, and several other points of analysis, be very brief; but the following problems contain a full exposition of the principles of the method.

Problem I.

To find the first term of any order of differences.

Let a, b, c, d, &c. represent the successive term of any necessary series, then the first order of differences will be

$$b - a, c - b, d - c, e - d, \&c.$$

The second,

$$\overline{c-b} - \overline{b-a} = c - 2b + a,$$
$$\overline{d-c} - \overline{c-b} = d - 2c + b,$$
$$\overline{e-d} - \overline{d-c} = e - 2d + c, \&c$$

The third,

$$\overline{d-2c+b} - \overline{c-2b+a} = d - 3c + 3b - a,$$
$$\overline{e-2d+c} - \overline{d-2c+b} = e - 3d + 3c - b,$$
&c.

Hence the co-efficients of the terms composing the difference of any order, are the same as the co-efficients of the expanded binomial. The first difference of the n *th* order, is therefore

$$\pm a \mp nb \pm \frac{n \cdot n-1}{2} c \mp \frac{n \cdot n-1 \cdot n-2}{2 \cdot c} d \pm \&c.$$

the upper signs being used when n is even, and the lower ones when n is odd.

Problem II.

To find the nth term of any series, a, b c, d, &c. *from the differences.*

Let the first term in each order of differences be represented by d', d'', d''', d'''', &c.

Then, by the last problem, we have,

$b - a = d'$,
$b = a + d'$;
$c - 2b + a = d''$,
$c = a + 2b + d''$;
$d - 3c + 3b - a = d'''$,
$d = a - 3b + 3c + d'''$; &c.

y substitution,

$b = a + d'$,
$c = a + 2d' + d''$,
$d = a + 3d' + 3d'' + d'''$, &c.

nce the co-efficients of a, d', d'', &c. in the term of the series, a, b, c, d, &c. are the same co-efficients of the expansion of $\overline{a + b}^n$;
, the nth term is

$$-1 \cdot d' + \frac{\overline{n-1} \cdot \overline{n-2}}{2} d'' + \frac{\overline{n-1} \cdot \overline{n-2} \cdot \overline{a-3}}{2 \cdot 3} d''', \text{ &c.}$$

ıe series will terminate when d', d'' or d''', &c. nes 0, in which case the nth term will be accurately, otherwise it can only be approximated to.

Problem III.

nd the sum of n *terms of any series, from the differences.*

in the series assumed in the two preceding ems, $a = 0$, then the $\overline{n+1}^{\text{th}}$ term of the will, by the last problem, be represented by

$$\frac{n \cdot n-1}{2} d'' + \frac{n \cdot \overline{n-1} \cdot \overline{n-2}}{2 \cdot 3} d''' + \text{&c.};$$

if $b = \alpha$, $c = \alpha + \beta$, $d = \alpha + \beta + \gamma$, &c. $\overline{+1}^{\text{th}}$ term of a, b, c, d, &c. or the nth term c, d, &c. will be n terms of $\alpha + \beta + \gamma +$ &c. d' in the former series is the same as d' in

ence, the sum of n terms of $\alpha, \beta, \gamma, \delta$, &c. is

$$\frac{n \cdot \overline{n-1}}{2} d' + \frac{n \cdot \overline{n-1} \cdot \overline{n-2}}{2 \cdot 3} d'', \text{ &c.}$$

efore quitting this subject, we deem it proper hibit another method, by which an extenand useful class of series may be summed.

$$\frac{q}{n} - \frac{q}{n+p} = \frac{qn + qp - qn}{n \cdot \overline{n+p}} = \frac{pq}{n \cdot \overline{n+p}},$$

r $\frac{q}{n \cdot \overline{n+p}} = \frac{1}{p}\left\{\frac{q}{n} - \frac{q}{n+p}\right\}$,

llows that if any fraction of the form $\frac{q}{n \cdot \overline{n+p}}$ qual to the pth part of the difference of $\frac{q}{n}$ $\frac{q}{n+p}$, if this difference is known, the value $\frac{q}{n \cdot \overline{n+p}}$, then of $\frac{q}{n}$ and $\frac{q}{n+p}$ are unknown.

nce if there be a series of fractions of the form $\frac{q}{n \cdot \overline{n+p}}$, the sum of the series will be equal to

$$\frac{1}{p} \cdot \left\{\frac{q}{n} - \frac{q}{n+p}\right\} \frac{q}{n},$$

and $\frac{q}{n+p}$ representing two fractions having the respective forms

Example. Required the sum of n terms of the series

$$\frac{1}{1 \cdot 3} + \frac{1}{3 \cdot 5} + \frac{1}{5 \cdot 7} + \text{&c.}$$

Here $p = 2$, $q = 1$, and $n = 1, 3, 5$, &c.

therefore, $\frac{q}{n} = 1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} \cdots \frac{1}{2n-1}$,

and $\frac{q}{n+p} = \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots \frac{1}{2n-1} + \frac{1}{2n+1}$.

Hence $\frac{1}{p}\left\{\frac{q}{n} - \frac{q}{n+p}\right\} = \frac{1}{2}\left\{1 - \frac{1}{2n+1}\right\} = \frac{2n}{2 \cdot \overline{2n+1}}$, the required sum.

On the reversion of series.

To revert a series, is to express the value of the unknown quantity in it, by means of another series, involving the powers of some other quantity. For example, if $ax + bx^2 + cx^3$, &c. $= y$, then it can be found equal to a series, involving the powers of y and the given quantities, a, b, c, &c. the series involving x is said to be reverted.

To accomplish the reversion, assume

$$x = \text{A}y + \text{B}y^2 + \text{C}y^3 + \text{&c.}$$

A, B, C, &c. being indeterminate co-efficients. Substitute this series and its powers for x, and its powers in the given series, and subtract y from each side of the resulting equation, and it will then stand as under:

$$\overline{a\text{A} - a} \cdot y + \overline{a\text{B} + b\text{A}^2} \cdot y^2 + \overline{a\text{C} + 2b\text{AB} + c\text{A}^3} \cdot y^3, \text{&c.}$$

Hence
$$a\text{A} - 1 = 0,$$
$$a\text{B} + b\text{A}^2 = 0,$$
$$a\text{C} + 2b\text{AB} + c\text{A}^2 = 0, \text{ &c.}$$

and consequently,

$$\text{A} = \frac{1}{a},$$

$$\text{B} = -\frac{b\text{A}^2}{a} = -\frac{b}{a^2},$$

$$\text{C} = -\frac{2b\text{AB} - c\text{A}^2}{a} = \frac{2b^2 - ac}{a^5}, \text{ &c.};$$

or $x = \frac{1}{a}y - \frac{b}{a^3}y^2 + \frac{2b^2 - ac}{a^5}y^3$.

If the series had consisted of the odd powers of x, its reverted form would have been

$$\frac{1}{x}y - \frac{b}{a^3}y^3 + \frac{3b^2 - ac}{a^5}y^5, \text{ &c.}$$

If the series are given equal to each other as

$ax + bx^2 + cx^3$, &c. $= \alpha y + \beta y^2 + \gamma y^3$, &c.

the value of x is obtained in terms of y in the same manner, viz. by assuming

$$x = \text{A}y + \text{B}y^2 + \text{C}y^3, \text{ &c.}$$

and substituting this value in place of x.

PART II.

OF THE GENERAL PROPERTIES AND RESOLUTION OF EQUATIONS OF ALL ORDERS.

CHAP. I.

OF THE ORIGIN AND COMPOSITION OF EQUATIONS; AND OF THE SIGNS AND CO-EFFICIENTS OF THEIR TERMS.

THE higher orders of equations, and their general affections, are best investigated by considering their origin from the combination of inferior equations.

In this general method, all the terms of any equation are brought to one side, and the equation is expressed by making them equal to 0. Therefore, if a root of the equation be inserted instead of (x) the unknown quantity, the positive terms will be equal to the negative, and the whole must be equal to 0.

Def. When any equation is put into this form, the term in which (x) the unknown quantity is of the highest power is made the first; that in which the index of x is less by 1 is the second; and so on to the last, into which the unknown quantity does not enter, and which is called the Absolute term.

Prop. I. If any number of equations be multiplied together, an equation will be produced, of which the dimension is equal to the sum of the dimensions of the equations multiplied.—The term dimension, in this chapter, means either the order of an equation, or the number denoting that order, which was formerly defined to be the highest exponent of the unknown quantity in any term of the equation.

If any number of simple equations be multiplied together, as $x-a=0$, $x-b=0$, $x-c-d=0$, &c. the product will be an equation of a dimension, containing as many units as there are simple equations. In like manner, if higher equations are multiplied together, as a cubic and a quadratic, one of the fifth order is produced, and so on.

Conversely. An equation of any dimension is considered as compounded either of simple equations or of others, such that the sum of their dimensions is equal to the dimension of the given one. By the resolution of equations these inferior equations are discovered, and by investigating the component simple equations, the roots of any higher equation are found.

Cor. 1. An equation admits of as many solutions, or has as many roots, as there are simple equations which compose it.

Cor. 2. And conversely, no equation can have more roots than it has dimensions.

Cor. 3. Imaginary or impossible roots enter an equation by pairs; for they arise from quadratics, in which both the roots are such. And an equation of an even dimension may have all its roots, or any even number of them impossible, but an equation of an odd dimension must at least have one possible root.

Cor. 4. The roots are either positive or negative, according as the roots of the simple equations, from which they are produced, are positive or negative.

Cor. 5. When one root of an equation is discovered, one of the simple equations is found, from which the given one is compounded. The given equation, therefore, being divided by this simple equation, will give an equation of a dimension lower by 1.

Prop. II. To explain the general properties of the signs and co-efficients of the terms of an equation.

Let $x-a=0$, $x-b=0$, $x-c=0$, $x-d=0$, &c. be simple equations, of which the roots are any positive quantities $+a$, $+b$, $+c$, $+d$, &c. and let $x+m=0$, $x+n=0$, &c. be simple equations, of which the roots are any negative quantities $-m$, $-n$, &c. and let any number of these be multiplied together as in the following table:

$$x-a=0$$
$$\times\, x-b$$
$$=\left.\begin{array}{l} x^2-ax \\ \quad -bx+ab \end{array}\right\}=0, \text{ a quadratic.}$$
$$\times\, x-c=0$$
$$=\left.\begin{array}{l} x^3-a \\ \quad -b \\ \quad -c \end{array}\right\}\times x^2\left.\begin{array}{l} +ab \\ +ac \\ +bc \end{array}\right|\times x-abc=0, \text{ a cubic}$$
$$\times\, q+m=0$$
$$=\left.\begin{array}{l} x^4-a \\ \quad -b \\ \quad -c \\ \quad +m \end{array}\right\}\times x^3\left.\begin{array}{l} +ab \\ +ac \\ +bc \\ -am \\ -bm \\ -cm \end{array}\right\}\times x^2\left.\begin{array}{l} -abc \\ +abm \\ +acm \\ +bcm \end{array}\right\}\times x-abcm=0, \text{ a biquadratic.}$$

&c.

From this table it is plain,

1. That in a complete equation, the number of terms is always greater by unit than the dimension of the equation.

2. The co-efficient of the first term is 1.

The co-efficient of the second term is the sum of all the roots (a, b, c, m, &c.) with their signs changed.

The co-efficient of the third term is the sum of all the products, that can be made by multiplying any two of the roots together.

The co-efficient of the fourth term is the sum of all the products, which can be made by multiplying together any three of the roots with their signs changed; and so of others.

The last term is the product of all the roots with their signs changed.

3. It appears too, that in any equation, (the terms being regularly arranged as in the preceding example,) there are as many positive roots as there are changes in the signs of the terms from $+$ to $-$, and from $-$ to $+$: and the remaining roots are negative.

Note. The impossible roots in this rule are supposed to be either positive or negative.

Cor. If a term of an equation is wanting, the positive and negative parts of its co-efficient must then be equal. If there is no absolute term, some of the roots $=0$, and the equation may be depressed, by dividing all the terms by the lowest power of the unknown quantity in any of them. In this case also, $x+0=0$, $x-0=0$, &c. may be considered as so many of the component simple equations, by which the given equation

being divided, it will be depressed so many degrees.

CHAP. II.

Of the Transformation of Equations.

Prop. 1. The affirmative roots of an equation become negative, and the negative become affirmative, by changing the signs of the alternate terms, beginning with the second.

Thus the roots of the equation $x^4 - x^3 - 19x^2 + 49x - 30 = 0$ are $+1, +2, +3, -5$, whereas the roots of the equation $x^4 + x^3 - 19x^2 - 49x, -30 = 0$, are $-1, -2, -3, +5$.

The reason of this is derived from the composition of the co-efficients of these terms, which consist of combinations of odd numbers of the roots, as explained in the preceding chapter.

Prop. 2. An equation may be transformed into another, that shall have its roots greater or less than the roots of the given equation, by some given difference.

Let e be the given difference; then $y = \pm e$, $x = y \mp e$; and if for x and its powers in the given equation, $y + e$ and its power be inserted, a new equation will arise, in which the unknown quantity is y, and its value will be $x \pm e$.

Let the equation proposed be $x^3 - px^2 + qx - r = 0$, of which the roots must be diminished by e. By inserting for x and its powers, $y + e$ and its powers, the equation required is,

$$\left.\begin{array}{r} y^3 + 3ey^2 + 3e^2y + e^3 \\ -py^2 - 2pey - pe^2 \\ +qy + qe \\ -r \end{array}\right\} = 0.$$

Cor. 1. The use of this transformation is to take away the second or any other intermediate term; for, as the co-efficients of all the terms of the transformed equation, except the first, involve the powers of e, and known quantities only, by putting the co-efficient of any term equal to 0, and resolving that equation, a value of e may be determined, which being substituted, will make that term to vanish.

Thus, let the co-efficient $3e - p = 0$, and $e = \frac{1}{3}p$, which being substituted for e, the new equation will want the second term. And universally, the co-efficient of the first term of an equation of n dimensions being 1, the second term may be taken away by supposing $x = y \pm \frac{1}{n}p$.

Cor. 2. The second term may be taken away by the solution of a simple equation; the third by the solution of a quadratic and so on.

Prop. 3. An equation may be transformed into another, of which the roots shall be equal to the roots of the given equation, multiplied or divided by a given quantity.

Let $y = xe$, or $y = \frac{x}{e}$.

Then substitute for x and its powers, $\frac{y}{e}$ or ye and its powers; and the new equation will have the property required.

Cor. 1. An equation, in which the co-efficient of the first term is any known quantity, as a may thus be transformed into another, into which the co-efficient of the first term shall be unit. Thus, let the equation be $ax^3 - px^2 + qx - r = 0$. Suppose $y = ax$ or $x = \frac{y}{a}$, and for x and its powers insert $\frac{y}{a}$ and its powers, and the equation becomes $\frac{y^3}{a^2} - \frac{py^2}{a^2} + \frac{qy}{a} - r = 0$, or $y^3 - py^2 + 2ay - a^2r = 0$.

Cor. 2. If there are fractions in an equation, they must be taken away, by multiplying the equation by the denominators, and by this proposition the equation may then be transformed into another, without fractions, in which the co-efficient of the first term is 1. In like manner may a surd co-efficient be taken away in certain cases.

Cor. 3. Hence also, if the co-efficient of the second term of a cubic equation is not divisible by 3, the fractions thence arising in the transformed equation, wanting the second term, may be taken away by the preceding corollary. But the second term may also be taken away, so that there shall be no such fractions in the transformed equation, by supposing $x = \frac{z \mp p}{3}$, $\pm p$ being the co-efficient of the second term of the given equation. And if the equation $ax^3 - px^2 + qx - r = 0$ be given, in which p is not divisible by 3, by supposing $x = \frac{z + p}{3a}$, the transformed equation reduced is $z^3 - \overline{3p^2 + 9aq} \times z - 2p^3 + 9apq - 7a^2r = 0$; wanting the second term, having 1 for the co-efficient of the first term, and the co-efficients of the other terms being all integers, the co-efficients of the given equation being all supposed integers.

General Corollary to Prop. 1, 2, 3.

If the roots of any of these transformed equations be found by any method, the roots of the original equation, from which they were derived, will easily be found from the simple equations expressing their relation. Thus, if 8 is found to be a root of the transformed equation $z^3 + 23z - 696 = 0$. Since $x = \frac{z+3}{5}$, the corresponding root of the given equation $5x^3 - 6x^2 + 7x - 30 = 0$ must be $\frac{8+2}{5} = 2$. It is to be observed also, that the reasoning in Prop. 2 and 3, and the corollaries may be extended to any order of equations, though in them it is applied chiefly to cubics.

CHAP. II.

Of the Resolution of Equations.

From the preceding principles and operations, rules may be derived for resolving equations of all orders.

I. *Cardan's rule for Cubic Equations.*

The second term of a cubic equation being taken away, and the co-efficient of the first term being made 1, it may be represented by $x^3 + 3qx + 2r = 0$; the sign + in all terms denoting the addition of them, with their proper signs, Let $x = m + n$, and also $mn = -q$, by the substitution of these values, an equation of the 6th order, but of the quadratic form, is deduced, which gives the value of m and n; and hence,

$$m+n=x=\sqrt[3]{-r+\sqrt{r^2+q^3}}-\frac{q}{\sqrt[3]{-r+\sqrt{r^2-q^3}}},$$

Cor. **1.** In the given equation, if $3q$ is negative and if r^2 is less than q^3, this expression of the root involves impossible quantities; while at the same time, all the roots of that equation are possible. The reason is, that in this method of solution, it is necessary to suppose, that x the root may be divided into two parts, of which the product is q. But it is easy to show, that in this, which is called the irreducible case, that cannot be done.

For example, the equation $x^3 - 156x + 560 = 0$ belongs to the irreducible case, and the three roots are + 4, + 10, — 14; and it is plain that none of the roots can be divided into two parts, of which the product can be equal to $\frac{156}{3}$ or 52; for the greatest product from the division of the greatest root — 14, is $-7 \times -7 = 49$ less than 52.

If the cube root of the compound surd can be extracted, the possible parts balance each other, and the true root is obtained.

Cor. 2. Biquadratic equations may be reduced to cubics, and may therefore be resolved by this rule.

Some other classes of equations, too, may be resolved by particular rules; but these and every other order of equations, are commonly resolved by the general rules, which may be equally applied to all.

II. *Solutions of Equations whose Roots are Commensurate.*

Rule 1. All the terms of the equation being brought to one side, find all the divisors of the absolute term, and substitute them successively in the equation for the unknown quantity. That divisor which, substituted in this manner, gives the result = 0, will be a root of the equation.

Ex. 1. $\left.\begin{matrix} x^3 - 3ax^2 + 3ax^2 - 2a^2b \\ -bx^2 + 3abx \end{matrix}\right\} = 0.$

The simple literal divisors of $-2a^2b$ are a, b, y, $2b$, any of which may be inserted for x. Supposing $x = a$, the equation becomes

$\left.\begin{matrix} a^3 - 3a^3 + 3a^3 - 2a^3b \\ -ba^2 + 3a^2b \end{matrix}\right\}$ which is obviously = 0.

The reason of this rule appears from the property of the absolute term being the product of all the roots.

To avoid the inconvenience of trying many divisors, this method is shortened by the following:

Rule 2. Substitute in place of the unknown quantity successively three or more terms of the progression, 1, 0, — 1, &c. and find all the divisors of the sums that result; then take out all the arithmetical progressions that can be found among these divisors whose common difference is 1, and the values of x will be among those terms of the progressions, which are the divisors of the result arising from the substitution of $x = 0$. When the series increases, the roots will be positive; and when it decreases, the roots will be negative.

Supposit.		*Result.*	*Divisors.*	*Ar. pro.*
$x = +1$	$x^3 - x^2 - 10x + 6 =$	— 4	1, 2, 4,	4
$x = 0$		+ 6	1, 2, 3, 6,	3
$x = -1$		+ 14	1, 2, 7, 14,	2

In this example there is only one progression, 4, 3, 2; and therefore 3 is a root, and it is — 3, since the series decreases.

It is evident from the rules for transforming equations, that by inserting for x, + 1, the result is the absolute term of an equation, of which the roots are less than the roots of the given equation by 1. When $x = 0$, the result is the absolute term of the given equation. When for x is inserted — 1, the result is the absolute term of an equation, whose roots exceed the roots of the given equation by 1. Hence, if the terms of the series, 1, 0, — 1, — 2, &c. be inserted successively for x, the results will be the absolute terms of so many equations, of which the roots form an increasing arithmetical series with the difference 1. But as the commensurate roots of these equations must be among the divisors of their absolute terms, they must also be among the arithmetical progressions found by this rule. The roots of the given equation therefore are to be sought for among the terms of these progressions which are divisors of the result, upon the supposition of $x = 0$, because that result is its absolute term.

If from the substitution of three terms of the progression, 1, 0, — 1, &c. there arise a number of arithmetical series, by substituting more terms of that progression, some of these series will break off, and, of course, fewer trials will be necessary.

III. *Example of Questions producing the Equations.*

The sum of the squares of two numbers 208, and the sum of their cubes 2240 being given, to find them.

Let the greater be $x + y$, and the less $x - y$.

Then $\overline{x+y}|^2 + \overline{x-y}|^2 = 2x^2 + 2y^2 = 208$.

Hence $y^2 = 104 - x^2$.

Also $\overline{x+y}|^3 + \overline{x-y}|^3 = 2x^3 + 6xy^2 = 2240$.

Substitute for y^2 its value and

$$2x^3 + 624x + 6x^3 = 2243.$$

This reduced gives $x^3 - 156x + 560 = 0$.

The roots of this equation are $10 + 4 = 14$.

If $x = 10$, then $y = 2$; and the numbers sought are 12 and 8, which give the only just solution.

IV. *Solution of equations by approximation.*

By the former rules, the roots of equations, when they are commensurate, may be obtained. These, however, more rarely occur; and when they are incommensurate we can find only an approximate value of them, but to any degree of exactness required. Of the various rules that have been given for this purpose, we select the two following as the most general and easy of application. The first is by Sir Isaac Newton, and requires the equation to be previously prepared and arranged. The second is by Dr. Hutton, and may be applied to any equation, however complicated, without any previous preparation or arrangement.

Sir Isaac Newton's Method.

To understand rightly the principles of this method, we deem it proper to premise the following:

Lemma. If any two numbers, being inserted for the unknown quantity in an equation, give results with opposite signs, an odd number of roots must be between these numbers.

This appears from the property of the absolute terms, and from this obvious maxim, that if a number of quantities be multiplied together, and if the signs of an odd number of them be changed, the signs of the product are changed. For, when a positive quantity is inserted for x, the result is the absolute term of an equation, whose roots are less than the roots of the given equation, by that quantity. If the result has the same sign as the given absolute term, then from the property of the absolute term either none, or an even number only, of the positive roots have had their signs changed by the transformation; but if the result has an opposite sign to that of the given absolute term, the signs of an odd number of the positive roots must have been changed. In the first case, then, the quantity substituted must have been either greater than each of an even number of the positive roots of the given equation, or less than any of them; in the second case, it must have been greater than each of an odd number of the positive roots. An odd number of the positive roots, therefore, must lie between them when they give results with opposite signs. The same observation is to be extended to the substitution of negative quantities and the negative roots.

From this lemma, by means of trials, it will not be difficult to find the nearest integer in a root of a given numeral equation.

Let the equation be $x^3 - 2x - 5 = 0$.

1. In this case a root is between 2 and 3; for these numbers being inserted for x, the one gives a positive, and the other a negative, result. Either the number above the root, or that below it, may be assumed as the first value; only it will be more convenient to take that which appears to be nearest to the root.

2. Suppose $x = 2 + f$, and substitute the value of x in the equation.

$$\begin{aligned} x^3 &= 8 + 12f + 6f^2 + f^3 \\ -2x &= -4 - 2f \\ -5 &= -4 \\ \hline x^3 - 2x - 5 &= -1 + 10f + 6f^2 + f^3 = 0. \end{aligned}$$

If f is less than unit, its powers f^2 and f^3 may be neglected in this first approximation, and $10f = 1$, or 0·1 nearly, therefore $x = 2{\cdot}1$ nearly.

3. As $f = 0{\cdot}1$ nearly, let $f = {\cdot}1 + g$, and insert this value of f in the preceding equation.

$$\begin{aligned} f^3 &= 0{\cdot}001 + 0{\cdot}03g + 0{\cdot}3g^2 + g^3 \\ 6f^2 &= 0{\cdot}06 + 12g + 6g^2 \\ 10f &= 1 + 10g \\ -1 &= -1 \end{aligned}$$

$f^3 + 6f^2 + 10f - 1 = 0{\cdot}061 + 11{\cdot}23g + 6{\cdot}3g^2 + g^3 = 0$, and neglecting g^2 and g^3 as very small, $0{\cdot}61 + 11{\cdot}23g = 0$, or $g = \frac{-0{\cdot}061}{1123} = -{\cdot}0054$, hence $f = {\cdot}1 + g = {\cdot}0946$ nearly, and $x = 2{\cdot}0946$ nearly.

4. This operation may be continued to any length, as by supposing $g = -{\cdot}0054 + h$, and so on, and the value of $x = 2{\cdot}09455147$ nearly.

By the first operation a nearer value of x may be found thus: since $f = {\cdot}1$ nearly, and $-1 + 10f + 6f^2 + f^3 = 0$, $f = \frac{1}{10 + 6f + f^2}$, that is, $f = \frac{1}{10 + {\cdot}6 + {\cdot}01} = {\cdot}094$ true the last figure, and $x = 2{\cdot}994$.

In this manner may the root of any equation be found, after it has been cleared of radical quantities; but in the application of algebra to practical purposes, the following method of trial and error, which is applicable at once to any equation, will generally be found preferable.

Dr. Hutton's Method.

Rule. Find by trial two numbers nearly equal to the root; substitute each of them in the given equation, and note the results arising from each subtraction.

Then the difference of these results is to the difference of the two assumed numbers, as the difference between the true result, and either of the former to the correction of the number which produced that result; and this result added to the number when it is too little, or subtracted from it when it is too great, will give the required root nearly.

Then this number, and any other number nearly equal to it, being substituted as before, a second correction will be obtained; and the operation may be continued till the root is obtained, to any degree of accuracy.

Example. If $\left(\frac{x^2}{5} - 15\right)^2 + x\sqrt{x} = 90$, what is the value of x?

By a few trials it may be found that the value of x lies between 10 and 11. Let these be assumed as the values of x. Then

	1st supposition.	2d supposition.
$\left(\frac{x^2}{5} - 15\right)^2$	25	84.64
$x\sqrt{x}$	31.622	36.482
Results	56.622	121.122

Hence 121·122 — 56·622 : 11 — 10 :: 121·122 — 90′ : 482 nearly. Hence $x = 11 - \cdot 482 = 10\cdot518$ nearly. Let then 10·5 and 10·6 be assumed for x, and we have, by proceeding as above, 83·7264 and 90·341883 for the respective results. Hence 90·341883 — 83·7264 : 10·6 — 10·5 :: 90 341883 : 90·0051679 nearly. Whence $x = 10\cdot6 - \cdot0051679$ very nearly.

This method also applies with great facility to finding the roots of exponential equations of the form $x^x = a$, the only case in that class of equations in which there is any trouble in finding the root.

If $x^x = a$, then by the property of logarithms x . log. x = log. a. Therefore find by the preceding method of trial and error, a number which multiplied by logarithms, produces the logarithm of the given quantity a, and it will be the root of the equation.

Before we dismiss this part of our subject, we shall give a concise view of the leading properties of recurring and binomial equations.

On recurring equations.

Recurring equations are those whose terms, taken in a direct order, have the same co-efficientsas theirrespective terms taken in an inverse order.

In these equations one half of the roots are the reciprocals of the other half;

For let $x^n + Px^{n-1} + Qx^{n-2} \ldots + x^2 + Px + = 0$,

and put $x = \frac{1}{y}$; then

$$\frac{1}{y^n} + \frac{P}{y^{n-1}} + \frac{Q}{y^{n-2}} \cdots + \frac{Q}{y^2} + \frac{P}{y} + 1 = 0;$$

or $1 + Py + Qy^2 + \ldots Qy^{n-2} + P^{n-1} + y^n = 0$, an equation the same as the given one, having y instead of x; hence the value of x in an equation is equal to that of y in the other; and whatever be the value of x, the value of q is $\frac{1}{x}$ from the manner in which the second equation is generated.

A recurring equation of an odd degree has always — 1 for a root, when the equal co-efficients have the same sign, and + 1 when the equal co-efficients have different signs.

For, in the recurring equation,

$x^{2n+1} \pm Px^{2n} \pm Qx^{2n-1} \pm \ldots - Qx^2 \pm Px \pm 1 = 0$, any co-efficient, as P of an odd power is also a co-efficient of an even power; therefore, if the corresponding co-efficients have the same sign, and — 1 be put for x, the terms will destroy each other, and the equation will become equal to P, as it ought; and in like manner when the corresponding co-efficients have different signs, if + 1 be put for x, the terms will destroy each other.

Hence, every binomial equation of an odd degree is advisable, either by $x + 1$ or $x - 1$; and the equation may always, therefore, be depressed to the next lower degree, or a binomial equation of an odd degree may be transformed into one of an even degree.

We shall, in the next place, shew that a recurring equation of an even degree may always be reduced to one of half that degree.

Let the equation be

$x^{2n} + Px^{2n-1} + Qx^{2n-2} \ldots + Qx^2 + Px + 1 =$

Divide by x^n, and we have $x^n +$

$$Px^{n-1} + PQa^{n-2} \ldots + \frac{Q}{x^{n-2}} + \frac{P}{x^{n-1}} + \frac{1}{x^n} =$$

Or $x^n + \frac{1}{x^n} + P\left(x^{n-1} + \frac{1}{x^{n-1}}\right) +$

$$Q\left(x^{n-1} + \frac{1}{x^{n-2}}\right) + \&c. =$$

Take n successively = 1, 2, 3, &c. and let $x +$

$= z$, then the tranformed equation become $z +$

$+ P = 0$, or $z + P = 0$, $\left(x^2 + \frac{1}{x^2}\right) + (x +$

$\frac{1}{x}\Big) + Q + z^2 - 2 + Pz + Q = 0$, $z^2 - 2$

$z^2 - 2 + Qz + R = 0$, &c. a recurring equation of half the degree of the given one.

On binomial equations.

Binomial equations are of the form $y^n \pm a^n = 0$, or if $ax = y$, of the form $a^n x^n \pm a^n = 0$, $x^n \pm 1 = 0$.

The following are a few of the obvious properties of these equations.

1. If n be an even number, the roots of the equation $x^n + 1$ are all imaginary, for $\sqrt[n]{-1}$ always imaginary when n is even.

2. If n be odd, $x^n + 1 = 0$ has only one real root, for $\sqrt[n]{-1} = -1$ when n is odd.

3. If n be even, $x^n - 1 = 0$ has only two real roots, and therefore $n - 1$ imaginary ones; for

$$\sqrt[n]{+1} = \pm 1.$$

4. If n be odd $x^n - 1$ has only one real root, and therefore $n - 1$ imaginary one, for $\sqrt[n]{-1}$ only.

PART III.

Of the Application of Algebra to Geometry.

CHAP. I.

A line, whether known or unknown, may be represented by a single letter: a rectangle by two

product of the two letters representing its sides: and a rectangular parallelopiped by the product of three letters: two of which represent the sides on any of its rectangular bases, and the third the altitude.

These are the most simple expressions of geometrical magnitudes; and any other, which has a known proportion to them, may in like manner be expressed algebraically. Conversely, the geometrical magnitudes, represented by such algebraical quantities, may be found; only the algebraical dimensions above the third, not having any corresponding geometrical dimensions, must be expressed by proportionals. Thus, if the algebraical equation $a^4 + b^4 = c^4 - d^4$, is to be expressed geometrically, a, b, c, and d, being supposed to represent straight lines; let $a : b : e : f : g$, in continued proportion, then $a^4 : b^4 :: a : g$, and $a^4 : a^4 + b^4 :: a : a + g$; then let $a : c : h : k : l$, and $a^4 : c^4 :: a : l$, also, let $c : d : m : n : p$, and $c^4 : d^4 :: c : p$ or $c^4 : c^4 - d^4 :: c : c - p$. By combining the two former proportions, $c^4 : a^4 + b^4 : l : a + g$, and combining the latter with this last found, $c^4 - d^4 : a^4 + b^4 :: \overline{c - p} \times l : c \times \overline{a + g}$; therefore $\overline{c - p} \times l = c \times a + g$, and $c : c - p :: l : a + g$.

If any known line is assumed as 1, as its powers do not appear, the terms of an equation, including any of them, may be of very different dimensions; and before it can be properly expressed by geometrical magnitudes, the deficient dimensions must be supplied by powers of the 1. When an equation has been derived from geometrical relations, the line denoting 1 is known; and when an assumed equation is to be expressed by the relations of geometrical magnitudes, the 1 is to be assumed.

In this manner may any single power be expressed by a line. If it is x^5, then to 1, x find four quantities in continued proportion: so that $1 : x : m : n : p : q$, then $1\ q :: 1^5$, or $q = x^5$; and so of others.

The opposite position of straight lines may be expressed by the signs + and —.

Thus, let a point A be given in the line AP.

P M A M P

any segment AP taken to the right hand being considered as a positive, a segment AP to the left is properly represented by a negative quantity. If a and b represent two lines, and if, upon the line AB from the point A, AP be taken towards the right equal to a, it may be expressed by a; then PM taken to the left and equal to b, will be properly represented by $-b$, for AM is equal to $a - b$. If $a = b$, then M will fall upon A, and $a - b = 0$. By the same notation, if b is greater than a, M will fall to the left of A; and in this case, if $2a = b$, and if PP be taken equal to b, then $a - b = -a$ will represent AP, which is equal to a, and situated to the left of A.

II. *The Demonstration of Theorems.*

All propositions in which the proportion of magnitudes only are employed, and all propositions expressing the relations of the segments of a straight line, of their squares, rectangles, cubes, and parallelopipeds, are demonstrated algebraically with great ease.

This is particularly the case in those propositions, which may be geometrically deduced without any construction of the squares, rectangles, &c. to which they refer. From the first proposition of the second book of Euclid, the nine following may be easily derived in this manner, and they may be considered as proper examples of this most obvious application of algebra to geometry.

If certain positions are either supposed or to be inserted in a theorem, we must find, according to the preceding observations, the connection between these positions and such relations of magnitude, as can be expressed and reasoned upon by algebra. The algebraical demonstration, of the 12th and 13th propositions of the second book of Euclid, require only the 47th of the I. El. The 53d and 36th of the third book require only the 3. III. El. and 47 I. El.

From a few simple geometrical principles, a number of conclusions, with regard to figures, may be deduced by algebra; and to this in a great measure is owing the extensive use of this science in geometry. If other more remote geometrical principles are occasionally introduced, the algebraical calculations may be much abridged. The same is to be observed in the solution of problems; but such in general are less obvious, and more properly belong to the strict geometrical method.

III. *Of the Solution of Problems.*

Upon the same principles are geometrical problems to be resolved. The figure appropriate to the solution of the problem is supposed to be constructed, and the known and unknown quantities are denoted by appropriate symbols. Thus from the known geometrical relations between the parts known, and the one unknown, the necessary equations are formed; and by their respective revolution the problem is solved. It may first be remarked, as was done in the case of theorems, that in those problems which relate to the division of the line and the proportions of its parts, the expression of the quantities, and the stating their relations by equations, are so easy as not to require any particular directions. But when various positions of geometrical figures and their properties are introduced, the solution requires more attention and skill. No general rules can be given on this subject, but the following observations may be of use.

1. The construction of the problem being supposed, it is often farther necessary to produce some of the lines till they meet; to draw new lines joining remarkable points; to draw lines from such points perpendicular or parallel to other lines, and to perform such other operations as seem conducive to the finding of equations; and for this purpose, those specially are to be employed which divide the figure into triangles that are given, right-angled or similar.

2. It is often convenient to denote by letters, not the quantities particularly sought, but some others from which they can easily be deduced. The same may be observed of given quantities.

3. There must be as many independent equa-

tions as there are unknown quantities assumed in the investigation, and from these a final equation may be inferred by the rules of Part I.

If the final equation from the problem be resolved, the roots may often be exhibited geometrically; but the geometrical construction of problems may be effected also without resolving the equation, and even without deducing a final equation.

If the final equation is simple or quadratic, the roots being obtained by the common rules may be geometrically exhibited by the finding of proportionals, and the addition or subtraction of squares.

By inserting numbers for the known quantities, a numeral expression of the quantities sought will be obtained by resolving the equation. But in order to determine some particulars of the problem, besides finding the unknown quantities of the equation, it may be farther necessary to make a simple construction; or, if it is required that every thing be expressed in numbers, to substitute a new calculation in place of that construction.

Problem I.

To divide a given straight line AB *into two parts, so that the rectangle contained by the whole line, and one of the parts may be equal to the square of the other part.*

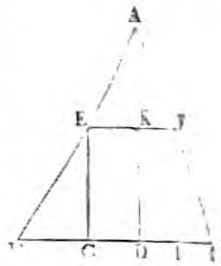
Let C be the point of division, and let AB $= a$, AC $= x$, and then CB $= a - x$. From the problem $a^2 - ax = x^2$; and this equation being resolved, gives $x = \pm \sqrt{a^2 + \frac{a^2}{4}} - \frac{a}{2}$.

The quantity $\sqrt{a^2 + \frac{a^2}{4}}$ is the hypotheneuse of a right angled triangle, of which the two sides are a and $\frac{a}{2}$, and is therefore easily found $\frac{a}{2}$ being taken from this line, gives $x =$ AC, which is the proper solution. But if a line AC be taken on the opposite side of A, and equal to the above-mentioned hypotheneuse, together with $\frac{a}{2}$ it will represent the negative root $\sqrt{a^2 + \frac{a^2}{4}} - \frac{a}{2}$, and will give another solution; for in this case also AB $\times$ BC $=$ AC^2. But C is without the line AB; and therefore, if it is not considered as making a division of AB, this negative root is rejected.

Problem II.

In a given triangle ABC *to inscribe a square.*

Suppose it be done, and let it be EFHG. From A let AD be perpendicular on the base BC, meeting EF in K



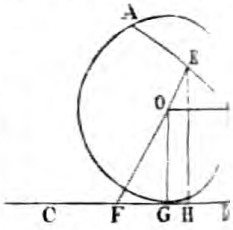
Let BC $= a$, and AD $= p$, both of which are given because the triangle is given. Let AK be assumed as the unknown quantity, because from it the square can easily be constructed; and let it be called x. Then (KD $=$ EG $=$) EF $= p - x$.

On account of the parallels EF, BC, AD; AK : EF; that is $p : a :: x : p - x$, and $px = ax$, which equation being resolved gives $x = \frac{p^2}{p + a}$.

Therefore x or AK is a third proportional to $p + a$ and p, and the point K being found, the construction of the square is sufficiently obvious.

Problem III.

To describe a circle through two given points A, B, *that shall touch a line* CD *given in position.*



Join AB, and through O, the assumed centre of the required circle, draw FE perpendicular to AB, which it will bisect in E. Join OB, and draw EH, OG perpendicular to CD; OG will fall on the point of contact.

Now, as A, E, B, H, and F are given points, EB $= a$, EF $= b$, EH $= c$, and EO, the required radius $= x$.

Then OF $= b - x$, and because OEB is a right-angled triangle AB^2 $=$ EO^2 $+$ EB^2, or $\sqrt{x^2 + a^2}$; and by similar triangles FE : EH :: FO : EG; or OB; or $b : c :: b - x :$ OB $= \frac{c}{b} \times b - x$. Hence if these two values of OB be equated, we have, $\sqrt{x^2 + a^2} = \frac{c}{b} \cdot b - x$; or squaring each side of the equation

$$b^2 - c^2 \cdot x^2 + 2bc^2x = b^2(c^2 - a^2),$$

$$\text{or } x^2 + \frac{2bc^2}{b^2 - c^2}x = \frac{b^2(c^2 - a^2)}{b^2 - c^2},$$

a quadratic equation, which, resolved the usual way, gives

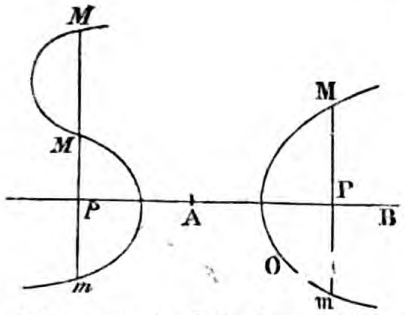
$$x = \frac{b\sqrt{c^4 + c^2 - a^2 \cdot b^2 - c^2} - bc^2}{b^2 - c^2}$$

CHAP. II.

Of the Definition of Lines by Equations.

1. When curve lines are considered algebraically, they are supposed to be produced by the extremity of one straight line, as PM moving along a given position, which is called the base.

2. The straight line PM, moving along the other, is called an inordinate, and is usually denoted by y.



3. The segment of the base AP between a given point in A, and an ordinate PM, is called an absciss, with respect to that ordinate, and is denoted by x. The ordinate and absciss together are called co-ordinates.

4. If the relation of the variable absciss and ordinate AP and PM be expressed by an equation, which besides x and y contains only known quantities, the curve MO, described by the motion of the ordinate, is called the locus of that equation.

5. If the equation is finite, the curve is called algebraical. N. B. The terms geometrical and algebraical, as applied to curve lines, are used in different senses by different writers; there are several other classes of curves, besides what are here called algebraical, which can be treated of mathematically, and even by means of algebra.

6. The dimensions of such equations are estimated from the highest sum of the exponents of x and y in any term. Thus the terms x^4, x^3y, x^2y^2, xy^3, y^4, are all of the same dimensions.

7. Curve lines are divided into orders, from the dimensions of their equations, when freed from fractions and surds.

I. *The determination of the figure of a curve from its equation.*

The general figure of the curve may be found by substituting successively particular values of x the absciss, and finding, by the resolution of these equations, the corresponding values of y the ordinate, and of consequence to so many points of the curve.

1. If in any case a value of y vanishes, then the curve meets the base in a point determined by the corresponding value of x. Hence by putting $y = 0$, the roots of the equation, which in that situation are values of x, will give the distances on the base from the point assumed as the beginning of x, at which the curve meets it.

2. If at a particular value of x, y becomes infinite, the curve has an infinite arc, and the ordinate at that point becomes an asymptote.

3. If when x becomes infinite, y vanishes, the base is an asymptote.

4. If any values of y become impossible, then so many intersections of the ordinate and curve vanish. If at any value of x, all the values of y become impossible, the ordinate does not there meet the curve.

5. If two values of y become equal, and have the same sign, the ordinate in that situation either touches the curve, or passes through an intersection of two of its branches, which is called a punctum duplex, or through an oval become infinitely little, called a punctum conjugatum.

In like manner is a punctum triplex, &c. to be determined.

Let the equation be $ay^2 - xy^2 = x^3 + bx^2$

Therefore, $y^2 = \frac{x^3+bx^2}{a-x}$ and $y = \pm\sqrt{\frac{x^3+bx^2}{a-x}}$

$= \pm\sqrt{\frac{x+b}{a-x}} + x.$

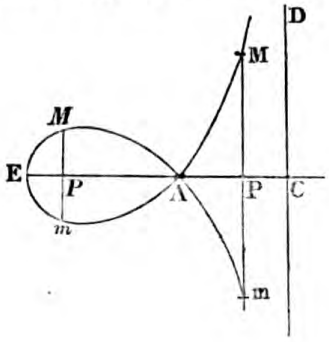
Let AB be assumed as a base on which the abscisses are to be taken from A, and the ordinates perpendicular to it.

Since the two values of y are equal, but have opposite signs; PM and Pm, which represent them, must be taken equal to each other on opposite sides of AB; and it is plain that the parts of the curve on the two sides of AB must be every way similar and equal.

If x is made equal to a, $y = x\sqrt{\frac{x \times b}{0}}$,

which is an algebraical expression for infinity, therefore if AC is taken equal to a, the perpendicular CD will become an asymptote to the curve, which will have two infinite arcs. If x is greater than a, the quantity under the radical sign becomes negative, and the values of y are impossible; that is, no part of the curve lies beyond CD.

Both branches of the curve pass through A, since $y = 0$, when $x = 0$. Let x be negative, and $= \pm x\sqrt{\frac{b-x}{a+a}}$; the values of y will be possible, if x is not greater than b; but if $x = b$, then $y = 0$, and if x is greater than b; the values of y become impossible; that is, if the absciss AP be taken to the left of A, and less than b, there will be two real equal values of y, PM, pm on the opposite sides as before; if AE be taken equal to b, the curve will pass through E, and no part of it is beyond E.



The portion between A and E is called a nodus.

If y be put $= 0$, then the values of x are 0, 0, $-b$; that is, the curve passes twice through A, or A is a punctum duplex, and it passes also through E as before.

By the same methods, the locus of any other equation is to be traced: thus, by varying the former equation, the figure of its locus will be varied. If $b = 0$, then the points A and E coincide, the nodus vanishes, and A is called a cuspis.

If b is negative, then E is to the right of A, which will now be a punctum conjugatum. The rest of the curve will be between E and C, and CD becomes an asymptote

II. *General properties of curves from their equations.*

A straight line may meet a curve in as many points as there are units in the dimensions of its equation; for so many roots may that equation have. An asymptote may cut a curve line in as many points, excepting two, as it has dimensions, and no more. The same may be observed of the tangent.

Impossible roots enter an equation by pairs; therefore the intersection of the ordinate and curve must vanish by pairs.

The curves, of which the number expressing the order is odd, must have at least two infinite arcs; for the absciss may be so assumed, that for every value of it, either positive or negative, there must be at least one value of y, &c.

Scholium.

If the relation between the ordinate and absciss be fixed, but not expressible by a finite equation, the curve is called mechanical or transcendental. This class is also sometimes defined by equations, by supposing either x or y in a finite equation to be a curve line, of which the relation to a straight line cannot be expressed in finite terms.

If the variable qualities x or y enter the exponents of any term of an equation, the locus of that equation is called an exponential curve.

We shall now conclude this article with two or three problems to show the application of algebra to the different departments of science.

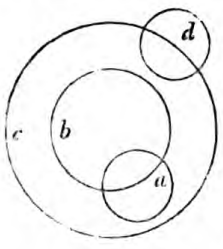
Prob. I. A pendulum vibrates as often in a minute as it is inches long. What is its length?

Let the required length be represented by x; then the length of the seconds pendulum being $39\frac{1}{8}$, and the number of vibrations made in a given time being inversely as the square roots of the lengths, we have

$\sqrt{x} : \sqrt{39\frac{1}{8}} :: 60 : x$, or $x\sqrt{x} = 60\sqrt{39\frac{1}{8}}$, or $x^3 = 140850$; whence $x = \sqrt[3]{140850} = 52{\cdot}02982$.

Prob. II. Suppose a wheel A turns another wheel B, on whose axis is another wheel C which turns a wheel D. It is required to find the least number of teeth in each of these four wheels, so that the wheels A and D may make equal revolutions; the wheel D being supposed to roll round the wheel C in 365 turns of the wheel A?

Let a, b, c, d, represent the four wheels, the letters denoting also the number of teeth in the wheels. Then $\frac{b}{c}$ are the turns b or c has for one of a, and $\frac{d}{c}$ the turns d has for one of c; consequently $\frac{bd}{ac}$ are the turns d makes for one of a, which would be 1, if the wheel d were stationary, because a and d are to revolve in equal times. But



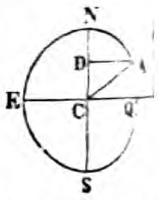
$\frac{c}{d}$ are the turns which d gains or loses in 365 turns of the wheel a, according as it is carried, the contrary or the same way as the [illegible] the wheel c, and $365 : \frac{c}{d} :: 1 : \frac{c}{365d}$, the [illegible] of a turn which d gains or loses in one turn [illegible] Hence we have this equation

$$\frac{ac}{bd} \pm \frac{c}{365d} = 1, \text{ or } \frac{d}{c} \pm \frac{1}{365}.$$

Here 365 is divisible into two fractions, 73 [illegible] take $c \therefore = 73$, and, and multiply the equation [illegible] 5, and it becomes $\frac{5a}{b} = \frac{5d \pm 1}{73}$. To find [illegible] least value of d which will make $\frac{5d+1}{73}$ an [illegible] teger, multiply it by 29, and it becomes $\frac{165d \pm 29}{73}$ which must also be a whole number, and consequently $\frac{146d}{73} - \frac{145d \pm 29}{73} = \frac{d \pm [illegible]}{73}$ must be a whole number. Let n be that [illegible] then $d = 73n \pm 29$. If d roll round c the [illegible] way that c revolves, the lower sign is used; [illegible] if the contrary way, the upper sign.

It is evident that the least value of d will [illegible] obtained by taking $n = c$, when $d = 29$, $5a \div b =$ [illegible] or $a : b :: 2 : 5$, the ratio of a to b; when $a = 10$, $b = 25$, $c = 73$, and $d = 29$. If [illegible] upper sign be used, the least value of d will [illegible] obtained by taking $a = 1$, in which case $a =$ [illegible] $b = 23$, $c = 73$, and $d = 46$.

Prob. How high in a given latitude is it possible to erect a building?



When the centrifugal force arising from the earth's rotation exceeds the force of gravity at the same point, a body situated in that place would be thrown off from the earth; hence the height of the point at which the focus of gravity [illegible] centrifugal force are equal, will be the answer [illegible] this question. Now the centrifugal force at [illegible] surface of the earth at the equator is known [illegible] $\frac{1}{289}$th part of the force of gravity, and the force [illegible] gravity is inversely as the square of the distance from the centre, and the centrifugal force [illegible] rectly as the distance from the axis of rotation. In the annexed figure let AB represent [illegible] building, N the north, and S the south [illegible] and Q the points where the meridian cuts [illegible] equator, BF and AD perpendiculars on BQ [illegible] NS. Put AB $= x$, CA $= r$, and AD $=$ [illegible] then BC $= r + x$, and CA : AD :: CB : CF [illegible] $r : c : r + x = c \cdot \overline{r + x} \div r =$ CF. Now [illegible] be considered as the centrifugal force at Q [illegible] 289 the force of gravity at Q or A, then [illegible] $:: 1 : \overline{r + x} \cdot c \div r^2$, the centrifugal force at [illegible] B in the direction CF; and CB : CF :: $\overline{r + x} \cdot$ [illegible] $r^2 : \overline{r + x} \cdot c^2 \div r$, the centrifugal force at [illegible] the direction CB. And CB^2 : CA^2 :: 289 [illegible] $r^2 \div \overline{r + x}^2$, the force of gravity at B. Hence $\overline{r + x} \cdot c^2 \div r = 289r^2 \div \overline{r + x}^2$, or $\overline{r + x}^3 =$ [illegible] $289r^3 \div c^2$, whence $x = r(\sqrt[3]{289} \div c^2 -$ [illegible] If the latitude be 55°, and the radius of the earth [illegible] $= 3970$ miles, then &c.

ALGEDO, in surgery, from αλγος, the running of a gonorrhœa stopping suddenly after it appears When it thus stops, a pain reaches to the anus, or to the testes, without their being swelled; and sometimes to the bladder; in which case, there is an urging to discharge the urine, which is with difficulty passed; calomel repeated so as to purge, brings back the running, and then all difficulty from this symptom ceases.

ALGEMA, ἄλγημα, in medicine, the disease whence the pain proceeds, in which sense the term is frequently used by Hippocrates.

ALGEMISI, or ALGEMESEN, a small town, of Spain, six leagues south of Valencia, and five leagues north-north-west of Gandia. It is situated not far from the river Xucar, near which, grow great quantities of the pita, (as it is called) or American aloes, Agave, of which the people make cordage, and the Catalans spin it to a sufficient fineness for making lace.

ALGENEB, or ALGENIB, in astronomy, the name of two fixed stars of the second magnitude; one marked γ in the wing of Pegasus, the other α on the right side of Perseus.

ALGERINES, the inhabitants of Algiers. See ALGIERS.

ALGEZIRA, or ALGEZIRAS, an ancient maritime town of Andalusia, in Spain, which has a sea-port, on the coast of the Straits of Gibraltar. The harbour is formed by two islands, which gave rise to the name Algezira, signifying in the Arabic tongue, an island. It was formerly called Old Gibraltar, and lies seven miles west from the town of that name. By this city the Moors entered Spain in 713; and it was not recovered from them till 1344, after a very long siege, remarkable for being the first in which cannon were made use of. Algezira is agreeably situated close by the sea side, on a gentle slope, not far from Jarifa. It formerly consisted of two towns of considerable importance, but is now falling into decay. An aqueduct of hewn stone, three-fourths of a mile in length, supplies the city with fresh water. It was near this place that Sir James Saumarez, obtained a victory over the French and Spanish fleet, on the 11th of July, 1801.

ALGEZUR, a small town of Portugal, in Algarva, whose old castle makes a part in the royal arms of Portugal.

ALGHER, or ALGERI, a town in Sardinia, and a bishop's see, upon the north-west coast of the island, between Sasseri and Bossa, seventy-nine miles north-west of Cagliari. Though not large, it is well peopled, and has a commodious port. The coral obtained on this coast is in the highest esteem of any in the Mediterranean.

ALGIABARII, a Mahommedan sect of predestinarians, who attribute all the actions of men, good or evil, to the agency or influence of God. The Algiabarii stand opposed to the Alkadarii. The justice of God in punishing the evil he has caused, they resolve wholly into his absolute dominion over his creatures.

ALGIDUM, from gelidus, cold or freezing, in ancient geography, a town of Latium, supposed to be so called on account of the cold. It belonged to the Æqui, and was situated between Prœnesté and Alba. On the top of a high mountain of the same name, was situated a celebrated temple of Diana.

ALGITÉN, a small town of Lombardy, ten miles north of Milan, and situated on the Lambro.

ALGIERS.

ALGIERS, a kingdom of Africa, now one of the states of Barbary. According to the latest and best computations, it extends 460 miles in length, from east to west, along the Barbary coast, but is very unequal in breadth, some places being scarce forty miles broad, and others upwards of one hundred. It lies between long. 0°. 16′. and 9°. 16′. west, and extends from lat. 36°. 55′. to 44°. 50′. north. It is bounded on the north by the Mediterranean; on the east by the river Zaine, the ancient Tusca, which divides it from Tunis; on the west by the Milwooia, and the mountains of Trava, which separate it from Morocco and Tafilet; and on the south by mount Atlas, and the Zaara, or Numidian desert.

DIVISIONS.—This country comprehends the greater part of the Numidia and Mauritania Cæsariensis of the ancients; so called from the city of Cæsarea, built here by Juba the younger. The present name is derived from the situation of the metropolis, called by the Turks Algezair, Aljezier in Arabic, Al-jezirah, *the island*, alluding to an island which was anciently opposite the city, but is now joined to it by a pier. The modern divisions are Tlemsan or Tremecen, Mascara, Titterie, Algiers Proper and Constantia; although Dr. Shaw makes a different arrangement, and unites the provinces of Algiers Proper and Titterie into one district.

Of the above divisions Constantia is the most important, lying along the eastern confines, and once in the possession of Tunis. Of the chief towns of this district, Constantia contains a population of at least 100,000; Bona is strongly fortified, and has an excellent harbour; Bujeya has a larger port than Algiers, though not so safe for shipping; Gigeri, Zamoura, Tebef, Necanz, and Stessa are all places of considerable eminence. Cuco and Biscari are regions tributary to this province; but can scarcely be said to have any settled administration of government; and in this respect correspond with Labez, a barren rocky region, frequently described as a portion of this province. Algiers Proper contains the capital. Titterie, extending towards the south presents a surface irregularly broken with mountains, although some fertile plains are stretched around in different directions; and the towns of Bleeda and Medea contribute much to its improvement. In Mascara or Tlemsan, the western district, are the towns of Tlemsan, Mascara,

Oran, Tennis, Mustygannim, Sher-shell, and the port of Mars-al-Quibber; of which Oran, originally fortified by the Spaniards, and Sher-shell, containing monuments and antique remains, are the most important

Rivers.—The chief rivers are the Milwooia, anciently called Malva, the Yesser or Ziz, which divides the province of Mascara; the Zelif or Shellif; the Mina, the Chylematis of Ptolemy; the Belef, the Carthena of the ancients; the Hued-al-quiver or Zinganir, supposed to be the ancient Nalabata or Nasaba, and the Suf-Gemar, the Ampsaga of Ptolemy; the Haregol, probably the Signa of Ptolemy, flowing from the Great Atlas, through the desert of Anguid, till it falls into the Mediterranean Sea near Oran.

Mountains. The chief mountains are the Atlas, various branches of which stretch into these provinces from the southern regions, under the names of Lowat and Amnier; the mountains of Trara and Jurjura, extending from the interior toward Algiers; those of Felizia, Gibbell Auress, Anwell, the Mons Auracia of the ancients. Generally speaking, the Great Atlas bounds the states from east to west, and the mountains of Trara from the west towards the kingdom of Morocco.

Climate, Soil, &c.—The climate of Algiers, except when the hot and violent winds blow from the Great Desert, is in most places so moderate, that they enjoy a constant verdure; the leaves of the trees being neither parched up by heat in summer, nor nipped by the winter's cold. They begin to bud in February; in April the fruit appears in its full bigness, and is commonly ripe in May. The melons have an exquisite taste, and the stems of the vines are so large, that a man can hardly grasp them with his arms; and the bunches of grapes are 1½ feet long. Scarcely a cloud blots the sky in the summer months; and in September and October the rains begin to fall, wheat and beans are then sown; the latter rains fall in April, to which succeeds the harvest in May or June. In dressing their corn the Algerines still retain two remarkable customs of the east, viz. treading out the corn by means of horses or cattle; and throwing it up with a shovel or fan against the wind to winnow it. The soil of Algiers is excessively various; some places being very fertile in corn, fruits, &c. and others extremely hot, dry, and barren, on which account they are generally suffered to lie uncultivated by the inhabitants, who are very negligent. These barren places, especially such as lie on the southern side, and are at a great distance from the sea, harbour vast numbers of wild creatures, as lions, tigers, buffaloes, wild boars, stags, porcupines, monkies, ostriches, &c.

Animals.—The horses of this country are very superior, though the breeding of them is not attended to as it is in Arabia. They are extremely active, full of fire, command an interesting appearance, and are exercised to gallop with the reins thrown upon the neck; and so expert are the riders, that they can stop them at full speed. African horses are seldom seen in any other pace than a gallop; and are, from their impetuosity, admirably adapted for cavalry charges. The kumrah, a breed from the ass and the cow; the ass; the mule; the dromedary and camel, are the beasts of burden. The tame cattle are black and slender; but numerous herds run wild in the southern and eastern parts of the country, distinguished by the inflexion of their horns. Of sheep there are two species: that near the desert has an excellent appearance, and reaches almost to the height of a Shetland pony; but is not remarkable for either its flesh or its wool. A peculiar species of the goat is found in the hilly regions, with tufts of hair on the knee and neck joints. Of wild animals, besides those already mentioned, are leopards, hyænas, panthers, wolves, and a species of the jackal, which pours down into the villages in terrific flocks, and is so furious as to tear up the dead bodies out of the graves.

Birds.—Of birds they have a great variety. Quails are seen at the fall of the year crossing the Mediterranean in large flocks like clouds. Starlings, storks, pigeons, and most of the domestic fowls and common birds of Europe are in great plenty. There is a red lark not seen in Italy, which frequently excites the attention of travellers. Of those birds which are less common, may be enumerated, the karabur, or ash-coloured falcon; the sahærag, a species of magpie; the graab, or large crow of the desert, with legs and beak red like the falcon; the houbarry, whose gall is said to be medicinal; and the capsa, a large sparrow with a shining breast and ruddy coat like the lark, who, in melody, is said far to surpass the European nightingale. Ostriches mostly inhabit the desert of Anguid, where they are seen in large flocks, and appear at a distance like troops of robbers. They shed their feathers in the winter, which are collected by the natives to supply the European markets. Assisted by the wind, this bird is capable of outrunning the fleetest horse; but if driven against the wind, is easily taken, the flapping of her wings meeting with less resistance from the surrounding air.

Reptiles and Insects.—The scorpion is, amongst reptiles, the most formidable of those that are common to this region. It is of different colours, and inflicts a virulent wound, of which, though not perhaps in itself dangerous, many persons die annually. Vipers and numerous other serpents are common, and the great boa constrictor lies in the southern provinces. The locusts are a most dreadful scourge to this, and to contiguous kingdoms, from which neither fires, nor trenches, nor all the art and ingenuity of man have, as yet, been able to deliver them. In the months of April and May, these insect armies appear from the south, and spreading themselves over the valleys, begin to deposit their eggs. The young ones appear in June, and ascend in such vast multitudes, as to cover many acres of ground to the depth of several inches. Moving slowly on in quest of food, they destroy every vestige of vegetation, and leave nothing behind them but misery and distress. For the curious natural history of this insect, see the article. They have also a terrible kind of fly, which is poisonous to cattle, and particularly tormenting to the horse. A swarm of these insects settling upon a horse, have been known to sting him till he falls through loss of blood.

Antiquities.—The antiquities of this king-

dom are considerable, enriched with ruins, which have hitherto delighted and astonished the world. The mountains of Auress, to the south of Constantina, are a knot of eminences running over one another, with several plains and valleys between them. They are considered the garden of the kingdom, and present a circuit of 130 miles, covered with numerous ruins, of which those of L'Erba, called by the ancients Lambese, are the most remarkable. The magnificent remains of several city gates break upon the sight of the traveller on his approach to this interesting spot. These were four in number, according to the Arabs, from each of which, in case of emergency, the city could rout 40,000 armed men. The frontispiece of a beautiful temple of the Ionic order, and the remains of an amphitheatre, including the seats and upper part almost entire. An elegant mausoleum, erected in the form of a dome, supported by Corinthian columns, with a supposed triumval arch, and several other eminent antiquities, throw a light on the former magnificence of this ancient city. At Mednascham is a fabric supposed to be the tomb of Syphax and the Numidian princes. Constantina, the ancient Corta, capital of Numidia, forms one of the most interesting parts of the kingdom; and though of inferior extent to the former city, is perhaps second only to Algiers. For a detail, see CONSTANTINA. Some remains of Sigma, at Nedroma, in Constantina province, and of the Pontus Divini of Strabo, are still standing; and at Shershel are the supposed remains of Julia Cæsarea, consisting of wide cisterns, mosaics, broken columns, and curious sites of buildings, amongst which are found numerous medals and other monuments of antiquity.

The city of Algiers, opposite Minorca, and 300 miles west of Tunis, is supposed to be the ancient Iconium, and forms the present capital of the kingdom. It rises, from the ac clivity of a hill, in the imposing form of an amphitheatre, and is a mile and a half in circuit, containing nearly 30,000 inhabitants. Its antiquities are not very important, and of modern buildings the dey's palace, and the seraglio of his favourite wife are the largest, and are adorned with marble pillars of curious workmanship. There are ten large mosques and fifty of inferior dimensions; the finest of these erections is sixty feet in length, by forty in width, three stories in height, and supported by beautiful pillars. The walls are composed of white stone from the ruins of Ouran, the columns of white marble imported from Genoa. From the scarcity of water in the city, magnificent aqueducts have been erected, which convey water from no fewer than 150 fountains, communicating pipes branching out in all directions towards the different houses. The town consists, for the most part, of one principal street, in the direction of east and west, intersected by a few others of inferior importance. The streets generally are extremely irregular and inconvenient. So narrow are they that two persons can scarcely pass abreast; and when a camel passes, one must stand up close to the wall to avoid being crushed by him. The houses which communicate with each other are flat roofed and lofty, forming a promenade from one end of the town to the other. The inhabitants visit on the top, and spend their evenings in each other's society. The common buildings are of brick and stone, with four chimneys rising in the four corners of the terrace, and those of the more opulent class are adorned with marble columns and ceilings of superior workmanship. The baths and mosques are numerous, and of the former some are set apart for the use of females. Without the city are numerous sepulchres and chapels dedicated to marabouts or reputed saints, which the women yet visit every Friday. The barracks for the Turkish soldiery are spacious and handsome. In the middle of the last century this town was surrounded with a high wall, twelve feet thick, flanked with square towers and a deep ditch. These works have, however, been suffered to decay, a naval rather than a military defence, being the chief dependence of the Algerines. The mole of the harbour forms a spacious semicircle, a basin 130 fathoms long and eighty wide, affording shelter and protection for ships of the largest burden. It is surrounded by a light-house, and overlooked by a castle, founded on the solid rock. Powerful batteries protect the entrance of the harbour; and along the coast are numerous other batteries, which, since the British expedition, have been put in a better posture of defence. The inhabitants are chiefly Mahommedans, Jews, and Christians. The Turkish soldiers are great tyrants; for they will go to the farm houses in the country for twenty days together, living at free quarters, and making use of every thing, not excepting the women. The Algerines eat, as in Turkey, sitting cross-legged round a table about four inches high, and using neither knives nor forks; before they begin, every one says, 'Be isme Allah,' 'In the name of God.' When they have done, a slave pours water on all their hands as they sit, and then they wash their mouths. Their drink is water, sherbet, and coffee. Wine, though prohibited by Mahomet, is drank immoderately by some. Algiers, though for several ages it has braved some of the greatest powers of Christendom, could make but a faint defence against a regular siege; and it is said that three English fifty gun ships might batter it about the ears of its inhabitants from the harbour. The Spaniards attacked it in the year 1775, both by land and sea, but were repulsed with great loss, though they had near 20,000 foot, 2000 horse, and 47 royal ships of different rates, and 346 transports. In 1783 and 1784, they also renewed their attacks by sea to destroy the city and galleys; but were at length forced to retire without effecting its capture.

The manufactures, consisting chiefly of sashes, handkerchiefs, and carpets, are inferior to those of Turkey. The trade, till within the last twenty years, was entirely in the hands of the French, who kept establishments at Bona, La Cala, and Il Col, partly with a view to the coral fisheries in these quarters. In consequence of the revolution, however, France lost this branch of her commerce; and Great Britain, in 1806, stipulated with the Dey of Algiers for the possession of the three ports above named. The sum of 50,000 dollars has been regularly paid for them, although little advantage has been, at present, derived. From its situation, it affords an excellent medium

for conveying British goods into the interior of Africa. It is said that the corsairs or pirates of Algiers form a small republic, of which the rais or captain is the supreme bashaw; who, with the officers under him, form a kind of douwan, in which every matter relating to the vessel is decided. These corsairs are chiefly instrumental in importing whatever commodities are brought into the kingdom by way of merchandize or prizes, as gold and silver stuffs, damasks, cloths, spices, tin, iron, plated brass, lead, quicksilver, cordage, sail-cloth, bullets, cochineal, linen, tartar, alum, rice, sugar, soap, cotton, copperas, aloes, Brazil wood, logwood, vermilion. Few commodities, at present, are exported from Algiers. Ostrich feathers, copper, rugs, silk sashes, embroidered handkerchiefs, dates, &c. are the most remarkable.

The inland inhabitants, distinguished by the name of Berebers, are the proper natives of the country, supposed to have been descended from the ancient Sabeans, who plundered the patriarch Job; and still retaining their original character of robbers and pirates, removed from Arabia Felix and settled at Algiers.

Others believe them to be descended from the Canaanites, who were driven out of Palestine by Joshua. They are dispersed all over Barbary, and divided into a multitude of tribes under their respective chiefs: most of them inhabit the mountainous parts; some range from place to place and live in tents or portable huts; others in scattered villages: in which situation they have generally kept from intermixing with other nations. The Berebers are reckoned the richest of all the Algerines, go better clothed, and carry on a much larger traffic in cattle, hides, wax, honey, iron, and other commodities. They have also some artificers in iron, and some manufacturers in the weaving branch.—The name, Bereber, is supposed to have been originally given them on account of their being first settled in some desert place. Upon their increasing in process of time they divided themselves into five tribes, probably on account of religious differences, called Zinhagians, Muscamedins, Zeneti, Hoares, and Gomeres; and these having produced 600 families, subdivided themselves into a great number of petty tribes.—To these we may add the Zwowahs, by European authors called Azuagues, or Assagues, who are likewise dispersed over the greater part of Barbary and Numidia. Great numbers of these inhabit the mountainous parts of Cuco, Labez, &c. leading a wandering pastoral life. But the most numerous inhabitants have long been Moors and Arabians. The former are very stout and warlike, and skilful horsemen; but so addicted to robbing, that one cannot safely travel along the country at a distance from the towns without a guard, or at least a marabout or saint for a safeguard. The inhabitants, in general, have a pretty fair complexion; they are robust and well proportioned. People of distinction wear their beards; they have rich clothes made of silk, embroidered with flowers of gold, and turbans enriched with jewels. The Turks, who compose the military force, have great privileges, pay no taxes, are never publicly punished, and rarely in private. The lowest soldier domineers over the most distinguished Moors at [illegible] If he finds them better mounted than [illegible] exchanges horses without ceremony. The [illegible] alone have the privilege of carrying [illegible] Some good qualities, however, distinguish [illegible] in spite of this excess of despotism. They [illegible] game for money, nor even for trifles; and [illegible] never profane the name of the deity. They [illegible] forget their private quarrels; and, after the [illegible] paroxysm of resentment is over, it is [illegible] a Turk to keep in remembrance the injuries [illegible] has received. In this respect certainly [illegible] less barbarous than some other nations that [illegible] of their civilization.

The government of Algiers, although [illegible] been styled a republic, is neither republican [illegible] despotic, but a sort of oligarchy, or at [illegible] approximating to that model. According [illegible] some writers it is difficult to ascertain [illegible] is, whether a vile oligarchy, an aristocratical [illegible] monwealth, or a lax, tumultuous, ill-regulated despotism. Almost every dey that succeeds [illegible] the throne, paves the way by the murder of [illegible] predecessor and rival competitors, and is himself at last strangled or otherwise despatched at [illegible] pleasure of a more powerful rival. To the [illegible] fection of its government, may be in a [illegible] measure attributed the many miseries of this happy kingdom.

The population consists chiefly of Moors [illegible] Turks, who though not more than 7000 in number, keep the government in their own [illegible] exclusively. The most enlightened of the [illegible] ple are the Cologlis, or the children of the Turks by the Moorish women. The Moors are divided into two kinds, the Kabylas or mountain [illegible] and the Berebers, the mechanics of the country. The Arabian tribes keep themselves totally [illegible] and are employed in commerce.

The cadi is the ecclesiastical judge, besides whom there is a superior religious officer called mufti or high-priest; and an inferior [illegible] called the grand marabout. To these officers [illegible] the supreme appeal in all religious concerns. The people are generally ignorant; yet so [illegible] are the higher ranks of their authority, that [illegible] ing, according to M. Pantani, has been prohibited lest there should be too much knowledge in the nation. The only instruction consists in teaching boys to read and repeat fifty or sixty aphorisms from the Koran. The Alfagni or learned men [illegible] jugglers.

The Algerine kingdom made formerly a considerable part of the Mauritania Tingitana, [illegible] MAURITANIA, which was reduced to a Roman province by Julius Cæsar, and from him [illegible] called Mauritania Cæsariensis. After the Romans had been driven out of Africa by the Vandals, and the latter by the Saracens about the middle of the seventh century, the Arabs continued masters of the country, divided into petty kingdoms under chiefs of their own choosing, [illegible] the year 1051, when Albubeker ben Omar, or as the Spanish authors call him, Abu Texeren, provoked at the tyranny of those despots, gathered by the help of his marabouts, or saints, a powerful army of malcontents, in Numidia and Libya. His followers were named Morabites; by the Spaniards, Almoravides, probably from their being

assembled principally by the Mahommedan saints so called The khalif of Kayem's forces were at this time taken up in quelling revolts in Syria, Mesopotamia, &c. and the Arabs in Spain engaged in the most bloody wars; so that Texefien, having nothing to fear from them, had all the success he could wish against the Arabian cheyks whom he repeatedly defeated, and at last drove out of Numidia, Libya, and all the western parts, reducing the whole province of Tingitania under his dominion. He was succeeded by his son Yusef, or Joseph, who laid the foundation of Morocco, which he designed for the capital of his empire. While that city was building, he sent ambassadors to Tremecen, at that time inhabited by a powerful sect of Mahommedans called Zeneti, proposing to bring them back to what he called the true faith; but the Zeneti, despising his offers, murdered his ambassadors, and invaded his dominions with an army of 50,000 men; whereupon he immediately led his army into their country, destroying all before him with fire and sword; while the Zeneti, instead of opposing his progress, retired as fast as possible towards Fez, in hopes of assistance. But in this they were miserably deceived, for the Fezzans coming up with the unhappy Zeneti, encumbered with their families and baggage, and ready to expire with hunger and weariness, cut them all to pieces, except a small number who were either drowned in attempting to swim across a river, or perished by falling from the adjacent rocks. Meantime Joseph reduced their country to a mere desert; but it was soon repeopled by a numerous colony of Fezzans, who settled there. In this war it is computed that near a million of the Zeneti, men, women, and children, lost their lives. Notwithstanding the assistance Joseph had thus received from the Fezzans, he declared war against them, reduced them to become his tributaries, and extended his conquest all along the Mediterranean. He next attacked those Arabian cheyks who had not yet submitted, taking many castles and fortresses, till then deemed impregnable; and at last completely subdued them. Thus was founded the empire of the Morabites, which, however, was of no long duration; that race being in the 12th century driven out by Mohavedin, a marabout. This race of priests was expelled by Abdulac governor of Fez; and he, in the 13th century, was stripped of his conquests by the Sharifs of Hascen, the descendants of those Arabian princes whom Abu-Texefien had formerly expelled. The better to secure their new dominions, the Sharifs divided them into several little kingdoms or provinces; and among these the present kingdom of Algiers was divided into four, viz. Tremecen, Tenez, Algiers Proper, and Bujeyah. The four first monarchs laid so good a foundation for a lasting balance of power between their little kingdoms, that they continued for some centuries in mutual amity; but at length the king of Tremecen having ventured to violate some of their articles, Abul Farez, king of Tenez, declared war against him, and obliged him to become his tributary. This king dying soon after, and having divided his kingdom among his three sons, new discords arose; which Spain taking advantage of, sent a powerful fleet and army against Barbary, in 1505, under the count of Navarre, who took Oran, Bujeyah, and some other important places; which so alarmed the Algerines, that they put themselves under the protection of Selim Eutemi, an Arabian prince. He came to their assistance with a great number of his bravest subjects, but was not able to prevent the Spaniards from landing a number of forces near Algiers, and making the Algerines tributary to Spain; or from building a strong fort on a small island opposite to the city, which terrified their corsairs from sailing either in or out of the harbour. They continued under this yoke until 1516; when, hearing of the death of Ferdinand, king of Spain, they sent to Aruch Barbarossa, who was at this time no less dreaded for his valour than for his surprising success, requesting him to join his forces with those of Selim Eutemi, and free them from the Spanish yoke; offering him a gratuity answerable to so great a service. Upon this Barbarossa immediately despatched eighteen galleys and thirty barks to the assistance of the Algerines: while he himself advanced towards the city with 800 Turks, 3000 Jigelites, and 2000 Moorish volunteers. In his road to Algiers, he surprised Hassan, another famed corsair, and obliged him to surrender; not without a previous promise of friendship: but no sooner had Barbarossa got him in his power, than he cut off his head; and obliged all Hassan's Turks to follow him in his new expedition. On Barbarossa's approach to Algiers, he was met by prince Selim, attended by the people, who looked for deliverance from this abandoned villain, whom they accounted invincible. He was conducted into the city amidst their acclamations, and lodged in one of the noblest apartments of prince Eutemi's palace, where he was treated with the greatest marks of honour. Elated beyond measure with this kind reception, Barbarossa formed a design of becoming king of Algiers; and fearing opposition from the inhabitants, on account of the excesses he suffered his soldiers to commit, caused prince Eutemi to be murdered at the baths, and caused himself to be proclaimed king; his Turks and Moors crying out as he rode along the streets, 'Long live King Aruch Barbarossa, the invincible king of Algiers, the chosen of God to deliver the people from the oppression of the Christians; and destruction to all that shall oppose, or refuse to own him as their lawful sovereign.' This last threatening so intimidated the inhabitants, already apprehensive of a general massacre, that he was immediately acknowledged king. The unhappy princess Zaphira, Selim's queen, poisoned herself, to avoid the brutality of this tyrant, whom she unsuccessfully endeavoured to stab with a dagger. After this, Barbarossa treated his subjects with such cruelty, that they used to shut up their houses and hide themselves when he appeared in public. A plot was formed against him, but being discovered, he caused twenty of the principal conspirators to be beheaded, and their bodies to be buried in a dunghill, and laid a heavy fine on those who survived; which so terrified the Algerines that they never afterwards

attempted any thing against him. Meantime, the son of prince Selim, having fled to Orar, and put himself under the protection of the marquis of Gomarez, laid before that nobleman a plan for putting the city of Algiers into the hands of the king of Spain. Upon this young Selim Eutemi was sent into Spain, to lay his plan before cardinal Ximenes; who, having approved of it, sent a fleet with 10,000 land forces, under the command of Don Diego de Vera, to drive out the Turks, and restore the young prince. But the fleet was no sooner come within sight of the land, than it was dispersed by a storm, and the greatest part of the ships dashed against the rocks. Most of the Spaniards were drowned; and the few who escaped were either killed by the Turks or made slaves. The king of Tenez made an attack upon him, but as the rest of the history of this bloody tyrant will be narrated under the article BARBAROSSA, it is only necessary to add here, that, after taking and plundering Tenez, and being chosen king of Tremecen, by the inhabitants, who were displeased with their own sovereign, he was at last killed by Abuchenmen, king of Tremecen, assisted by the Spaniards, in the forty-fourth year of his age, and second of his reign over Algiers. The circumstances of his defeat and death are related as follows: The prince of Tremen fleeing to Charles V. obtained an army of 10,000 under the command of the marquis Gomarez, who besieged him closely. Taking with him 1500 Turks and 5000 Moors, he sallied out upon his besiegers, but was obliged to retire and defend himself within the citadel of Tremecen. Seeing no other prospect of escape, he dug a subterraneous passage, by which means he left the city, but was pursued by some Spaniards, who, although he scattered plate and jewels in the way, would not suffer themselves to be diverted, and at last overtook him at Harxda, eight leagues from Tremecen, and despatched him. Abuchen-men was then declared king.

Although the news of Barbarossa's death spread the utmost consternation among the Turks at Algiers, they nevertheless proclaimed his brother Hayradin king; and the Spanish commander, having sent back the emperor's forces, without making any attempt upon Algiers, he lost the opportunity of driving the Turks out of that country; while Hayradin, justly dreading the consequences of the tyranny of his officers, sought the protection of the grand seignior. This was readily granted, and himself appointed bashaw or viceroy of Algiers; by which means he received such reinforcements, that the Algerines durst not make the least complaint; and such numbers of Turks resorted to him, that he became not only capable of keeping the Moors and Arabs in subjection at home, but of annoying the Christians at sea. His first step was to take the Spanish fort of Calan, which was a great nuisance to his metropolis, and though the Spaniards held out to the last extremity, he soon became master of it. He next set about building a strong mole for the safety of his ships. In this he employed 30,000 Christian slaves, whom he obliged to work without intermission for three years, in which time the work was completed. He then caused the fort he had taken to be repaired, and placed a strong garrison in it, to prevent any foreign vessels from entering the harbour without giving an account of themselves. By these two important works, Hayradin soon became dreaded not only by the Arabs and Moors, but also by the maritime Christian powers, especially the Spaniards. The grand seignior having sent him a fresh supply of money, he was enabled to erect batteries on all places that might favour the landing of an enemy. All these have since received greater improvements from time to time, as often as there was occasion. Meantime the Sultan, either from a sense of the great services Hayradin had done, or out of jealousy lest he should make himself independent, raised Hayradin to the dignity of bashaw of the empire, and appointed Hassan Aga, a Sardinian renegado, and an experienced officer, to succeed him as bashaw of Algiers. Hassan had no sooner taken possession of his new government, than he began to pursue his ravages on the Spanish coast with greater fury than ever; extending them to the ecclesiastical state, and other parts of Italy; whereupon Pope Paul III. exhorted the emperor Charles V. to send a powerful fleet to suppress those cruel piracies; and, that nothing might be wanting to render the enterprise successful, a bull was published, wherein a plenary absolution of sins, and the crown of martyrdom, were promised to all who should either fall in battle or be made slaves. The emperor on his part needed no spur; and therefore set sail with a fleet of 120 ships and 20 galleys, having on board 30,000 chosen troops, and an immense quantity of money, arms, ammunition, &c. In this expedition many young nobility and gentry attended as volunteers, and many knights of Malta, so remarkable for their valour against the enemies of Christianity. Even ladies of birth and character attended Charles in his expedition, and the wives and daughters of the officers and soldiers followed them, with a design to settle in Barbary after the conquest was finished. The Algerines were greatly alarmed by this prodigious armament. The city was defended only by a wall, with scarce any outworks. The whole garrison consisted of 800 Turks and 6000 Moors, without fire arms, and poorly disciplined and accoutred; the rest of their forces being dispersed in the other provinces of the kingdom, to levy the usual tribute on the Arabs and Moors. The Spaniards landed without opposition, and immediately built a fort, under the cannon of which they encamped, and diverted the course of a spring which supplied the city with water. Being now reduced to the utmost distress, Hassan was on the point of surrendering, when advice was brought him that the forces belonging to the western government were in full march towards the place; upon which it was resolved to defend it to the utmost. Charles, in the mean time, resolving upon a general assault, kept a constant firing upon the town; which, from the weak defence made by the garrison, he looked upon as already his own. But

while the douwan or Algerine senate, were deliberating on the most proper means of obtaining an honourable capitulation, a mad prophet, named Yuself, attended by a multitude of people, entered the assembly, and foretold the speedy destruction of the Spaniards before the end of the moon, exhorting the inhabitants to hold out till that time. This prediction was soon accomplished in a very surprising and unexpected manner: for, on the 28th of October, 1541, a dreadful storm of wind, rain, and hail, arose from the north, accompanied with violent shocks of earthquakes, and an universal darkness, so that the elements seemed to combine together for the destruction of the Spaniards. In that night, some say in less than half an hour, eighty-six ships and fifteen galleys were destroyed, with all their crews and military stores; by which the army on shore was deprived of all means of subsisting in these parts. Their camp also, which spread itself along the plain under the fort, was laid quite under water by the torrents which descended from the neighbouring hills. Many of the troops, trying to remove into some better situation, were cut in pieces by the Moors and Arabs; while several galleys, and other vessels, endeavouring to gain some neighbouring creeks along the coasts, were immediately plundered, and their crews massacred by the inhabitants. Next morning Charles beheld the sea covered with the fragments of so many ships, and the bodies of men, horses, and other creatures, swimming on the waves; at which he was so disheartened, that abandoning his tents, artillery, and all his heavy baggage, to the enemy, he marched at the head of his army, though in no small disorder, towards cape Malabux, in order to re-imbark in those few vessels which had outweathered the storm. But Hassan who watched his motions, allowed him just time to get to the shore, when he attacked the Spaniards in the midst of their hurry to get into their ships, killing great numbers, and bringing away a still greater number of captives; after which he returned in triumph to Algiers, where he celebrated his happy deliverance with great rejoicings. In this unfortunate expedition upwards of 120 ships and galleys were lost, above 300 land and sea officers, 8000 soldiers and marines, besides those destroyed by the enemy on the re-imbarkation, or drowned in the last storm. The number of prisoners was so great, that the Algerines sold some of them, by way of contempt, for an onion per head. Charles himself escaped with difficulty to Tunis with his few remaining followers. Hassan afterwards made his ally the king of Tremecen tributary, and returning to Algiers laden with riches, soon after died of a fever, in the sixty-sixth year of his age. After this Haji became king, and the Spaniards afterwards were never able to annoy the Algerines in any considerable degree. In 1555 they lost the city of Bujeyah, which was taken by Selha-Rais, Hassan's successor, who dying soon after of the plague, the Algerine soldiers chose a Corsican renegado, Hassan Corso, in his room, till they should receive farther orders from the Porte. He did not accept of the bashawship without a good deal of difficulty; and he had hardly enjoyed his dignity four months, before news came that eight galleys were bringing a new bashaw to succeed him; one Tekelli, a principal Turk of the grand seignior's court: upon which the Algerines unanimously resolved not to admit him. By the treachery of the Levantine soldiers, however, he was admitted at last, and the unfortunate Corso thrown over a wall in which a number of iron hooks were fixed; one of which catching the ribs of his right side, he hung three days in the most exquisite torture before he expired. Tekelli was no sooner entered upon his new government, than he behaved with such cruelty and rapacity, that he was assassinated even under the dome of a saint, by Yusef Calabres, the favourite renegado of Hassan Corso; who, for this service, was unanimously chosen bashaw, but died of the plague six days after his election. Yusef was succeeded by Hassan, the son of Hayradin, who had formerly been recalled from his bashawship, when he was succeeded by Selha-Rais: and now had the good fortune to get himself reinstated in his employment. Next year the Spaniards undertook an expedition against Mostagan, under the command of the Count d'Alcandela; but were defeated, their commander killed, and 12,000 taken prisoners. Hassan having disobliged his subjects by allowing the mountaineers of Cuco to buy ammunition at Algiers, was sent in irons to Constantinople, while the aga of the Janisaries supplied his place. Hassan found means to clear himself: but a new bashaw was appointed, called Achmet; who was no sooner arrived, than he sent the two deputy bashaws to Constantinople, where their heads were struck off.—Achmet was a man of insatiable avarice, and had bought his dignity by the money he had amassed while head gardener to the Sultan. He enjoyed it, however, only four months; and after his death, the state was governed other four months by his lieutenant; when Hassan was a third time sent viceroy to Algiers, where he was received with the greatest demonstrations of joy. The first enterprise in which Hassan engaged, was the siege of Marsalquiver, near Oran. His army consisted of 26,000 foot and 10,000 horse; and his fleet of thirty-two galleys and galliots, together with three French vessels laden with provisions. The city was defended by Don Martin de Cordova, brother of the Count d'Alcandela, who had been taken prisoner in the battle where that nobleman was killed, but had obtained his liberty from the Algerines with immense sums, and now made a most gallant defence against the Turks. The city was attacked with the utmost fury by sea and land, so that several breaches were made in the walls. The Turkish standards were several times planted on the walls, and as often dislodged; but the place must have in the end submitted, had not Hassan been obliged to raise the siege, on hearing that the famed Genoese admiral Doria was approaching with succours from Italy. The fleet accordingly arrived soon after; but missing the Algerine galleys, bore away for Pennon de Velez, where they were shamefully repulsed by a few Turks who garrisoned that place; which, however, was taken the following year. In 1567 Hassan was again recalled to Constantinople, where he died three years after. He was succeeded by Mahomet,

who gained the love of the Algerines by several public spirited actions. He incorporated the Janissaries and Levantine Turks together, and by that means put an end to their dissensions, which laid the foundation of the Algerine independency on the Porte. He likewise added some considerable fortifications to the city and castle, which he designed to render impregnable. But while he was thus studying the interest of Algiers, one John Gascon, a bold Spanish adventurer, formed a design of burning the whole piratic navy in the bay; but this plan, though patronised by king Philip II. proved abortive, owing to the dampness or improper mixture of the fire works; and Gascon himself, being taken prisoner, was barbarously slain by the Algerines. Mahomet, being soon after recalled, was succeeded by the famous renegado Ochali, who reduced the kingdom of Tunis; which, however, remained subject to the viceroy of Algiers only till the year 1586, when a bashaw of Tunis was appointed by the Porte. In 1585, under Memi Arnaud an Albanian, we first find the Algerines passing the Straits of Gibraltar, and extending their depredations as far as the Canary Islands, where they made a descent, carried off 300 persons (including the governor's family), with great plunder, but admitted some of the principal ladies to ransom. Early in the seventeenth century the government of the Algerines underwent considerable revolution.

Algiers, till the beginning of the seventeenth century, continued to be governed by viceroys appointed by the Porte; concerning whom we find nothing very remarkable, further than that their avarice and tyranny was intolerable both to the Algerines and the Turks. At last the Turkish Janissaries and militia becoming powerful enough to suppress the tyrannic sway of these bashaws, and the people being almost exhausted by the heavy taxes laid upon them, the former resolved to depose those petty tyrants, and set up some officers of their own at the head of the realm. The better to succeed in this attempt, the militia sent a deputation of some of their chief members to the Porte, to complain of the oppression of these bashaws, who sunk both the revenue of the state, and the money remitted to it from Constantinople, into their own coffers, which should have been employed in keeping up and paying the soldiery; by which means they were in continual danger of being overpowered by the Arabians and Moors, who, if ever so little assisted by any Christian power, would hardly fail of driving all the Turks out of the kingdom. They represented to the grand vizier how much more honourable, as well as easier and cheaper, it would be for the grand seignior to permit them to choose their own dey, or governor, from among themselves, whose interest it would then be to see that the revenue of the kingdom was rightly applied in keeping up its forces complete, and in supplying all other exigencies of the state, without any farther charge or trouble to the Porte than that of allowing them its protection. On their part, they engaged always to acknowledge the grand seigniors as their sovereigns, and to pay their usual allegiance and tribute, to respect their bashaws, and even to lodge, and maintain them and their retinue, in a manner suitable to their dignity at their own charge. The bashaws, however, were, for the future, to be excluded from assisting at any but general douwans, unless invited; and from having the liberty of voting in them, unless when their advice was asked, or the interest of the Porte was likely to suffer by their silence. All other concerns, which related to the government of Algiers, were to be wholly left under the direction of the dey and his douwan. These proposals having been accepted by the Porte, the deputies returned highly satisfied; and having notified their new privileges, the great douwan immediately proceeded to the election of a dey from among themselves. They compiled a new set of laws, and made several regulations for the better support and maintenance of this new form of government, to the observation of which they obliged all their subjects to swear; and the militia, commerce, &c. were all settled pretty much the footing upon which they now are; the altercations that happened between the bashaws and deys, the one attempting to regain their former power, and the other to curtail, caused such frequent complaints at the Ottoman court, as made them often repent their compliance. In 1601, the Spaniards, under Doria the Genoese admiral, made another attempt upon Algiers, in which they were more fortunate than usual, their fleet being only driven back by contrary winds, so that they came off without loss. In 1609, the Moors being expelled from Spain flocked in great numbers to Algiers; and many of them were very able sailors, they undoubtedly contributed to make the Algerine fleet so formidable as it became soon after. In 1 it consisted of forty sail, of between 200 and tons, their admiral 500 tons. It was divided into swo squadrons, one of eighteen sail, before the port of Malaga; and the other at the C of Santa Maria, between Lisbon and Set both of which fell foul on all Christian s both English and French, with whom they pretended to be in friendship, as well as Spain and Portuguese, with whom they were at The Algerines were now become very formidable to the European powers. The Spaniards, were most in danger, and least able to cope them, solicited the assistance of England, Ba and other states. The French, however, the first who dared to show their resentment the perfidious behaviour of these miscreants and in 1617 M. Beaulieu was sent against th with a fleet of fifty men of war, who defeated their fleet, took two of their vessels, while admiral sunk his own ship and crew, rather fall into his hands. In 1690 a squadron of Eng lish men of war was sent against Algiers, und Sir Robert Mansel; but it returned without doing any thing; and the Algerines, becoming more and more insolent, openly defied all the European powers, the Dutch only excepted; whom, in 1625, they sent a proposal, directed to the prince of Orange, that in case they would fit out twenty sail of ships the following year, upon any good service against the Spaniards, they would join them with sixty sail of their own. Next year, the Coulolies, or Cologlies, the chil

dren of such Turks as had been permitted to marry at Algiers, who were enrolled in the militia, having seized on the citadel, had well nigh made themselves masters of the city; but were attacked by the Turks and renegadoes, who defeated them with terrible slaughter. Many of them were executed; and their heads thrown in heaps upon the city walls, without the eastern gate. Part of the citadel was blown up; and the remaining Coulolies were dismissed from the militia, to which they were not again admitted till long after.

Amurath IV. in 1623, having made a truce for twenty-five years, with the emperor Ferdinand II. the Algerines and other states of Barbary threw off their dependence on the Porte altogether, and set up for themselves; and resolved, that whoever desired to be at peace with them must apply to their government. They accordingly began to make prizes of several merchant ships belonging to powers at peace with the Porte; and having seized a Dutch ship and poleacre at Scanderoon they ventured on shore, and finding the town abandoned by the Turkish aga and inhabitants, they plundered all the magazines and warehouses, and set them on fire. About this time Louis XIII. undertook to build a fort on their coast, instead of one formerly built by the Marsilians, and which they had demolished. This, after some difficulty, he accomplished; and it was called the Bastion of France: but the situation being afterwards found inconvenient, the French purchased the port of La Calle, and obtained liberty to trade with the Arabians and Moors. The Ottoman court, in the mean time, was so much embarrassed with the Persian war, that there was no leisure to check the Algerine pirates. This gave an opportunity to the vizier and other courtiers to compound matters with the Algerines, and to get a share of their prizes, which were very considerable. However, for form's sake, a severe reprimand, accompanied with threats, was sent them; to which they replied, that, 'these depredations deserved to be indulged to them, seeing they were the only bulwark against the Christian powers, especially against the Spaniards, the sworn enemies of the Moslem name:' adding, that 'if they should pay a punctilious regard to all that could purchase peace, or liberty to trade with the Ottoman empire, they would have nothing to do but set fire to all their shipping, and turn camel-drivers for a livelihood.' The Algerines continued to prosecute their piracies with impunity, to the terror and disgrace of the Europeans, till the year 1652; when a French fleet being accidentally driven to Algiers, the admiral took it into his head to demand a release of all the captives of his nation, without exception. This being refused, the Frenchman without ceremony carried off the Turkish viceroy, and his cadi or judge, who were just arrived from the Porte, with all their equipage and retinue. The Algerines, by way of reprisal, surprised the bastion of France already mentioned, and carried off the inhabitants to the number of 600, with all their effects; which so provoked the admiral, that he sent them word, he would pay them another visit next year with his whole fleet. The Algerines, undismayed by his threats, fitted out a fleet of sixteen galleys and galliots excellently manned and equipped, under the command of admiral Hali Pinchinin. The chief design of this armament was against the treasures of Loretto; which, however, they were prevented by contrary winds from obtaining. Upon this they made a descent on Naples, where they ravaged the whole territory of Nicotera, carrying off a vast number of captives, and among them some nuns. From thence steering towards Dalmatia, they scoured the Adriatic; and loading themselves with immense plunder, left those coasts in the utmost consternation. At last the Venetians, alarmed at such terrible depredations, equipped a fleet of twenty-eight sail, under the command of admiral Capello, with express orders to burn, sink, or take, all the Barbary corsairs he met with, either on the open seas, or even in the grand seignior's harbours, pursuant to a late treaty of peace with the Porte. The captain bashaw, who had been sent out with the Turkish fleet, to chase the Florentine and Maltese cruisers out of the Archipelago, understanding that the Algerine squadron was so near, sent orders to the admiral to come to his assistance. Pinchinin readily agreed: but having resolved on a descent upon the island of Lissa, belonging to the Venetians, he was overtaken by Capello, from whom he retired to Valona, a sea port belonging to the grand seignior, whither the Venetian admiral pursued him; but the Turkish governor refusing to eject the pirates according to the articles of the peace between the Ottoman court and Venice, Capello was obliged to content himself with watching them for some time. Pinchinin at last ventured out, when an engagement immediately ensued, in which the Algerines were defeated, and five of their vessels disabled, with the loss of 1500 men, Turks and Christian slaves; besides 1600 galley slaves who regained their liberty. Pinchinin, after this defeat, returned to Valona, where he was again watched by Capello; but the latter had not lain long at his old anchorage, before he received a letter from the senate, desiring him to make no farther attempt on the pirates at that time, for fear of a rupture with the Porte. This was followed by a letter from the governor of Valona, desiring him to take care lest he incurred the sultan's displeasure by such insults. The brave Venetian was forced to comply; but, resolving to take such a leave of the Algerines as he thought they deserved, observed how they had reared their tents, and drawn their booty and equipage along the shore. He then kept firing among their tents, while some well manned galliots and brigantines were ordered among their shipping, who attacked them with such bravery, that, without any great loss, they towed out their sixteen galleys, with all their cannon, stores, &c. In this last engagement, a ball from one of the Venetian galleys happening to strike a Turkish mosque, the whole action was considered as an insult upon the grand seignior. To conceal this, Capello was ordered to sink all the Algerine ships he had taken, except the Admiral; which was to be conducted to Venice, and laid up as a trophy.—

Capello came off with a severe reprimand; but the Venetians were obliged to buy, with 500,000 ducats, a peace from the Porte. The grand seignior offered to repair the loss of the Algerines by building ten galleys for them, upon condition that they should continue in his service till the end of the ensuing summer; but Pinchinin, who knew how little the Algerines chose to lie under obligations to him, civilly declined the offer.—Meantime, the news of this defeat filled Algiers with the utmost confusion. The whole city was on the point of a general insurrection, when the bashaw and douwan issued a proclamation, not only forbidding all complaints under the severest penalties, but all persons whomsoever, to take their thumbs from within their girdles, while they were deliberating on this important point. In the mean time they applied to the Porte for an order that the Venetians, settled in the Levant, should make up their loss. But with this the grand seignior refused to comply, and left them to repair their loss, as well as build new ships, the best way they could. It was not long, however, before they had the satisfaction to see one of their corsairs land with a fresh supply of 600 slaves, whom he had brought from the coast of Iceland, whither he had been directed by a miscreant native taken on board a Danish ship. Our pirates did not long continue in their weak and defenceless state; being able, at the end of two years, to appear at sea with a fleet of sixty-five sail, which soon cleared the seas, and brought home vast numbers of slaves, and an immense quantity of rich spoils; insomuch that the English, French and Dutch, were obliged to cringe to the mighty Algerines, who sometimes vouchsafed to be at peace with them, but swore eternal war against Spain, Portugal, and Italy, whom they looked upon as the greatest enemies to the Mahommedan name. At last Louis XIV. provoked by the outrages committed by the Algerines on the coasts of Provence and Languedoc, ordered, in 1681, a considerable fleet to be fitted out against them, under the Marquis Du Quesne, vice-admiral of France. His first expedition was against a number of Tripolitan corsairs; who took shelter in the island of Scio, but pursuing them thither, he quickly destroyed fourteen of their vessels, besides battering the walls of the castle; and finding they still continued their outrages on the French coast, he sailed to Algiers in August 1682, cannonading and bombarding it so furiously, that the whole town was in flames in a very little time. The great mosque was battered down, and most of the houses laid in ruins, insomuch that the inhabitants were on the point of abandoning the place; when, on a sudden, the wind changed, and obliged Du Quesne to return to Toulon. The Algerines immediately made reprisals, by sending a number of galleys to the coast of Provence, where they committed the most dreadful ravages, and brought away a vast number of captives; upon which a new armament was to be got ready at Toulon and Marseilles against the next year; and the Algerines, having received timely notice, put themselves in as good a state of defence as the time would allow. In May 1683, Du Quesne with his squadron, cast anchor before Algiers; where, being joined by the marquis D'Affranville, at the head of his stout vessels, it was resolved to bombard the town. Accordingly 100 bombs were thrown into it the first day, which did terrible execution; while the besieged made some hundred discharges of their cannon against them, without doing any considerable damage. The following night the bombs were again thrown into the city in such numbers, that the dey's palace and other public edifices were almost destroyed; some of the batteries were dismounted, and several vessels sunk in the port. The dey and Turkish bashaw as well as the whole soldiery, alarmed at the dreadful havock, immediately sued for peace.—As a preliminary, the immediate surrender was insisted on of all Christian captives who had been taken fighting under the French flag; which being granted, 142 of them were immediately delivered up, with a promise of sending him the remainder as soon as they could be got from the different parts of the country. Accordingly Du Quesne sent his commissary-general and one of his engineers into the town; but with express orders to insist upon the delivery of all the French captives without exception, together with the effects they had taken from the French; and that Mezomorto their then admiral, and Hali Rais, one of their captains, should be given as hostages. This last demand having embarrassed the dey, he assembled the douwan, and acquainted them with it; upon which Mezomorto fell into a violent passion, and told the assembly that the cowardice of those who sat at the helm had occasioned the ruin of Algiers; but that for his part he never would consent to deliver up any thing that had been taken from the French. He immediately acquainted the soldiery with what had passed; which so exasperated them that they murdered the dey that very night, and on the morrow chose Mezomorto in his place. This was no sooner done, than he cancelled all the articles of peace which had been made, and hostilities were renewed with greater fury than ever. The French admiral now kept pouring such volleys of bombs, that in less than three days, the greatest part of the city was reduced to ashes, and the fire burned with such vehemence that the sea was enlightened with it for more than two leagues round. Mezomorto, unmoved at all these disasters, and the vast number of the slain, whose blood ran in rivulets along the streets; or rather, grown furious and desperate, sought only how to wreak his revenge on the enemy: and, not content with causing all the French in the city to be cruelly murdered, ordered their consul to be tied hand and foot, and fastened alive to the mouth of a mortar, from whence he was shot away against their navy. By this piece of inhumanity Du Quesne was so exasperated, that he did not leave Algiers till he had utterly destroyed all their fortifications, shipping, almost all the lower part, and above two-thirds of the upper part of the city; by which means it became little else than a heap of ruins. The haughty Algerines were now thoroughly convinced that they were not invincible; and, therefore, immediately sent an embassy

France, begging in the most abject terms for peace; which Louis immediately granted, to their inexpressible joy.

The following copy of the speech, made by the Algerine envoy on this occasion, will give the reader an idea how deeply they felt the consequences of this defeat.

'Most high, most excellent, most powerful, magnanimous, and invincible Louis XIV. emperor of the French, whom God preserve, and make happy, I prostrate myself at the foot of thy sublime imperial throne, as the messenger of the joy with which our republic, and the dey, my master, have concluded a peace with thy lieutenant; and of their impatient desire, that thy sublime majesty will be pleased to put thy ratifying seal to it. The force of thy ever-victorious arms, and the strength of thy sword, have made them sensible of the fault which Baba Hassan committed, in declaring war against thy subjects. I am deputed hither to beg thy pardon for it, and to assure thee, in the sincerest terms, that, henceforth, our conduct shall be such as may deserve the friendship of the greatest emperor of the disciples of Jesus, and the only one we stand in dread of.

'The atrocious violence committed against the person of thy consul, is such as we should judge would prove an invincible obstacle to a peace if thy light, which, like that of the sun, penetrates all things, did not easily conceive how far an enraged and ungovernable populace can carry their furious resentment, in the midst of multitudes of their fellow-citizens, crushed in pieces by thy bombs; of which number they beheld their parents, brethren, and children, deprived either of life, effects, or liberty.

'But whatever their motives were, the violence we are far from excusing or extenuating. I come to beg of thee to turn for ever away thy sacred eyes from beholding a deed detested by all good men amongst us, especially those in power; who cannot therefore be justly charged with it.

'We hope, mighty emperor, great as Gemsehid, opulent as Kraour, magnificent as Solyman, and magnanimous as Akemptas, that thy clemency will not reject these our earnest prayers; and the high opinion we have of thy unparalleled generosity, gives us a kind of assurance, that thou wilt order all our brethren who wear thy chains to be set at liberty, as we ourselves have done, not only to thy subjects, but likewise to those who were under the shadow of thy august name; that the joy for this peace may become equal and universal; and that a much greater number of mouths may be thereby opened to celebrate thy praise. That, when thy subjects return to their country, they may thankfully come and throw themselves at thy feet, while our's proclaim thy praise throughout the vast countries of Africa, and imprint in their children a veneration for thy incomparable virtues, and a due regard for the French nation.

'This will prove the happy foundation of an eternal peace; of which we promise an exact and religious observance on our part, in all its articles; not doubting but it will be equally observed by thy subjects; from whom thy authority claims an unlimited obedience.

'May the almighty and gracious Creator give a blessing upon this peace, and maintain a perpetual union between the most high, most excellent, and most magnanimous emperor of the French, and the most illustrious and magnificent bashaw, dey, douwan, and the victorious armies of the republic of Algiers.'

Fearful of his predecessor's fate, the ferocious dey now abdicated the sovereignty; and the disputes which took place between the Turkish viceroys and the Algerine deys, occupy the principal part of their domestic history to the conclusion of this century, when the Porte united the two dignities into one. They now began to pay some regard to other nations, and to be a little cautious how they wantonly incurred their displeasure. The first bombardment by the French had so far humbled the Algerines, that they condescended to enter into a treaty with England; which was renewed, upon terms very advantageous to the latter, in 1686. This was renewed, at various periods, by James II., William III., and Geo. II. It is not to be supposed, however, that the habitual perfidy of the Algerines would disappear on a sudden: notwithstanding this treaty, they lost no opportunity of making prizes of the English ships when they could conveniently come at them. Upon some infringement of this kind, captain Beach drove ashore, and burnt seven of their frigates in 1695; which produced a renewal of the treaty five years after: but it was not till the taking of Gibraltar and Port Mahon that Britain could have a sufficient check upon them to enforce the observation of treaties; and these have since proved such restraints upon Algiers, that they still continue to pay a greater deference to the English than to any other European power. The last century furnishes no very remarkable events in the history of Algiers, except the taking of the famous city of Oran from the Spaniards in 1708, which they retook in 1737, and the expulsion of the Turkish bashaw, and uniting his office to that of dey in 1710. This introduced the form of government which still continues in Algiers.

During the general peace of the European continent in 1816, the British government felt inclined to enter into some more permanent engagements with this people. They were required to treat the inhabitants of the Ionian isles as British subjects; a peace was negociated by our commander between the Barbary states and Sardinia and Naples, and the abolition of all Christian slavery. These proposals, the last excepted, met the dey's approbation; but, with respect to the last, as he was a subject of the Porte, he required a delay of six months to enable him to consult his government. Lord Exmouth agreed to wait three months, but had scarcely quitted the shores, when a most barbarous outrage on the coral fisheries at Bona, where a number of Corsicans, Neapolitans, and Italians, had long resorted for coral, under the protection of the British flag, summoned him to return. On the 23d of May, a body of Algerine infantry and cavalry, to the number of 2000, attacked their boats; the fire of the forts opened upon

them at the same time, the British flags were seized and trampled underfoot, and nearly the whole of the crews barbarously butchered. Our government immediately resolved to punish this insulting barbarity; and, accordingly, the Impregnable of ninety-eight guns, three ships of seventy-eight guns, four frigates, and several smaller vessels, gun-boats, &c., were commanded to rendezvous at Gibraltar, where they were joined by five Dutch frigates and a sloop, and appeared before Algiers on the 18th of August. Here they found that very considerable additions had been made to the fortifications, that new works had been thrown up on both flanks of the town, that the ships were all in port, and between forty and fifty mortar and gun boats, while an army of 40,000 troops had been collected from the interior.

After a fruitless message to the dey on the morning of the 27th of August, Lord Exmouth in the Queen Charlotte personally commenced the attack, which was seconded by the whole fleet of English, and well supported by the Dutch. After twelve hours incessant firing the whole Algerine fleet was destroyed, and at least half of the town. The fleet then retired to anchor beyond those of the enemy's batteries and mortars which were still undemolished, and the following morning the British Admiral had the satisfaction to receive from the dey the full acknowledgment of all the proposals made by the British government in the following treaty. 1. The abolition of Christian slavery. 2. The delivery to the British flag of all slaves in the dominions of the dey, to whatever nation they may belong, at noon on the 31st of August. 3. To deliver also to the British flag all money received by the dey, for the redemption of slaves since the commencement of this year, at noon also of the same day. 4. Reparation being made to the British consul for all losses he may have sustained in consequence of his confinement. 5. The dey making a public apology, in presence of his ministers and officers, and begging pardon of the consul in terms dictated by the captain of the Queen Charlotte. Lord Exmouth had the satisfaction of informing the British Admiralty, on the 1st of September, that all the slaves in Algiers were already embarked, with 357,000 dollars for Naples, and 25,000 for Sardinia.

The dey is now absolute monarch, and pays no other revenue to the Porte, than that of a certain number of fine boys, and some presents which are sent thither yearly. His own income rises or falls according to the opportunities he has of fleecing both natives and foreigners: whence it is variously computed by different authors. Dr. Shaw computes the taxes of the whole kingdom to bring into the treasury no more than 300,000 dollars; but supposes that the eighth part of the prizes, the effects of those persons who die without children, joined to the yearly contributions raised by the government, presents from foreigners, fines and oppressions, may bring in about as much more. Both the dey, and officers under him, enrich themselves by rapine and fraud; which it is no wonder to find the common people practising upon one another, and especially upon strangers, seeing they themselves are impoverished by heavy taxes, and the injustice of those who are in authority. It is generally known, that the first beys were elected by the militia, who were then called the douwan, or common-council. This elective body was at first composed of 800 militia officers, without whose consent the dey could do nothing; and upon some urgent occasions all the officers residing in Algiers, amounting to above 1500, were summoned to assist. But since the deys, who may be compared to the Dutch Stadtholders, have become more powerful, the douwan is principally composed of thirty chiah-bashaws, or colonels, with now and then the mufti and cadi upon some emergencies; and on the election of a dey, the whole soldiery are allowed to come and give their votes. All the regulations of state ought to be determined by that assembly, before they pass into a law, or the dey hath power to put them in execution; but, for many years back, the douwan is of so little account, that it is only convened out of formality, and to give assent to what the dey and his chief favourites have concerted beforehand. The method of gathering the votes in this august assembly is perfectly agreeable to the character of those who compose it. The aga, or general of the janissaries, or the president pro tempore, first proposes the question; which is immediately repeated with a loud voice by the chiah-bashaws, and from them echoed again by four officers called bashaldalas, from these the question is repeated from one member of the douwan to another, with strange contortions, and the most hideous growlings, if it is not to their liking. From the loudness of this growling noise, the aga is left to guess as well as he can whether the majority of the assembly are pleased or displeased with the question; and from such a preposterous method, it is not surprising that these assemblies should seldom end without some tumult or disorder. As the whole body of the militia is concerned in the election of a new dey, it is seldom carried on without blows and bloodshed: but when once the choice is made, the person elected is saluted with the words Alla barrick, 'God bless you and prosper you;' and the new dey usually causes all the officers of the douwan to be strangled, filling up their places with those who had been most zealous in promoting it. From this account of the election of the deys, it cannot be expected that their government should be at all secure; and as they arrive at the throne by tumult, disorder, and bloodshed, they are generally deprived of it by the same means, scarcely one in ten of them having the good fortune to die a natural death.

The officer next in power to the dey is the aga of the janissaries, who is one of the oldest officers in the army, and holds his post only for two months. He is then succeeded by the chiah, or next senior officer. During the two months in which the aga enjoys his dignity, the keys of the metropolis are in his hands; all military orders are issued out in his name; and the sentence of the dey upon any offending soldier, whether capital or not, can only be executed in the court of his palace. As soon as he has gone through his

short office, he is considered as mazoul, or superannuated; receives his pay regularly, like the rest of the militia, every two moons; is exempt from all further duties, except when called by the dey to assist at the grand council, to which he has, however, a right to come at all times, but has no longer a vote in it.—Next to the aga in dignity, is the secretary of state, who registers all the public acts; and after him are the thirty chiahs, or colonels, who sit next to the aga in the douwan, and in the same gallery with him. Out of this class are generally chosen those who go ambassadors to foreign courts, or who disperse the dey's orders throughout the realm.—Next to them are 800 bolluk-bashaws, or eldest captains, who are promoted to that of chiah-bashaws, according to their seniority. The oldah-bashaws, or lieutenants, are next; who amount to 400, and are regularly raised to the rank of captains in their turn, and to other employments in the state according to their abilities. These, by way of distinction, wear a leather strap, hanging down to the middle of their back. One rule is strictly observed in the rotation of these troops from one deputy to a higher; viz. the right of seniority; one single infringement of which would raise an insurrection, and probably cost the dey his life. Other military officers of note are the vakelards, or purveyors of the army; the peys, who are the four oldest soldiers, and consequently the nearest to preferment; the soulacks, who are the next in seniority to them, and are part of the dey's body-guard, always marching before him when he takes the field, and distinguished by their carabines and gilt scimitars, with a brass gun on their caps; the kayts, or Turkish soldiers, each band of whom have the government of one or more adowars, or itinerant villages, and collect their taxes for the dey; and the sagiards, or Turkish lance-men, 100 of whom always attend the army, and watch over the water appointed for it. To these we may add the beys, or governors of the three great provinces of the realm. All the above-mentioned officers ought to compose the great douwan or council above-mentioned; but only the thirty chiah-bashaws have a right to sit in the gallery next after the dey: the rest are obliged to stand on the floor of the hall, or council-chamber, with their arms across, and, as much as possible, without motion; neither are they permitted to enter with their swords on, for fear of a tumult. As for those who have any matters, to transact with the douwan, they must stand without, let the weather be ever so bad; and there they are commonly presented with coffee by some of the inferior officers, till they are dismissed.

Algiers with regard to its government is, as we have already intimated, by some styled a republic; but if it is not a perfect despotism, it can at best be only ranked as a vile oligarchy. It does not even merit the title of an aristocratic commonwealth. The powerful party of Turks always to be found in this part keep the government in their own hands, and the natives have no share. Algiers is at present divided into three provinces, viz. the eastern, western, and southern. The eastern, or Levantine government, which is by far the most considerable of the three, and is also called Beylick contains the towns of Bona, Constantina, Gigeri, Bujeyah, Stessa, Tebez, Zamoura, Biscara, and Necanz, in all which the Turks have garrisons; besides which, it includes the two ancient kingdoms of Cuco and Labez, though independent of the Algerine government, to whose forces their country is inaccessible; so that they still live under their own cheyks chosen by each of their adowars or hords. To these we may add a French factory at Callo, under the direction of the company of the French Bastion.—The western government hath the towns of Oran, Tremecen, Mostagan, Tenez, and Secrelly, with its castle and garrison.—The southern government has neither town, village, nor even a house, all the inhabitants living in tents, which obliges the dey and his forces to be always encamped.

In this country it is not to be expected that justice will be administered with any degree of impartiality. It is ordinarily administered by the cadi, who attends a kind of police court twice a day; but principal causes are referred to the dey. The Mahommedan soldiery are so much favoured, that they are seldom put to death for any crime, except rebellion; in which case they are either strangled with a bow-string, or hanged to an iron hook. In lesser offences they are fined, or their pay stopped; and if officers, they are reduced to the station of common soldiers, from whence they may gradually raise themselves to their former dignity. Women guilty of adultery, have a halter tied about their necks, with the other end fastened to a pole, by which they are held under water till they are suffocated. The bastinado is likewise inflicted for small offences; and is given either upon the belly, back, or soles of the feet, according to the pleasure of the cadi; who also appoints the number of strokes. These sometimes amount to 200 or 300, according to the indulgence the offender can obtain, either by bribery or friends; and hence many die under this punishment, for want of advocates sufficiently powerful. But the most terrible punishments are those inflicted upon the Jews or Christians who speak against Mahomet or his religion; in which case, they must either turn Mahommedan, or be impaled alive. If they afterwards apostatize, they are burned or roasted alive, or else thrown down from the top of the city walls upon iron hooks, where they are caught by different parts of their body, according as they happen to fall, and sometimes expire in the greatest torments; though by accident they may be put out of pain at once. This terrible punishment, however, begins now to be disused.

The coin in circulation at Algiers is chiefly that of the foreign commercial nations; the Spanish doubloon and dollar are those most commonly seen: the sultanas of gold pass for two dollars. Beside these, there is a copper barba, having the arms of the country on each side, and a square silver asper, worth about an English crown. The pata chica is an ideal sum, like the pound English, equal to 232 aspers.

With respect to trade, we observe the corsairs, or pirates, form a small republic, of which the

rais or captain is the supreme bashaw; who, with the officers under him, form a kind of douwan, in which every matter relating to the vessel is decided in an arbitrary way. These corsairs are chiefly instrumental in importing whatever commodities are brought into the kingdom either by way of merchandise or prizes; which consist chiefly of gold and silver, stuffs, damasks, cloths, spices, tin, iron, plated brass, lead, quicksilver, cordage, sail-cloth, bullets, cochineal, linen, tartar, alum, rice, sugar, soap, cotton, raw and spun, copperas, aloes, Brazil and log-wood, vermilion, &c. Very few commodities, however, are exported from this part of the world; the oil, wax, hides, pulse, and corn produced, being but barely sufficient to supply the country; though before the loss of Oran, the merchants have been known to ship off from one or other of the ports of Barbary, several thousand tons of corn. The consumption of oil, though here in great abundance, is likewise so considerable in this kingdom, that it is seldom permitted to be shipped off for Europe. The other exports consist chiefly in ostrich feathers, copper, rugs, silk sashes, embroidered handkerchiefs, dates, and Christian slaves. Some manufactures in silk, cotton, wool, leather, &c. are carried on in this country, but mostly by the Spaniards settled here, especially about the metropolis. Carpets are also a manufacture of the country, which, though inferior to those of Turkey, both in beauty and fineness, are preferred by the people to lie upon, on account of their being both cheaper and softer. There are also, at Algiers, looms for velvet, taffaties, and other wrought silks; and a coarse sort of linen is likewise made in most parts of the kingdom. The country furnishes no materials for ship building. They have neither ropes, tar, sails, anchors, nor even iron. When they can procure enough of new wood to form the main timbers of a ship, they supply the rest from the materials of prizes which they have made; and thus produce new and swift sailing vessels from the ruins of the old. Of all the states on the coast of Barbary, Algiers is the strongest at sea.

A squadron making a prize immediately [illegible] out the crew, and replaces it with men from [illegible] own; she is then hastened to Algiers, or a neighbouring friendly port, the flag of the vanquished enemy is displayed under that of the [illegible] and several guns announce the capture. [illegible] signing her slaves to the captain of the port, [illegible] cruiser returns to sea; but the first step towards a final disposal of the cargo, is to submit an inventory of the whole to the dey, whose [illegible] property every capture is supposed to be, but who contents himself, generally, with an eighth of the value, and a capricious selection of the slaves. All Christian slaves who are on board an Algerine when she makes a capture, are said to be allowed their regular share of the prize.

The slaves intended for sale are marched to the basistan, or auction mart, and made to exhibit their powers of action by walking backwards and forwards, as we exhibit a horse, a crier being in attendance to announce their number, trades, and respective qualities. There are middle-men, or brokers, in this disgraceful traffic, who speculate upon parties likely to be ransomed, or to pay them for their temporary maintenance. Working on board the galleys of the corsairs, keeping up the public roads and works, and all kinds of domestic servitude, are the lot of these unhappy captives. The women of better appearance, in a company of new slaves are committed to the care of an officer, called the checkelbeld, until offers for their ransom are made; poorer females are consigned at once to any treatment that their Turkish or Moorish masters may think proper to inflict.

ALGOA, or ZWARTKOPS BAY, an inlet of the southern coast of Africa, east of the Cape of Good Hope, from which it is distant about 500 English miles, being situated in south lat. 33°. 56′. and east long. 26°. 53′.

This bay, in the neighbourhood of which it is projected by government to found a new and important colony, is about twenty miles in breadth from east to west, and the shore is a level sandy beach, except from the usual landing place to its western extremity. The bottom is good holding ground. A heavy swell rolls in from the eastward, and the bay is open to all winds that blow from north-east to south-east; so that it at present affords but a very imperfect shelter against the most prevailing gales. On the west, about a mile out, is good anchorage in five fathoms; in the bay the tide rises between six and seven feet. It receives the Sunday, Kowie, and Zwartkops rivers, and has some fine springs of water near the landing place on the western side. The bar of the Zwartkops is sometimes open, and at other times closed; but within the bar the river is navigable for small vessels several miles.

A slip of land about 4000 feet in length, and 500 wide, is here sheltered on one side by a [illegible] of sand hills, and on the other by a sudden [illegible] of the country. The soil is fruitful, and [illegible] sents a fine situation for a fishing village. [illegible] black whale abounds in the bay; a large [illegible] salt pan is found in the neighbourhood, [illegible] solid advantages might be derived to the [illegible] and to the East India Company in particular, [illegible] would seem, by an establishment formed on [illegible] spot for salted beef and fish. Superior cattle [illegible] those of the Cape are found in this neighbourhood, and Mr. Barrow conjectures that [illegible] could be yielded here at sixpence per pound, [illegible] even under that price, to shipping. Hides and [illegible] skins might also be salted and become a valuable [illegible] export. Those of the wild animals here, (particularly of the antelope), even with the [illegible] dressing, make excellent leather; the surrounding [illegible] country is fertile in corn, and has several [illegible] woods within a short distance from the [illegible] 'The country about Zwartkops bay,' says the [illegible] enlightened traveller we have just named, 'seems to be well adapted for the cultivation of grain. The farmers here give themselves no trouble to manure the land, yet reckon upon a return of twenty-five, thirty, and even forty, for one, [illegible]

[illegible] woods bu[illegible]

pecially if a stream of water can occasionally be turned upon the ground. On stiff clayey land a small quantity of sheep's dung is sometimes employed to prevent the fragments from clogging together, and so make the parts less tenacious. The little value they attach to manure is obvious from the heaps of dung that are piled about the houses in those places where the cattle, in order to preserve them from beasts of prey, are pent up at night. These consist of circular or square spaces, shut in by dead branches of the thorny mimosa, which are called kraals, a name they have also thought proper to transfer to the collected huts of the Hottentots and Caffres. The beds of some of these kraals were not less than twelve feet deep of dung, unmixed with any other material; but this is neither the only nor the least offensive nuisance with which the hovel of a Dutch peasant is usually surrounded.

The great fertility of the land in this part of the colony, is not, however, any inducement to the farmer to extend the cultivation of grain beyond the present limited quantity, as he can have no demand for his produce unless a regular coasting trade were established. They would be very glad to find a market for their grain at a fixed contract price, even as low as two shillings and eight pence for a Winchester bushel, delivered in Zwartkops bay. (This was in 1797.) The wheat of the Cape is a large full grain, weighing usually from sixty-one to sixty-six pounds a bushel. Immediately after the capture a small cargo was sent to Europe, which sold at Mark-lane market at a higher price than the best English wheat that appeared on the same day.'

Zuurveldt is on the east side of this bay, and the capital of the new district of Uitenhagen stands to the north of it, and on the Zwartkops river. Fort Frederick is a recent establishment on the shores of the bay, surrounded by a few houses.

ALGOIDES, in botany, a name given by Vaillant to a species of plants, called by Micheli and Linnæus zannichellia. Also an aquatic plant so called from its resemblance to the alga, having imperfect hermaphrodite flowers.

ALGOL, or Medusa's Head, a fixed star of the third magnitude, in the constellation Perseus; lon. 21°. 50′. 42″. of Taurus; lat. 23°. 23′. 47.″ N. according to Flamstead. This star has been subject to singular variations, appearing at different times of different magnitudes, from the fourth to the second which is its usual size. This is supposed to be owing either to the interposition of a large body revolving round Algol, or to some portion of its own; in consequence of which, part of its body covered with spots, or such like matter, is periodically turned towards the earth.

ALGON, a small island of Sweden, on the west coast of the gulf of Bothnia. Long. 18°. 26′. E. lat. 63°. 9′. N.

ALGONQUINS, the name of several tribes of savage Indians, who inhabit different parts of North America, but all supposed to proceed from a common origin. The Algonquins of Canada were formerly numerous; but their present number, according to Mackenzie, does not exceed 150 families.

The Algonquins of Rainy Lake inhabit a country, the precise limits of which are not accurately known. The country which they possess has been much hunted, and its game is now nearly exhausted; in consequence of which they roam about in detached parties in quest of a precarious subsistence. They are immoderately fond of spirits, of which large quantities are furnished them by the north-west traders, in return for their furs and other commodities.

The Algonquins who inhabit Portage de Prairie, possess a low, flat, and marshy country, mostly covered with timber, and filled with game. They are emigrants from the lake of the woods, and the country east of it, and were settled in their present abodes by the north-west traders, that they might hunt the country on the lower parts of Red River. They are orderly, well disposed, and immoderately addicted to spirit drinking.

As hunters and warriors, the Algonquins had no rivals, and were once closely connected with the Iroquois Indians, and considered as their protectors; but their allies and protegées began to rival their former masters in the arts of hunting and of war, and jealousies arose which almost proved fatal to the existence of the Algonquins, although they were assisted by the French. The language of the Algonquins is considered as the most ancient and copious of the three radical tongues of the North American Indians, and is preferred to either the Huron or the Sioux. There is a church devoted to the Romish religion in their territory; but the exertions of the priesthood have hitherto had little effect on their morals: they are in the general practice of polygamy, and given to the use of intoxicating liquors as much as ever. The country around them is cultivated in miserable and detached patches of ground, and this solely by their women, the men being engrossed with fishing and hunting. The residence of the first chief, or Sachem, of all the Algonquin tribes, is at the trading establishment, situate on a high bank on the north side of the river la Pluie, in north lat. 48°. 37′. This chief is by way of distinction called Nectam, implying personal preeminence. In this place the elders meet in council to treat of peace, war, and other public concerns.

ALGORAB, a fixed star, of the third magnitude, in the right wing of the constellation Corvus, marked (δ) by Bayer.

ALGORITHM, an Arabic term for the art of numbering truly and readily, comprehending the six common rules of arithmetic, and called logistica numeralis. We say the algorithm of integers, the algorithm of fractions, the algorithm of surds, &c.

ALGOSAREL, in botany, a name used by Avicenna, and some other authors, for the dauranda decus carotta of Linnæus.

ALGOZO, a small town of Portugal, in Traz-oz-montes, twenty miles west-south-west of Miranda de Duero.

ALGUAZIL, in the Spanish polity, an officer

whose business it is to see the decrees of a judge executed.

ALHABOR, the Arabian name for the star called Sirius

ALHAGI, in botany, the trivial name of a species of hedysarum. See HEDYSARUM RUS.

ALHAMA, a populous and well built town of Granada, in Spain, situated in the midst of craggy mountains, about twenty-five miles south-west of Granada, on the banks of the Motril, and having the finest warm baths in all Spain. It was taken from the Moors in 1481, when the inhabitants, though surprised, and the town without a garrison, made a gallant defence; but being at length forced to submit, the place was abandoned to the pillage of the Christian soldiers, who, not satisfied with an immense quantity of gold and jewels, made slaves of upwards of 3000 of the inhabitants. Lon. 3°. 24′. W. lat. 36°. 49′. N.

ALHAMBRA, an ancient fortress, and residence of the Moorish monarchs of Granada, It derives its name from the red colour of the materials with which it was originally built, Alhambra signifying a red house. It appears to a traveller a huge heap of ugly buildings as can well be seen, all huddled together, seemingly without the least intention of forming one habitation out of them. The walls are entirely unornamented, all gravel and pebbles, daubed over with plaister in a very coarse manner: yet this is the palace of the Moorish kings of Granada, and it is indisputably the most curious place that exists in Spain, perhaps in the world. In many countries may be seen excellent modern, as well as ancient architecture, both entire and in ruins; but nothing to be met with any where else can convey an idea of this edifice, except the decorations of an opera, or the tales of the genii.

Passing round the corner of the emperor's palace, one is admitted at a plain unornamented door in a corner. 'On my first visit,' says Swinburne, in his Travels in Spain, 'I confess I was struck with amazement, as I stept over the threshold, to find myself on a sudden transported into a species of fairy land. The first place you come to is the court called the communa or del mesucar, that is, the common baths; an oblong square, with a deep basin of clear water in the middle; two flights of marble steps leading down to the bottom; on each side a parterre of flowers, and a row of orange trees. Round the court runs a peristyle paved with marble; the arches bear upon very slight pillars, in proportions and style different from all the regular orders of architecture. The ceilings and walls are encrusted with fret work in stucco, so minute and intricate, that the most patient draughtsman would find it difficult to follow it, unless he made himself master of the general plan. This would facilitate the operation exceedingly; for all this work is frequently and regularly repeated at certain distances, and has been executed by means of square moulds applied successively, and the parts joined together with the utmost nicety. In every division are Arabic sentences of different lengths, most of them expressive of the following meanings: 'There is no conqueror but God;' or, 'Obedience and honour to our lord Abouabdoulah.' The ceilings are gilt or painted, and time has caused no diminution in the freshness of their colours, though constantly exposed to the air. The lower part of the wall is mosaic disposed in fantastic knots and festoons. The porches at the end are more like grotto work than any thing else to which they can be compared. That on the right hand opens into an octagon vault, under the emperor's palace, and forms a perfect whispering gallery, meant to be a communication between the offices of both houses. Opposite to the door of the communa through which you enter, is another leading into the quarto de los leones, or apartment of the lions, which is an oblong court, 100 feet in length, and fifty in breadth, environed with a colonnade seven feet broad on the sides and ten at the end. Two porticoes or cabinets about fifteen feet square, project into the court at the two extremities. The square is covered with coloured tiles; the colonnade with white marble. The walls are covered five feet up from the ground with blue and yellow tiles disposed chequerwise. Above and below is a border of small escutcheons, enamelled blue and gold, with an Arabic motto on a bend; signifying, 'No conqueror but God.' The columns that support the roof and gallery are of white marble, very slender and fantastically adorned. They are nine feet high, including base and capital, and eight inches and a half diameter. They are very irregularly placed; sometimes singly, at others in groups of three, but more frequently two together. The width of the horse-shoe arches above them is four feet two inches for the large ones, and three for the smaller. The ceiling of the portico is finished in a much finer and more complicated manner than that of the communa, and the stucco laid on the walls with inimitable delicacy; in the ceiling it is so artfully frosted and handled as to exceed belief. The capitals are of various designs, though each design is repeated several times in the circumference of the court, but not the least attention has been paid to placing them regularly or opposite to each other. Not the smallest representation of animal life can be discovered amidst the varieties of foliages, grotesques, and strange ornaments. About each arch is a large square of arabesques, surrounded with a rim of characters, that are generally quotations from the Koran. Over the pillar is another square of delightful filagree work. Higher up is a wooden rim, or kind of cornice, as much enriched with carving as the stucco that covers the part underneath. Over this projects a roof of red tiles, the only thing that disfigures this beautiful square. This ugly covering is modern, put on by order of Mr. Wall, the late prime minister. In the centre of the court are twelve ill-made lions muzzled, their fore parts smooth, their hind parts rough, which bear upon their backs an enormous basin out of which a lesser rises. While the pipes were kept in good order, a great volume of water was thrown up; which, falling down into the basins, passed through the beasts, and issued out of their mouths into a large reservoir, where it communicated by channels

with the jets d'eaux in the apartments. This fountain is of white marble, embellished with many festoons and Arabic distiches, complimenting the monarch and his princes. Passing along the colonnade, and keeping on the south side, you come to a circular room used by the men as a place for drinking coffee and sorbets in. A fountain in the middle refreshed the apartment in summer. The form of this hall, the elegance of its copula, the cheerful distribution of light from above, and the exquisite manner in which the stucco is designed, painted, and finished, exceed all powers of description. Every thing in it inspires the most pleasing, voluptuous ideas; yet in this sweet retreat, they say, that Abouabdoulah assembled the Abencerrages, and caused their heads to be struck off into the fountain. Continuing your walk round, you are next brought to a couple of rooms, at the head of the court, which are supposed to have been tribunals, or audience chambers. Opposite to the Salæ de las Abencerrages is the entrance into the Torre de las dos hermanas, or the tower of the two sisters; so named from two very beautiful pieces of marble laid as flags in the pavement. This gate exceeds all the rest in profusion of ornaments, and in the beauty of prospect which it affords through a range of apartments, where a multitude of arches terminate in a large window open to the country. In a gleam of sunshine the variety of tints and lights thrown upon this enfilade are uncommonly rich. The first hall is the concert room, where the women sat; the musicians played above in four balconies. In the middle is a jet d'eau. The marble pavement is equal to the finest existing, for the size of the flags and evenness of the colour. The two sisters are slabs that measure fifteen feet by seven and a half, without flaw or stain. The walls, up to a certain height, are mosaic, and above are divided into very neat compartments of stucco, all of one design, which is also followed in many of the adjacent halls and galleries. The ceiling is a fretted cove. To preserve this vaulted roof, as well as some of the other principal cupolas, the outward walls of the towers are raised ten feet above the top of the dome, and support another roof over all, by which means no damage can ever be caused by wet weather or excessive heat and cold. From this hall you pass round the little myrtle garden of Lindarax, into an additional building made to the east end by Charles V. The rooms are small and low. His favourite motto, 'Plus outré,' appears on every beam. This leads to a little tower, projecting from the line of the north wall, called El tocader, or the dressing-room of the sultana. It is a small square cabinet, in the middle of an open gallery, from which it receives light by a door and three windows. The view is charming. In one corner is a large marble flag, drilled full of holes, through which the smoke of perfumes ascended from furnaces below; and here, it is presumed, the Moorish queen was wont to sit to fumigate and sweeten her person. The emperor caused this room to be painted with representations of his wars, and a great variety of grotesques, which appear to be copies, or at least imitations, of those in the lobby of the Vatican. From hence you go through a long passage to the hall of ambassadors, which is magnificently decorated with innumerable varieties of mosaics, and the mottoes of all the kings of Granada. This long narrow antichamber opens into the communa on the left hand, and on the right into the great audience hall in the tower of Comares, a noble apartment, thirty-six feet square, thirty-six high up to the cornice, and eighteen from thence to the centre of the cupola. The walls on three sides are fifteen feet thick, on the other, nine; the lower range of windows thirteen feet high. The whole wall is inlaid with mosaic of many colours, disposed in intricate knots, stars and other figures. In every part various Arabic sentences are repeated. Having completed the tower of the upper apartments, which are upon a level with the offices of the new palace, you descend to the lower floor, which consists of bed-chambers and summer rooms: the back stairs and passages, that facilitated the intercourse between them, are without number. The most remarkable room below is the king's bed-chamber, which communicated, by means of a gallery, with the upper story. The beds were placed in two alcoves, upon a raised pavement of blue and white tiles; but as it was repaired by Philip V. who passed some time here, it cannot be said how it may have been in former times. A fountain played in the middle, to refresh the apartment in hot weather. Behind the alcoves are small doors that conduct you to the royal baths. These consist of one small closet with marble cisterns for washing children, two rooms for grown-up persons, and vaults for boilers and furnaces that supplied the baths with water and the stoves with party coloured earthenware; light is admitted by holes in the ceiling. Hard by is a whispering gallery, and a kind of labyrinth said to have been made for the diversion of the women and children. One of the passages of communication is fenced off with a strong iron gate, and called the prison of the sultana; but it seems more probable that it was put up to prevent any body from climbing up into the women's quarter. Under the council room is a long slip, called the king's study: and adjoining to it are several vaults, said to be the place of burial of the royal family. In the year 1574, four sepulchres were opened; but as they contained nothing but bones and ashes, were immediately closed again.' This noble palace, however, is hastening to decay, and without repairs, to which the finances of Spain are inadequate, it will in a few years be a pile of ruins. Its beautiful apartments, its stately columns, and its lofty walls, will be mingled together, and no memorial be left in Spain of a people who once governed the Peninsula.

ALHANDAL, from *handal*, Arab. *colocynthos*, a term in the Arabian pharmacy, signifying colocynth—The trochisee alhandal, are a kind of troches composed of colocynths, bdellium, and gum tragacanth. They were esteemed good purgatives, though not used at this time.

ALHAZEN, in biography, a learned Arabian, who lived in Spain about the close of the eleventh, or beginning of the twelfth century. His principal works are a treatise on astrology, and another on optics, printed in Latin in the Thesaurus Opticæ of Risner, in 1572. Alhazen supposed that the refraction of the atmosphere did not de-

pend upon its vapours, but upon its different transparency. In examining the effects of refraction, he endeavours to prove that it is so far from being the cause of the heavenly bodies appearing larger near the horizon, that it would make them appear less: two stars, he says, appearing nearer together in the horizon than near the meridian. This phenomenon he ranks among optical deceptions.

ALIEN, in natural history, a name by which Dr. Shaw, and others, have called a genus of plants, named by Linnæus Lawsonia inermis.

ALIIDADA, or ALIDADE, Arab. a ruler, the index or label of an astronomical, or geometrical astrolabe for taking heights or distances.

ALIIRTO, in astronomy, a fixed star of the third magnitude, in the constellation Capricorn, otherwise called rostrum gallinæ. Near this star, in 1600, appeared a new star, which continued visible twenty-one years, and then disappeared.

ALI, a sect among the Mahommedans, who adhere to the right of succession of Ali, and to the reform of Mussulmanism introduced by him. This sect is more particularly called Schiites; and stands opposed to the Sunnites, or sect of Omar, who adhere to the law as left by Mahomet, Abubeker, and Omar. After Mahomet's death, great disputes arose about the succession, and though many voted for Ali, Abubeker was preferred, and elected the first caliph. The Persians are the chief adherents to the sect of Ali, whom they hold to have been the legitimate successor of Mahomet, and Abubeker an usurper. On the contrary, the Turks are of the sect of Omar; and hold Ali in execration. The distinguishing badge of the followers of Ali is a red turban, which is worn by the Persians, who are hence called in derision, by the Turks, Kilsibachi, i. e. red heads. See next article.

ALI, or HALI, the son of Abu Taleb, cousin-german and son-in-law of Mahomet, being married to his daughter Fatimah. He was the fourth caliph after him, as he did not succeed till after the death of Othman, in 1655, though he stood competitor with Abubeker, upon Mahomet's death, A. D. 632, which occasioned a civil war among the Mussulmans. He was murdered in the fifth year of his reign, and sixty-third of his age, A. D. 660, near Cafa, in Arabia Felix, by Muavias, the sixth caliph; who, to obtain that dignity, poisoned Ali's son and successor, Hacen, along with his brother Hassan, and eleven of Ali's grandsons, within six months after his death. It is worth remarking, that the four first successors of Mahomet, Abubeker, Omar, Othman, and Ali, whom he had employed during his life as his chief agents in establishing his religion, by extirpating unbelievers, and whom on that account he styled the 'cutting swords of God,' like the successors of Alexander, all died violent deaths; and that this bloody impostor's family, as well as that of the mad monarch of Macedonia, was nearly, if not totally, extirpated within thirty years after his death. When the prophet assembled his kinsmen, and declared his mission, he asked which among them would be his vizier: 'I am the man,' exclaimed the youthful Ali, then of the age of fourteen; 'whoever rises against thee, I will dash out his teeth, tear out his eyes, break his legs, rip up his belly; O prophet, I will be thy vizier over them.' Ali kept his word; and famous both for his eloquence and valour, became one of the main pillars of the new faith, and obtained the name of the 'Lion of God, always victorious.' He is said to have been the author of several works, particularly one entitled Centiloquium, which is much esteemed among the Arabs and Persians; and part of which has been translated into English by M. Ockley. He also wrote an interpretation of the Alcoran.

ALI BEY, an eastern adventurer, whose history and exploits have excited considerable interest. He was probably born among the Abazans, a people inhabiting Mount Caucasus, and brought by the slave merchants to one of the annual sales at Cairo, where he was purchased by the brothers Isaac and Yousef, Jews, employed in the custom-house, and presented by them to Ibrahim, a kiaya, or veteran colonel of janissaries, and one of the most considerable men in Egypt. He is supposed to have been then twelve or fourteen years of age. By the favour of his patron, he was taught to read, write, and perform the customary military exercises, in which he displayed a fire and activity that obtained for him the appellation of djendali, or madman. At the age of eighteen or twenty his beard was allowed to grow, or he was made free; his patron gave him a wife and revenues, promoted him to the rank of kachef, or governor of a district, and procured him to be elected one of the twenty-four beys. His ambition was hereby excited; and the death of Ibrahim, in 1757, opened a way for the execution of his projects. After an absence of a few years, during which he had been engaged in various intrigues for raising and displacing several chiefs, and two years of which he had passed in a state of exile in Said, or Upper Egypt, devising his plans of future domination, he returned to Cairo in 1766; and in one night killed four beys, who were his enemies, banished four others, and from that time became chief of a numerous party. Not contented with the office of bey, he aspired to the sultanship of Egypt; determined to throw off the supremacy of the Porte, and accordingly expelled the pacha, refused the tribute, and in 1768 proceeded to coin money in his own name. The Porte, occupied by other concerns, was under a necessity of temporising; and Ali pushed forward his enterprises with success. He began with dispossessing Hammam, an Arab sheik, of a port of the Said, which he had occupied, and where he had formed a power capable of giving disturbance: and towards the end of this year, 1769, fitted out some vessels at Suez, which were ordered to seize on Djedda, the port of Mecca, whilst a body of cavalry marched by land to take possession of the city itself. The project which he had formed was, to make Europe abandon the passage to the East Indies by the Cape of Good Hope, and substitute the ancient route of the Mediterranean sea, and the Arabian gulf. Flushed with success, in the enterprises he had accomplished already, his ambition suggested to him more extensive conquests. Syria was the first object of his contemplation; and the war with the Russians, which broke out in 1769, and which occu-

pied all the Turkish forces in the north, favoured his design. Besides which, sheik Daher, in actual rebellion against the Porte, would be a powerful ally; and the extortions of the pacha of Damascus disposed those he had oppressed for revolt, and made way for his obtaining the title of the deliverer of nations. Ali having laid his plan, detached in 1770 a corps of Mamalukes, to take possession of Gaza, and thus to secure an entrance into Palestine; soon after he sent a larger army to form a junction with Daher at Acre, and to proceed thence to Damascus. Osman, the pacha of this place, was diligent in his preparations, and collected a numerous army. On the 6th of June 1771, a decisive action took place, in which Mahomet, the friend of Ali, and Daher his ally, proved victorious, and took possession of Damascus; but the castle resisted. At the moment when the signal of surrender was expected, Mahomet suddenly commanded a retreat, and all his cavalry turned towards Egypt. This singular revolution was at first attributed to a pretended report of the death of Ali Bey; but it was owing to a conference which had passed the preceding night between a crafty agent of Osman and Mahomet Bey, Ali's commander. Ali, though disappointed and chagrined, did not renounce his projects; he prepared, in conjunction with Daher, a second army for the campaign of 1772, but the event was unpropitious. The escape of Mahomet roused his jealousy and his fears; he beheld in him a dangerous rival, and resolved on his ruin. Having ordered the gates of Cairo to be shut, and no Mamaluke to be allowed to pass, he sentenced Mahomet into immediate exile in the Said. Mahomet, however, contrived to make his escape; and from this moment all was lost; for the Mamalukes, wearied with the insolence of Ali Bey, repaired in crowds to his rival, so that in about six weeks he left the Said with a strong force, and marched towards Cairo. Ali, however, prepared to meet him; and in the month of April 1772 the two armies had a rencontre in the plains of El-Masateh, at the gates of Cairo; the issue of which was, that Mahomet and his party entered the city, sabre in hand; and Ali Bey had barely time to escape with 800 of his Mamalukes. With this inconsiderable force he repaired to Gaza, and attempted to join his ally, Daher, at Acre, who, after some danger from which he was rescued, conducted him to the city. Both Ali and Daher marched to the succour of Said, (Sidon,) which was then besieged by the troops of Osman, in conjunction with the Druzes. At their approach the Turks raised the siege, and retired to a place about a league north of the city, on the river Aoula. There, in July 1772, an engagement took place; and the Turkish army, three times more numerous than that of the two allies, was entirely defeated. The seven pachas, who commanded it, fled; and Said remained in the possession of Daher. Ali Bey and Daher, on their return to Acre, proceeded to chastise the inhabitants of Yafa, or Jaffa, who had revolted; and, after a siege of eight months, the town capitulated in February 1773. Ali now determined to return to Cairo; and he was encouraged in his purpose by the promised succours of Daher, and of the Russians. This assistance was delayed, and Ali became impatient. In April 1773, quickened in the execution of his purpose by fabricated letters which he received from Cairo, he began his march at the head of his Mamalukes, and some troops furnished by Daher; but when he advanced into the desert, which separates Gaza from Egypt, he fell into an ambush of 1000 Mamalukes, commanded by Mourad, a young bey, who, being enamoured of the wife of Ali Bey, had obtained a promise of her from Mahomet, in case he should bring him the head of Ali. The attack was impetuous; Mourad met with Ali in the crowd, wounded him in the forehead, made him prisoner, and conducted him to Mahomet. By his former master, Ali was received with perfidious respect; but on the third day this parade of civility and politeness terminated by the death of Ali Bey, who, according to some, died of his wounds; or, as others report, by poison.

Ali Bey was a character of original vigour and capacity; and was superior in his views to what could have been expected from one who was bred in barbarism and ignorance—he governed Egypt with a steady hand, and was particularly favourable to the Franks. But he undertook more than he had power or talents to perform; and by this means exhausted his revenues in fruitless enterprises. He is also blamed for resigning active labours to his lieutenants, for placing unlimited confidence in his favourites, and winking at the exactions of his officers. His morals were those of his country, where perfidy and murder are the only means of pursuing the objects of ambition; yet he was not devoid of generosity. During his administration, several nests of robbers in Egypt were annihilated; villages which had been inhabited by the pirates of the Nile were razed; the communication between different parts of the country was free; the roads were no longer infested with robbers, nor was navigation interrupted by that spirit of pillage, which, since his death, has resumed its fatal activity. It was his wish that every man might be able to carry his purse in his hand, and leave his door open, without running any risk.

ALI PACHA, of Janina and vizier of Epirus. He rose, as we have seen already, (article ALBANIA,) from a comparatively obscure birth; but the genius and energy of his mother gave a very remarkable and successful impulse to his early life. In the strength, as well as implacability, of her character, she appeared worthy to be the parent of such a son. 'To my mother,' said he one day to the consul general of France, M. Pouqueville, 'I owe all; for my father, on his death bed, left me but a mere hole, and a few fields. My imagination, fixed by the counsels of her who has twice given me existence, for she has made me a *man* and a *vizier*, revealed to me the secret of my destiny. From that moment I only considered Tepelini as the natal aerie from which I was to dart upon the prey already mine in idea. From that moment I thought but of power, treasure, and palaces—in fact, of all which time itself has realized, and which it still promises.' Khamco, in fact, herself the daughter of the Bey of Konitza, and

favourite wife of Ali's father, believed our hero to be destined to restore the honours of his family. 'My son,' she would frequently say to him, 'he who does not defend his inheritance deserves to be deprived of it. Recollect that the property of others only belongs to them by the right of the stronger. Why then should it not be yours?'—and Ali was, through life, but too obedient to this advice. The indignity she endured from the Gardikiotes, was, it must be admitted, cruel to the last degree; being carried off by surprise from Tepelini, the family inheritance, with her daughter Chainitza, then in the flower of youth. She was imprisoned in a dungeon, and brought out daily to endure the brutal embraces of the principal inhabitants; an injury remembered for forty years by Ali and his sister. The vizier himself declared, that after being reduced, some time after this circumstance, to the necessity of selling his sabre to procure bread, his fortunes were suddenly altered by the circumstance of discovering a chest full of gold, in the ruins of an old monastery; with which money he raised two thousand men, and entered Tepelini in triumph. He now took one of his characteristic methods of making himself absolute master of his native town. Having personal enemies whom he wished to cut off, he secretly fermented amongst them a conspiracy against himself; and left on a certain day his riding cloak in a wood, where he occasionally hunted and slept, covering a goat. The conspirators, as previously arranged, came and fired through his mantle, exclaiming in triumph as they returned, 'Veli bey, is no more.' In the evening he attacked their houses, crying out in return, 'Mine is the cause of justice,' and put the whole party to the sword.

We have noticed his attack and overthrow of the neighbouring pachas of Berat and Delvino; the latter was, according to his own acknowledgment, a distinguished benefactor of Ali's. He possessed a territory which had long been a matter of dispute between the Porte and the Venetians; and having sold to the latter a forest near the lake Pelode, Ali caused it to be secretly represented at Constantinople, that the Pacha of Delvino had alienated a portion of the Sultan's territory. On this, the Divan, as he had calculated, despatched a firman to Ali, for that chieftain's death. He went to Delvino, was received by the old Pacha with his accustomed kindness, and lodged in the seraglio. Every morning he waited upon his host to pay him the customary compliments. One day feigning indisposition, Ali requested Selim would come into his apartment for the purpose of receiving an important communication. The invitation being accepted, scarcely had the unfortunate old man entered the room, than the assassins, who had been concealed in a closet, upon a signal being given, rushed out, and stabbed him to the heart; he fell, pierced with w uttering almost the same words as Ca ou, my son, who deprivest me of li oise of the tumult, his guard ha ot, and found Ali in the midst with the firman in his hand, reatening accents, 'I have kill rder of our glorious sultan

Ali's contests w the latter many ancient Greeks. A first war with him, dependent villages, rienced soldiers. T Christian republic he n of cruelty and treachery. Their ill-deserved fate fou in the walls of his own favourite wife, and mot Mouctar and Veli, fell at h clemency for them, asserti genius of his fortunes had war to spare the Suliotes. 'The S inveterate—the most implacable exclaimed the vizier in a voice drawing a pistol from his girdle, di the suppliant, who, though not wo said, died with fright. His crush weaker sex 'stain him' indeed 'with His son, Mouctar, having become en the wife of a principal citizen of Ja did not disdain to take up the quarre daughter-in-law, who detected a jewel possession of the beautiful Phrosina, whi had given to her husband. He swore b beard of Mahomet, that he would obta her ample vengeance; and repaired him night to the residence of the frail fair one. the lamp in his hand, he entered her bed awoke her, exhibited the ring, and comm her to rise and follow him. Having arri the court-yard, he directed his guards to co her into a Greek church, on the borders lake, and afterwards sent thither twenty of the women of the place as her companions. The evening the whole were taken out upon the in a boat, and each being in succession sew in a sack, was precipitated into the waves.

After the reduction of the Suliotes, Ali himself in the midst of new enemies, hav fused, on the destruction of that republic withdraw his troops from the district of mouria; the beys in authority there resente conduct, and refused to pay into his hands maritime duties of the coast which he farmed from the Porte. They solicited, and ceived, considerable aid from the Russians, further augmented Ali's jealousy against in 1805, by becoming masters of Montenegro the north of Albania. In this war with beys, Ali subdued and pillaged above towns and villages. The progress of the Fr arms in Dalmatia was by no means pleasing him, and first induced him to open that correspondence with the court of St. Jam which, through Lord Nelson, Lord Collingw and Major Leake successively, was kept up many years. All the events of the French re lution were familiar to this Napoleon of the e nor did Buonaparte overlook the importance Ali's political situation. In the latter end 1805, M. Pouqueville, to whom we are indebted for many anecdotes of this despot, was nominated consul-general of France at Janina. He thus describes his first audience with the vizier:

'After the usual compliments, the pr

dragoman of the vizier was called, in order to commence the conversation, which the Pacha began by asking questions with a volubility very uncommon among the Turks. Through the shade (for the hall of audience was only illuminated by the flitting and uncertain light of a yellow bougie), I perceived the coruscations of his penetrating eyes, and observed the convulsive motions of his features; I listened to his conversation, apparently vague and unconnected, yet full of cunning and duplicity. Swinging himself about, continually laughing and talking, not a word escaped him but had its import, notwithstanding the rapidity of his utterance; he at times threw scrutinizing glances on me, and at length ordered his Greek secretary, and his minister, who was dressed in black and wore a long white beard, to retire. We remained with the interpreter, who continued to stammer out the questions and answers, till after a conversation of about two hours, we withdrew, leaving the vizier struggling between hopes and fears.—This interview sufficed to dissipate some of the illusions which I had been under: Ali Pacha was neither a new Theseus, nor the modern Pyrrhus of Epirus. I was disgusted with his manners, and secretly deplored my fate in being compelled to reside near and be in communication with a man of such a character.'

After the battle of Austerlitz, our wily Greek found his account in flattering the French usurper; and, is said, through the interest of the latter at Constantinople to have obtained the pachaship of Lepanta for his son Mouctar; and that of the Morea for his second son Veli. The French government, in 1807, gratified him highly by supplying him with a detachment of artillery men, and ordering colonel Vaudoncourt to remain in his dominions, for the purpose of improving the military tactics of his army. Ali, during the war that now ensued between France and Russia, was keeping a watchful eye on the Ionian isles, with the hope of adding them to his other conquests. He sent envoys to London, to Malta, Sicily, and, it is said, even to Tilsit, in the hope of accomplishing, by negociation, this favourite object; but the islands were seized by France, and Ali now again returned to his friendly relation with England. He is said to have considerably influenced the signing of a peace at this time between England and Turkey. It was at this period, 1809, that he finally subdued his rival, Ibrahim, the pacha of Berat, and cajoled the divan to bestow the vacant pachaship on his son Mouctar. He finally imprisoned the feeble vizier, Ibrahim, and constructed for him a dungeon under the great stair-case of his palace, that he might have the satisfaction of walking daily, as he said, 'over the head of his enemy.' A stratagem of Ali's, with regard to this fallen foe, marks the character of his mind and actions very strikingly. Being informed that reports of his various cruelties were becoming rather too serious at Constantinople, he suddenly withdrew Ibrahim from his prison, and concealed the place of his residence from his daughters, who had followed him into captivity. They now therefore naturally concluded that he had been put to death. Janina resounded with their insinuations and complaints, and the French consul despatched the tidings to Constantinople. On this, a capidgi-baschi was ordered to proceed to Janina, and make a report respecting the conduct of Ali to Ibrahim. The former received him in the presence of all his ministers, and on the firman of the grand seignior and the nature of his mission being announced, Ali, with a tone of indignant surprize, exclaimed, 'Dead!—my father Ibrahim dead!' Then turning to his ministers, Mahomet and Sechri-effendi, 'Go,' said he, 'and accompany this officer into Ibrahim's apartment, that he may be convinced of the vile calumnies which are propagated against me.' These officers found Ibrahim in the handsomest apartment of the seraglio, and well instructed for their reception. He prayed the capidgi-baschi to assure the sultan, his master, that he kissed the earth on which he placed his sacred feet, and while he felt with the deepest gratitude the interest which his highness took in his welfare, being now too old to support the cares of government, he could not be happier than for himself and his possessions to be in the hands of his dearest friend, the vizier of Janina. Our limits will not allow us to add many other characteristic anecdotes of this most accomplished and most ferocious tyrant of modern times; but they abound in the writings or allusions of Lord Byron, Mr. Hobhouse, Dr. Holland, and Mr. Hughes.

From his alliance with England, Ali obtained one object of his ambition, little to the credit, as we humbly opine, of British diplomacy—the possession of Parga. Ali had strenuously endeavoured in 1814, to seize upon this devoted rock, the only spot along the whole extent of his coast which could now boast of any independence; but though 5000 of his bravest and most experienced troops surrounded the place, and succeeded at one time in entering the lower town they were repulsed by the Parganiotes; and the place well provisioned, but garrisoned principally by seventy French grenadiers, frowned defiance upon him. When Ali first received the news of this repulse of his troops, he was returning into his capital from Preveza, accompanied with the English resident, and is described as becoming in a moment frantic with rage. 'What!' cried he, 'Parga defended only by sixty Frenchmen, and victorious!'—then would he roll himself on his sofa, alternately 'crying like a child, and roaring like a wild beast.' The brave Parganiotes ultimately prevailed upon the British authorities in the neighbourhood to seize Parga by a coup de main. Ali, in the cession of this island, reigned with terrible and undisputed sway over a larger country than Pyrrhus, or even than Alexander himself had done before his conquests in Asia Minor. He was master in fact of all continental Greece, from the frontiers of Attica to the mountains of Illyria.

But he himself, on one occasion, ably defined his station: 'A vizier,' he said, 'is a man covered with honours, and seated on a barrel of gunpowder, which may be blown up with a spark.' The Porte became well acquainted with the great extent of his treasures, and anticipated their possible division amongst his children, in

case he died a natural death. Pacha Bey, an ejected minister, or selictar of his son Veli, had incurred the implacable hatred of Ali; who, fleeing from Ali's frequent attempts to procure his assassination in Greece, had met at Constantinople with Demetrius Paleopulo, an Ætolian, and these two chieftains together drew up a memorial to the divan, on the subject of Ali's extensive possessions and barbarous tyranny. Pacha Bey, after a long attendance upon the sultan, became one of his capidgi-bachi or chamberlains, and in this situation Ali Bey had the hardihood to attempt taking him off, by means of two assassins. They procured admission to the residence of this enemy, but having only slightly wounded him, endeavoured to escape. Being pursued and put to torture, they confessed that they were hired by Ali Pacha to assassinate Pacha Bey. The assassin was hung in front of the imperial seraglio, and the sentence, firmanly or imperial proscription, was shortly after pronounced against the pacha of Janina. Its tenor was, that Ali Pacha, accused of high treason, and having at different periods received pardon of his delinquencies and felonies, should be placed under the ban of the empire, as a relapse, if he did not present himself within forty days at the 'golden threshold of the gate of felicity,' to plead in justification; and the grand seignior, having put all his agents and couriers into irons, declared that whosoever should dare to speak to him in favour of Ali should lose his head.

New governors were at first placed in all the military positions bordering upon Albania; then the neighbouring pachalics of Scodra, Thrace, &c. were ordered to assemble their forces, and the command of the entire expedition against the rebel vizier was committed to Pacha Bey, now denominated Pacha of Janina and Delvino, by the right of arpalich or conquest. The old lion, as Ali was frequently called, aroused himself with an energy worthy his warlike character.—He first applied for the interposition of the English with the Porte, but failing in this, he purchased largely of them arms and military stores. He re-organized the armatolis, and paid great court to the Greeks; but on the first appearance of his rival in the neighbourhood, a considerable body of the former revolted, and before a blow was struck, Ali lost Cisaxian, Macedonia, and Thessaly, to the defile of Gomphy. His son Veli, on the appearance of the enemy in that direction, abandoned Lepanto, removed by sea all his valuable property to Preveza, and retired himself to Janina, whither his brother Mouctar repaired about the same time. Though Ali was, on his appearance in public, every where received with acclamations, he now began to find that no reliance could be placed on the greater part of his troops. The whole of higher Albania fell away from him; and though for a time his enemies were dilatory, and a Turkish fleet, which appeared upon the coasts, at first retired without effecting any object, Pacha Bey gradually advanced in sight of Janina, without fighting a single battle. Ali's long meditated plan of final defence was this, to destroy the town of Janina, and shut himself up within his vast fortress, situated on the isle of a neighbouring lake. There were remaining to him about 8000 faithful troops. With these he garrisoned his three well-constructed castles on the isle, whose walls were protected by 250 pieces of cannon. When the inhabitants of Janina saw the despot retiring with all his treasure into the fortress, they began to embark their property and families upon the lake with a view to escape the coming conflict. Ali, on the other hand, made no scruple of giving up his capital to be pillaged by the soldiery; and Pacha Bey, on the 19th of August, marched into its still smoking ruins, through the gate of Paralepti. Ali's garrison was provisioned for more than four years, and had ample supplies of ammunition and warlike stores; neither could water ever be wanting as the castle was situated in the midst of a lake. As the crisis of his fate approached, Ali appeared to summon all his energies to overcome it: even his physical strength seemed to be renewed, and to triumph over the weight of his years. He was seen at all hours, and in all places—now on horseback, now in his palanquin; and sometimes seated on a bastion, in conversation with the workmen and common soldiers, whom he daily inspected. In the autumn, supposing that some of his troops might be discontented with the confined and arduous service in which they were engaged, he selected 1500 for a sortie: and, giving them their full pay, opened his gates and sent them forth. As he expected, when they arrived in sight of the Turkish camp, they saluted his enemy, as 'Vali' and 'Gazi.' In September, the besiegers began to murmur at their new chief, who, finding no present hope of reducing Ali to submission by military manœuvres, had recourse to a negociation with his sons. These terminated in the surrender of both Previsa and Berat, of which, when Ali was informed, he only observed, 'that he had long considered his sons unworthy of their race; and that henceforward his now dependent soldiers are his only children.' Gradually his magnificent palace became only a well-defended camp: his harem was attacked almost universally with scurvy and fever; and a gradual waste of his own fine form and complexion evidently appeared. He slept little, and could not trust his person but to the watchfulness of two individuals, Athanasi Vai, on whose knees he slept; while Ibrahim Saretih, his former postmaster, kept watch at the door of his apartment.

The siege proceeded slowly, and more than 5000 bombs had been thrown against the castle of Ali without effect. The sultan was at last weary of these ineffectual efforts to subdue a single rebel, and Ismael Pacha was superseded in command by Churchid Mahomet Pacha, who after various minor intrigues, induced our Pacha to open a communication with him in December, on the terms of receiving a pardon and his life, for relinquishing his fortress and his treasures. One characteristic fact Ali had taken care to communicate to the new commander, viz. that he kept in his magazine, night and day, a Turk named Selim, at all times willing to sacrifice his life and who was always provided with a lighted match, for the purpose of blowing up 200,000 barrels of gun-powder. Churchid at last entrapped the wily Ali, by an artifice similar to

what this despot had often practised. He sent word by a flag of truce that at length the sultan had listened to his frequent representations, and granted Ali a pardon; but it was necessary that he should repair to the Turkish camp, and confer with Churchid in person. Ali was duped into compliance with this; and with about a dozen officers repaired to the camp of Churchid. Here a magnificent tent was prepared for his reception, and all things appeared fair and promising. On the morning of the 5th of February, Churchid sent a message to Ali Pacha, that the pardon had at length arrived, and proposed that as a token of gratitude, Ali should direct his faithful Selim to give up his lighted match. He was doubtful, but, cajoled; drew forth the half of a ring; on sight of which Selim prostrated himself, extinguished his match, and was instantly poniarded.

It was now five o'clock, P. M. and Ali being seated at the door which led to the conference chamber, the apartment was suddenly entered by Hassan Pacha, Omer Bey Brioni, the selictar of Churchid Pacha, and several other officers of the Turkish army. Ali arose with all the energy of his youth, and grasping one of his pistols, exclaimed, 'Stop! What is it you bring me?' 'The firman of his highness: know you not his sacred characters?' (shewing him the signature). —'Yes, and I revere them.'—'If so,' said Hassan, 'submit to your fate, perform your ablutions, and make your prayer to God and to the prophet: your head is demanded.' Ali would not permit him to conclude: 'My head,' replied he furiously, 'is not to be delivered up so easily:' and fired his pistol, by which Hassan's thigh was broken. With the rapidity of lightning Ali drew forth his other pistols, and shot two more of his adversaries dead upon the spot. Already had he levelled his blunderbuss loaded with slugs, when the Selictar, in the midst of the affray, (for Ali's adherents defended their master with the utmost fury,) shot him in the abdomen. Another ball struck him in the breast, and he fell, crying out in the struggle of death to one of his sicaires, 'Go, my friend, despatch poor Vasiliki, that these dogs may not profane her beauteous form.' Thus died as he lived this extraordinary and bloody despot: deceived to his undoing, and desperate when he found himself in the toils, because, in fact, he was without principles to teach him either patience or courage.

ALIA, in antiquity, solemn games, celebrated by the Rhodians on the twenty-fourth day of the month Gorpiæa, answering to the month Bædromion, or the third of the Athenian year, in honour of the sun, *αλιος* or *ηλιος*, said to have been born in Rhodes, the inhabitants of which were reputed his posterity, and therefore called Heliades. Boys as well as men engaged at these games, and the victor received a crown of poplar.

ALIACMON, or HALIACMON, a river of Macedonia flowing into the Ægean sea, to which Claudian gives the epithet of rapidus. It is now called Polecas.

ALJAMEIA, the name which the Moriscoes in Spain gave to the language of the Spaniards.—Among other articles agreed upon by the Junto, which was appointed by the emperor Charles V. in 1526, in favour of the Moriscoes, this was one, that the Moriscoes should no longer speak Algavaria, i. e. Moorish or Arabic; but should all speak Spanish or Aljameia, as it was called by the Moors, and all their writing and contracts should be in that language.

ALIAMET, (J.) a celebrated French engraver, and a member of the academy of Painting, was born at Abbeville in 1728. His best works are representations of battles between the Chinese and Tartars. He died in 1788, at Paris.

ALIAS. Lat. otherwise. Often used in the trial of criminals after one name and before another, to signify that they have more than one appellation; as, John *alias* Thomas.

What nation formerly knew not the acts of Englishmen better than themselves? otherwise, Polydore Virgil had not undertook, to our shame and prejudice, the English chronology: nor Verstegan, *alias* Rowly, the confidence to render well nigh all the considerable gentry of this land, from the etymology of their names, Teutonicks.

Sir T. Herbert's Travels, p. 396.

If the sheriff cannot find the defendant upon the first writ of capias, there issues out an *alias* writ.

Blackstone.

ALIAS, in law, a second writ issued from the king's courts at Westminster—a latitat, capias, or quo minus, having been issued without effect.

ALIAS DICTUS, in law, the manner of describing a defendant when sued on a bond or other speciality. After the name, &c. comes the alias dictus, which describes him by the exact name and addition whereby he is bound in the bond or speciality in question.

ALIBANTES, from *ἀλιβαντες*, a Greek name for those who, on account of poverty, could not procure burial.

ALIBI, in law, denotes the absence of the accused from the place where he is charged with having committed a crime; or his being elsewhere, as the word imports, at the time specified.

ALICA, a sort of frumenty, a nourishing farinaceous food. It is also used for a kind of wheat, *χονδρος*, which was used as a medicine.

ALICANT, a rich and strong sea-port town of Spain, in the province of Valencia, and territory of Segura. It is seated between the mountains and the sea, and has a castle that was long reckoned impregnable. The port is defended by three bastions, furnished with artillery, and has watch-towers to give notice of an enemy's ship. It was taken from the Moors in 1264. The castle was taken by the English in 1706, and held out a siege of two years before it was retaken by the French and Spaniards; but at last surrendered upon honourable terms, after part of the rock was blown up on which the castle stood, and the governor killed. The houses are high, and well built; and a very great trade is carried on in it, particularly in wine and fruit. The English, Italians, &c. have consuls in it. It is seated on the Mediterranean, on a bay of the same name, thirty-seven miles north-east of Murcia, and seventy-five miles south of Valencia. Lon. 9°. 36'. W. lat. 38°. 35'. N.

ALICANT WINE, in pharmacy, a cordial which has the agreeable colour of red wine added to the mildness of a wine made of must; and it is generally allowed that it is prepared in that manner. It is evident that the must which produces it has been coloured before fermentation.

ALICATA, a mountain of Sicily, near the valleys Mazara and Noto, upon which was situated, as is generally thought, the famous Dædalion, where the tyrant Phalaris kept his brazen bull.

ALICATA, anciently called Leocata, a town of Sicily, remarkable for corn and good wine, seated on a sort of peninsula near the sea, eighteen miles east-south-east of Girgenti. It was plundered by the Turks in 1543. Alicata contains 10,000 inhabitants. The populace pay uncommon reverence to the sacerdotal character; the women and children falling on their knees in the streets before a clergyman, touching his garments with a finger, and then kissing their hands with great veneration. Alicata is said to possess some ancient Greek manuscripts relating to the ancient city of Galæ: the most remarkable is a psephisma, or decree of the senate for crowning Heraclides, director of the public academy. Lon. 13°. 50′. E. Lat. 37°. 11′. N.

ALICATA CHLAMYS, was a sort of vest with sleeves worn by the Roman boys till the age of thirteen, when they put on the prætexta.

ALICATICA, an Arabian weight.

ALICES, in medicine, spots preceding the pustules of small pox.

ALICONDA, in botany, an African tree, growing naturally in the kingdom of Congo, of such bulk that ten men cannot fathom it round. The natives call it bondo; and they do not build their huts near it, lest its fall should crush them to death, as the wood easily rots, or its fruit, which is of the size of a large gourd and easily broken from the tree, should knock them down. The bark of this tree well beaten and macerated, yields a coarse thread, of which they make their ropes; and which, when macerated and dried, and beaten with bars of iron or wood, becomes like a large piece of cloth, with which the natives cover their middle from the girdle to the knees. The shell or rind of the fruit, which is hard like that of a gourd or calabash, being freed from its pulp, which may be made into a nourishing pap, serves for vessels of various kinds, and gives an aromatic taste to water preserved in it. The small leaves are eaten in time of scarcity, and the large ones serve to cover houses, or being burned make good soap.

ALICUDA, or ALICUR, one of the Lipari islands, near the coast of Sicily. This island is about six miles in circumference; but its population is not so great as that of Felicunda, which consists of about 650 inhabitants; the houses are built about half way up on the declivities of the mountains, in order that their inhabitants may guard themselves against the nightly attacks of the Tunisian Corsairs. In these two islands a considerable quantity of good wine is made; besides which they have Indian figs and olive-trees. The corn grown here is wheat and barley; which, together with the grapes, amount in value of produce to about 3000 Neapolitan crowns. The inhabitants of [illegible] island are extremely industrious, and cultivate [illegible] ground to the utmost extent; though the [illegible] is greatly interrupted by points of rocks [illegible] of lava, clefts and crags. Three or four [illegible] boats belong to this island, which are [illegible] all the property of the parish priests, [illegible] used for the purpose of increasing their [illegible] revenues, amounting to little more than [illegible] sequins. There is not a spring of fresh [illegible] on either this or the neighbouring island; [illegible] therefore when there is a long continuance [illegible] weather, the distress of the inhabitants [illegible] treme. Their food consists of black barley-[illegible] and wild fruits, and sometimes by way of [illegible] salt fish; and their houses, or rather huts, [illegible] appear like the nests of birds hung to the [illegible] are formed of pieces of lava, and scarcely [illegible] a ray of light; yet they are uncommonly [illegible] tented and happy, owing to the salubrity [illegible] air and the temperature of the climate [illegible] joy. By the vestiges of fire which are [illegible] able in every part of this island, it has [illegible] supposed that Felicunda and Alicuda [illegible] formed a single conical mountain; and [illegible] though these islands shew so indubitably [illegible] they have been the seats of volcanic eruptions, [illegible] there is at present no appearance of fire; [illegible] do the most ancient writers mention any [illegible] flagrations in either of these islands. The [illegible] cient name of Alicuda was Ericusa; and [illegible] author of the epitome of Stephanus says [illegible] was so named from the erica, or heath, which [illegible] grows there in such abundance. Lon. 14°. [illegible] Lat. 38°. 31′. N.

ALICULA, in antiquity, a kind of [illegible] habit worn by the Roman children. It was [illegible] sort of chlamys or tunica manicata.

ALICUN, a town of Spain, in the province [illegible] Granada, celebrated for its medicinal waters. [illegible] is twelve miles from the city of Granada.

ALJEMBUT, or, as some write it, [illegible] name given by Avicenna, and others, to a [illegible] of acacia, also called the Nabathæan [illegible] ceration, or siliqua, and which some have [illegible] posed to be the same with the common [illegible] but they expressly distinguish it, by saying [illegible] it is an astringent, whereas the other is [illegible] purgative, and that the fruit of it was given [illegible] hæmorrhages. Isidore says, that the acacia [illegible] of the shops was made of its fruit, while [illegible]

A'LIEN, *v. n.* & *adj.*, A'LIENABLE, A'LIENATE, *v. n.* & *adj.*, ALIENA'TION, ALIENA'TOR. } Lat. *alienus*, [illegible] to make any thing [illegible] property of an[illegible] to transfer good-[illegible] friendship, or [illegible] tion.—An alien, formerly alyaunt, is one [illegible] another country, a foreigner.

> Gyf that thou sekis ane *alienare* vnknaw,
> To be thy maich or thy gud *sone in law*.
> *Douglas*, b. vii. p. [illegible]

> Symound, what seemith to thee? kyngis of [illegible] of whom taken thei tribute, of *her sones* other [illegible] *aliens*? And he seide, of *aliens*.
> *Wiclif. Matthew*, chap. [illegible]

An *alien* is one, born in a strange country, [illegible] never enfranchised. A man, born out of the [illegible] so it be within the limits beyond the seas, [illegible] English parents out of the king's obedience, [illegible] parents (at the time of the birth) be of the [illegible]

obedience, is not *alien*: if one, born out of the king's allegiance, come and dwell in England, his children (if he beget any here) are not *aliens*, but denisous.

Cowell.

The countries of the Turks were once Christian, and members of the church, and where the golden candlesticks did stand; though now they be utterly *alienated*, and no Christians left. *Bacon.*

If the son *alien* lands, and then repurchase them again in fee; the rules of descents are to be observed, as if he were the original purchaser.

Hale's History of Common Law.

Land is *alienable*, and treasure is transitory; and both must pass from him, by his own voluntary act, or by the violence of others, or at least by fate.

Dennis's Letters.

In whomsoever these things are, the church doth acknowledge them for her children: them only she holdeth for *aliens* and strangers, in whom these things are not found. *Hooker.*

If it be proved against an *alien*,
He seeks the life of any citizen;
The party, 'gainst the which he doth contrive,
Shall seize on half his goods.

Shak. Merch. of Ven.

The mere Irish were not only accounted *aliens*, but enemies; so as it was no capital offence, to kill them.

Sir John Davies on Ireland.

Be it never so true, which we teach the world to believe; yet, if once their affections begin to be *alienated*, a small thing persuadeth them to change their opinions. *Hooker.*

His eyes survey'd the dark idolatries
Of *alienated* Judah. *Milton's Par. Lost.*

The mother plant admires the leaves unknown
Of *alien* trees, and apples not her own. *Dryden.*

From native soil
Exil'd by fate, torn from the tender embrace
Of his young guiltless progeny, he seeks
Inglorious shelter in an *alien* land. *Philips.*

God put it into the heart of one of our princes, to give a check to sacrilege. Her successour passed a law, which prevented all future *alienations* of the church revenues. *Atterbury.*

Great changes and *alienations* of property have created new and great dependencies.

Swift on Athens and Rome.

ALIEN, in law, from the Latin *alius*, 'another,' q. d. a person born out of the king's dominions. Thus there are alien friends, viz. persons born in countries in alliance with the state, and alien enemies; by which name are designated those born in countries considered by the state as hostile; children born of English parents, though under temporary subjection, or allegiance to a foreign power, are not considered as aliens in the eye of the law; nor children born of English parents on the high seas; nor children of English ambassadors at foreign courts. But British parents who have been guilty of felony or high treason, make their children aliens, who are born abroad. See the 25 Edward III. 7 Anne, c. 5. 10 Anne, c. 5, &c. The last two mentioned acts, however, with 4 Geo. II. c. 21, and 13 Geo. III. c. 21, render all children born out of the king's allegiance, whose grandfathers, by the father's side, or whose fathers were natural-born subjects, entitled to the civil rights of natural-born subjects. Such grandchildren, however, must, to claim the privilege of exemption from the alien duty, be protestants, and resident within the realm; and the claim to any estate or interest must be made within five years. The issue of an English woman by an alien, born abroad, is an alien.

Having thus described what, according to the law of England, is termed an alien, we shall briefly enumerate the most common civil and political disadvantages to which he is subject, with an account of the most recent statutes, expressly bearing upon this particular.

An alien cannot vote at the election of members of parliament, nor can he enjoy any office, or be returned on any jury, unless where an alien is party in a cause when the inquest is composed of an equal number of denizens and aliens. An alien cannot purchase lands for his own use: nor can an alien female be endowed with lands, although she become the wife of a natural-born subject; nor a Jewess the wife of a naturalized Jew. However, an alien may acquire any kind of personal property; and he may bring or defend any action or process at law, for the protection of it, and may dispose of such property, by deed, will, or otherwise; his children born in the realm are generally to be held natural-born subjects. Aliens also may take leases of lands, and estates in trust; but these rights of aliens must be understood as of alien friends only; alien enemies having no rights at all, and no privileges, unless by the king's especial favour.

An alien may, by letters patent, ex donatione regis, be made an English subject, and is then called a denizen, being in a middle state between a natural-born subject and an alien. He may now purchase lands, or possess them by devise, but cannot inherit them, although his heirs may inherit from him; the parent of the denizen being held to have had no inheritable blood, which the denizen possesses after becoming so. See DENIZEN. He is still, however, subject to the alien duty, and there is no method of giving him the full personal rights of a natural-born subject, but by act of parliament. Even after naturalization, an alien cannot become a member of the House of Commons, or Privy Council, or hold offices or grants under the crown; and by stat. 12 William III. c. 2, and 1 Geo. I. c. 4, every bill for the naturalization of particular persons shall contain the proper disqualifying clauses. See NATURALIZATION.

After the commencement of the French revolution, our legislature judged it necessary to make the laws respecting aliens still more strict. Accordingly an act was passed in the 33 Geo. III. entituled, 'an act for establishing regulations respecting aliens arriving in this kingdom, or resident therein, in certain cases;' of which the following are the principle heads: 1. Masters of vessels must give in to the officer of customs at the port of arrival a written declaration specifying the names, &c. of the foreigners on board. 2. Aliens, arriving after the 10th of January, 1793, must give to the port officer of customs a written declaration of their names, rank, &c. Upon neglecting this, to be adjudged to depart out of the realm, and upon non-compliance to be transported for life. 3. They are to receive from the officer a certificate of their declarations. 4. Arms, attempted to be imported by aliens, except as merchandise, are to be

seized. 5. If his majesty in council shall direct that aliens of any description shall not be landed, or only at prescribed places, masters offending are not only liable to a penalty but to forfeit their vessels. 6. No aliens are allowed to depart from the place of their arrival, (except for purposes specified) without a passport. 7. Aliens, (except domestic servants of natural-born subjects, &c.) arrived since the 1st of January, 1792, or arriving during the continuance of the act, desirous to remove; must obtain a passport from a magistrate. 8. Magistrates are authorized to grant passports to all parts of the kingdom, and also to require of an alien an exhibition of his passport, and in certain cases to detain him, till his majesty's commands may be received; and to commit him to prison, if his majesty shall not direct him to be discharged or to depart the realm. 9. Aliens who do not depart the realm, when ordered by his majesty's proclamation, are also to be imprisoned. 10. The secretary of state may grant warrants to conduct out of the kingdom, aliens, who will not obey proclamations, &c. The king may order any alien, arrived since the 1st of January, 1792, or arriving during the continuance of the act, to reside in such districts as he shall think proper. 11. Aliens in the kingdom on the 10th of January, 1793, or who arrived since the 1st of January, 1792, or arriving after the 10th of January, 1793, must deliver an account of their names, &c. and magistrates may require such accounts, and commit to jail those who neglect or refuse them. 12. They may also summon aliens suspected of not having delivered such accounts, and may arrest them for non-compliance. 13. They may require from house-keepers an account of the names, &c. of aliens, residing with them. 14. Justices of the court at Westminster, &c. may admit aliens to bail; as well as any other justices by authority of the secretary of state. 15. Aliens, within the times specified, must give an account of all weapons, &c. in their possession, and deliver them up to a magistrate, who may require them to do so. 16. The secretary of state may grant warrants to search the houses of aliens, for weapons, &c. and may require an account of such weapons from the house-keepers where aliens lodge. 17. His majesty may send out of the realm any alien, committed to jail, and if afterwards found in the kingdom he shall be transported for life. 18. Aliens thus adjudged to be transported, to be sent to such places as the king in council shall appoint: 19. and to suffer death if afterwards found within the realm. 20. Certificates are to be given gratis, and fresh passports may be granted for lost ones; but heavy penalties are awarded on those who forge them. 21. In questions respecting offences against this act, the proof lies on the party accused; and parties appealing must give six days notice. 22. The act does not extend to foreign ambassadors, aliens under fourteen years of age, or mariners certified by ship-masters to the officers of customs. Trespasses against this act, subjected the offenders to a variety of heavy penalties, specified in the act.

The acts 33 Geo. III. and 34 Geo. III. arose out of the influx of strangers to this country, from the continent, and have been from time to time amended, and continued as in 43 Geo. III. c. 155, &c. They have generally been supposed to be applicable only to a state of war, or decisive political danger from the influx of foreigners; the spirit of our constitution, and nature of our protestant principles, have always inclined our governors to make England a place of refuge for the persecuted, and succour to the distressed of all countries. By the principles of these laws every man is presumed to bear faith and love to that prince and country where he received protection in his infancy; and that one prince might not set spies in another's country; but chiefly, that rents and revenues of the country might not be drawn to the subjects of another. Some say that the laws against aliens were introduced in the time of Henry II. when a law was made in the parliament of Wallingford, for the expulsion of strangers, in order to drive away the Flemings and Picards, who had been introduced into the kingdom by the wars of king Stephen. Others reckon the origin of this law more ancient; and that it is an original branch of the feudal law: for, by that law, no man can purchase any lands, unless he do fealty to the lord of whom the lands are holden; so that no man who owed a previous faith to another could not take an oath of fidelity in another sovereign's dominions. Among the Romans only the Cives Romani were esteemed free; but when their territories increased, all the Italians were made free, under the name of Latin, though they had not the privilege of wearing gold rings till the time of Justinian. Afterwards all born within the pale of the empire were considered as citizens. Upon the same principle, an individual born in the British colonies is considered as a natural subject.

ALIENATION, in law, from alienare, to make away, a transfer of property from one person to another, and chiefly relating to lands and tenements. Alienation in mortmain is to grant or transfer lands or tenements to a religious body politic, or house.

ALIENATION, in fee, is the sale of land to hold in fee simple. All persons possessing lands in fee may alien them to others, with particular exceptions; for no person can be supposed to transfer what he never possessed. In fee with conditions that the feoffee shall not alien are void; but the grant of an estate in fee, on condition that the person who receives the estate shall not alien to any one particular person is valid; and where a reversion stands in possession of the donor of an estate, he may restrain alienation by condition. *Co. Lit.* 361, 11. *Wood's Inst.* 141. *Hob.* 261, &c.

ALIENATIONS, by tenants for life, &c. work a forfeiture of the estate. By the statute de donis ward I. a bar was put to alienations, by what we call entails, which is an expedient (not built on the strictest principles of justice) for preventing perpetuities in families; but counter expedients were devised to defeat this intent, and a practice was introduced of cutting off entails by fines and of barring remainders and reversions by

coveries. The statute for alienations in Henry VII.'s time had a great effect on the constitution of this kingdom; as, among other regulations of that reign, it tended to throw the balance of power more into the hands of the people. By the stat. 12 Car. II. cap. 24, fines for alienations are taken away. Crown lands are only alienable under a faculty of perpetual redemption. The council of Lateran, held in 1123, forbids any clerk to alienate his benefice, prebend, or the like. By the laws of the ancient Jews, lands could only be alienated for the space of fifty years. At each return of the jubilee all returned again to the primitive owners, or their descendants.

ALIENATION, in mortmain, is making over lands, tenements, &c. to a body politic, or to a religious house, for which the king's license must first be obtained, otherwise the lands, &c. alienated will be forfeited.

ALIEN DUTY, an impost laid on all goods imported by aliens, over and above the customs paid for such goods imported by British subjects, and on British bottoms. It is otherwise called petty custom, and navigation duty.—Fish dried or salted, and cod fish or herring not caught in British vessels, and cured British, pay a double alien duty.—On what footing aliens are permitted to import foreign commodities into Great Britain, see DUTY.

ALIEN PRIORIES, a kind of inferior monasteries, formerly very numerous in England, and so called from their belonging to foreign abbeys.

ALIFORMES MUSCULI, from ala, a wing, and forma, shape, in anatomy, a pair of muscles, arising from the pterygoid bone, and ending in the neck of the lower jaw, towards the internal seat of the head.

ALIFORMES PROCESSUS, the prominences of the os cuneiforme.

ALIGHT'. Active alihtan, Sax. to alight, lighten, to light. Hence by inference, to descend from a carriage; to dismount; discontinue a journey temporarily or altogether; to come down; to stop; to fall upon.

Kyng Henry in pe senepe zer of hys crounyng,
And enlene hondered zer and senene of our Lorde
alyztyn. *R. Gloucester*, p. 430.

Bot at the last softlie he gan *alicht*
Of Calcidonis apoun the castell hicht.
Douglas, b. vi. p. 162.

There ancient night arriving, did *alight*
From her high weary waine. *Faerie Queene.*

There is *alighted*, at your gate,
A young Venetian. *Shaksp. Merch. of Venice.*

Slackness breeds worms; but the sure traveller,
Though he *alights* sometimes, still goeth on. *Herbert.*

When marching with his foot, he walks till night;
When with his horse, he never will *alight*. *Denham.*

When Dedalus, to fly the Cretan shore,
His heavy limbs on jointed pinions bore;
To the Cumean coast, at length he came;
And, here *alighting*, built this costly frame.
Dryden's Æneid.

But storms of stones, from the proud temple's height,
Pour down; and, on our batter'd helms, *alight*.
Dryden.

Upon the firm opacous globe
Of this round world, whose first convex divides
The luminous inferior orbs, enclos'd
From chaos, and th' inroad of darkness old,
Satan *alighted* walks. *Milton's Paradise Lost.*

Should a spirit of superior rank, a stranger to human nature, *alight* upon the earth, what would his notions of us be? *Addison, Spectator.*

ALIGHT'. On light; to light, or enlighten; to set on fire; to enkindle.

The next morow, with Phœbus laump, the earth
Alighted clere; and eke the dawning day
The shadowes dark gan from the poale remoue.
Surrey. Æneis.

And for to speaken ouer this,
In this parte of the aire it is,
That men ful ofte sene by night
The fire in sondrie form *alight*.
Gower. Con. A. b. vii.

The officer having by this time *alighted* his lamp, entered into the room to see him whom he accounted to be dead.
Shelton's Trans. Don Quixote, Ed. 1652.

ALIGNA, one of the Philippines, lying to the north of Mindanoa. It is low and flat, and covered with thick forests.

ALIGNMENT, in maritime affairs, a supposed line drawn to preserve any part of a fleet in its just and proper direction.

ALII DE REGNO, and ALII MULTI, are phrases which often occur in our ancient records and historians. Their meaning has occasioned much dispute. Dr. Brady will have them to signify only tenants in capite; which Mr. Tyrrel endeavours to refute, and shew that they denote the whole commons of the kingdom.

ALIKE'. See LIKE. With resemblance; without difference; in the same manner; in the same form.

pe bisshop of Canterbire, in common alle *o liche*,
Schewed it in ilk schire, alle his bisshop riche.
R. Brunne, p. 301.

And efter thaym *elike* furth in euin space
Pristis and Cenature straif for the first place.
Douglas, book v. p. 132.

Prudence is goodly wisedome in knowinge of thynges: Strength voydeth al aduersitees *aliche* euen.
Chaucer. Test of Love, book iii. fol. 308. c. 4.

The darkness hideth not from thee; but the night shineth, as the day: the darkness and the light are both *alike* to thee. *Psalm* cxxxix. 12.

With thee conversing, I forget all time;
All seasons, and their change, all please *alike*.
Paradise Lost.

Riches cannot rescue from the grave,
Which claims *alike* the monarch and the slave.
Dryden.

Let us unite, at least in an equal zeal, for those capital doctrines; which we all equally embrace, and are *alike* concerned to maintain. *Atterbury.*

Two handmaids wait the throne; *alike*, in place;
But diff'ring far, in figure and in face. *Pope.*

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's Elegy.

ALILÆI, in ancient geography, a nation of Arabia Felix, of whom Diodorus speaks. He mentions that their country, although burnt up with the sun, enjoyed frequent and copious showers, which rendered it fertile and productive; and also states that their mines produce excellent gold, in large pieces, the size of a nut, which need no refinement. Iron and copper were

proportionably scarce, and were therefore esteemed more valuable.

ALIMA, among mineralists, a kind of sand found in gold mines, out of which lead is extracted.

ALIMENA, in entomology, a species of Papilio Nymphalis, with dentated black wings, an interrupted cærulean fascia, and seven white marginal points, found in South America and India.

A'LIMENT, ALIMENT'AL, ALIMENT'ALLY, ALIMENT'ARY, ALIMENTA'TION, ALIMON'IOUS. } Alo, *alitum*, to find one in food. Alimentum; nourishment, food. That which cherishes, supports, comforts.

The sun that light imparts to all, receives
From all his *alimental* recompence
In humid exhalations, and at even
Sups with the ocean. *Milton's Par. Lost*, book v.

Plants do nourish; inanimate bodies do not: they have an accretion, but no *alimentation*.
Bacon's Natural History.

Wise men are of opinion, the bodies of animals cannot receive a proper *aliment* from ayr.
Brown's Vulgar Errours.

New parts are added to our substance; and, as we die, we are born, daily; nor can we give an account how the *aliment* is prepared for nutrition; or by what mechanism it is distributed.
Glanville's Scepsis Scientifica.

I do not think that water supplies animals, or even plants, with nourishment; but serves, for a vehicle to the *alimentary* particles, to convey and distribute them to the several parts of the body.
Ray on the Creation.

Of *alimentary* roots, some are pulpy and very nutritious, as, turnips and carrots. These have a fattening quality. *Arbuthnot on Aliments.*

All bodies, which (by the animal faculties) can be changed into the fluids and solids of our bodies, are called *aliments*. In the largest sense, by *aliment*, I understand every thing which a human creature takes in common diet; as, meat, drink; and seasoning, as salt, spice, vinegar. *Arbuthnot.*

Th' industrious, when the sun in Leo rides,
Forget not, at the foot of every plant,
To sink a circling trench, and daily pour
A just supply of *alimental* streams,
Exhausted sap recruiting. *Philips.*

The plethora renders us lean, by suppressing our spirits, whereby they are incapacitated of digesting the *alimonious* humours into flesh.
Harvey on Consumptions.

ALIMENT, in a physical sense, is whatever may be dissolved and turned into chyle, so as afterwards to become blood. The subject of aliments has been very diffusely and comprehensively discussed by Dr. Cullen and others. We select a few practical and plain observations and directions upon this subject, from his Materia Medica, compared with other sources of information.

Our food, by the process of digestion, becomes in part, a very mild, sweet, and whitish liquor, resembling milk, and distinguished by the name of chyle. This being absorbed by the lacteal veins, is by them conveyed into circulation, and assimilated into the nature of blood, affording that supply of nutrition which the continual waste of the body is found to require. See DIGESTION. Next to air, food is the most necessary thing for our preservation; on the choice of it, therefore, health greatly depends. The blood and juices naturally incline to become putrid and acrimonious: fresh chyle, duly received, prevents this destructive tendency, and preserves them in that mild state which alone consists with health. Generally, animal food affords the most of this bland nutritious mucilage, while watery fluids dilute the too gross parts, and carry off what is become unfit for use. Of vegetables only the small portion of jelly which is separated from the farinaceous parts, after being much elaborated, is converted into the animal nature; yet the use of vegetables prevents both repletion and a too great tendency to a putrescent acrimony of the blood. In hot climates as well as from the constitutional heat of particular persons, vegetables are required in the largest proportion. Animal substances afford the highest relish while our appetite continues, but sate the appetite before the stomach is duly filled. Vegetables may therefore be eaten after either flesh or fish; few herbs or fruits satiate so much as that the stomach may not be filled with them, when it is already satisfied with flesh or fish; for no diet, which is very nourishing, can be eaten to fulness, because its nutritious parts are oily and satiating. Loathing is soon the consequence of animal food alone: but as habits, too, receive from milk and vegetables what is needful for correcting their excesses; the cold, pituitous, and nervous habits, which require much nourishment from little digestion, and from the smallest quantity of food, may use animal diet more freely.

In the animal and vegetable, as well as in the human system, we behold the procession of decomposition and reproduction, and analyse the substances that administer to the growth and repair of each system most distinctly; but in their application to the wants and enjoyments of man, these phenomena become far more interesting. As 'lord of all below,' the whole circle of organic being moves around him for his benefit, and the student cannot be more gratified, than the common people may be advantaged, by an intelligent consideration of the admirable provisions in nature for its various movements.

From the structure of his teeth and alimentary canal, man would appear to be at present formed to subsist both on animal and on vegetable food, and these great organs of his frame are thus suited to all climates and their produce. Rice is said to be the chief food of the larger portion of mankind; and it is well known that the Brahmins and other eastern tribes, subsist wholly on vegetables. Northward, and in the colder regions of the earth, the stronger stimulus of animal food is resorted to, and few vegetables comparatively are eaten. Many savage nations, again, live almost wholly on fish, whilst others never taste them.

Mr. Moore, in his Essay on the Materia Medica, has some valuable observations on the power of habit over the animal economy, with regard to diet.

If any one suddenly changes his food, and feeds upon substances to which he has been

accustomed, he will undoubtedly become disordered. If a person, accustomed to vegetable farinacea, tries to eat a large portion of animal food, he will become feverish and plethoric; and if any one accustomed to meat suddenly adopts a vegetable diet, he will be in danger of losing strength, and being seized with indigestion. This is one reason why too great a variety of food is unwholesome; for the stomach cannot acquire the habit of digesting a variety of aliments with equal facility. Those persons, therefore, who use one or two kinds of aliments constantly and regularly, have their stomachs in far better order than those who indulge themselves in variety. But it would appear that even the habit of digesting a variety of aliments is in some degree to be acquired; for persons accustomed to variety are less disordered by it than others, although their digestive faculty is probably not in such perfect order as it is in those who live in a more simple manner. We need not, then, be surprised at the frequency of stomach complaints among the rich, for the luxurious superfluity of whose tables the earth, air, and sea are ransacked. This variety, especially when prepared with eastern spiceries, and all the refinements of modern cookery, has another bad effect; it produces a false appetite, and forms a temptation to indulge the palate after the natural appetite is gone, by which the stomach is gorged and overloaded; whereas, those who live upon a few plain and simply dressed aliments, have no excitement to eat more than their natural appetite prompts. From these, and many other causes, disorders in the stomach are frequent; and as some aliments are more easily digested than others, directions respecting diet are necessary for weak and disordered stomachs, which are unable to digest aliments that are easily overcome by stomachs of greater health and power. Animals discover their proper food by the senses of taste and smelling. Mr. Moore conceives that men, in a great degree, do the same; and, therefore, that a strong presumption may be formed respecting the wholesomeness of alimentary substances, by attending to the natural inclination of men. But the greatest care must be taken not to confound natural tastes with those acquired by habit and prejudice, or brought on by diseases. It is inconsistent with the admirable order and constitution of the universe, to conceive that men will naturally have a desire for such aliments as are improper for them, and loathe such as are wholesome. But we know that, in consequence of necessity, example, or prejudice, men may be induced to use, as food, substances at first disagreeable, but which, by degrees, they may be brought to prefer to more wholesome diet. It is owing to this, that many, the rich in particular, instead of plain and salutary food, prefer what is highly seasoned with hot pungent spices. These acrid and stimulating substances are detested by every person at first; but even children may be induced to eat them in imitation of their friends and relations; and, having acquired a taste for them, the stimulus given to the stomach becomes at last necessary.

But that those stimulants, though they seem to assist, yet, in reality, and in the course of time, impair the appetite and digestion, is evident from this, that the stomach which could with ease digest plain food, before it was accustomed to spiceries, cannot afterwards digest it without their assistance. A stomach in this situation, therefore, may justly be said to be in a diseased state. And it is not without foundation, that diseases, and premature old age, have been imputed to the habit of using stimulating and acrid condiments. See *Essay on the Materia Medica*, by James Moore.

We annex a list of vegetables and animals according to the Linnæan system from which the aliments of man are principally derived; beginning with his simplest and perhaps his primitive food.

TABLE I.

VEGETABLE SUBSTANCES yielding Human Food.

Order.	Linnæan Name.	Common Name.	Where eaten.	Character as Food.
Herbæ—Herbs.	Apium petroselinum	Parsley	Europe generally	Aromatic, seeds diuretic.
	——— gravolens	Celery	———	Mucilag. and aromatic.
	Asparagus officinalis	Asparagus	———	Mucilag. stimulant, quick of digestion.
	Brassica oleracea	Colewort and cabbage	———	Watery and flatulent, Cauliflower best.
	——— italica	Brocoli	———	Delicious but flatulent.
	Cichorium endivia	Endive	———	Bitter and wholesome.
	Crambe maritima	Sea kale	———	Quick of digestion and stimulant.
	Cynara, scolymus	Artichoke	———	Sweet, mucilaginous.
	Lactua sativa	Garden lettuce	———	Diuretic, narcotic, most digestible boiled.
	Lepidum sativum	——— cress	———	Pungent, bitter, & aromat.
	Portulaca oleracea	——— purslane	———	Laxative.

Order.	Linnæan Name.	Common Name.	Where eaten.	Character as Food.
Herbæ—Herbs	Rumex acetosa	Common sorrel	Europe gen. and much esteemed in France	Wholesome, contains oxalic and tartaric acid.
	Sisymbrium nasturtium	Water cress	———	Wholesome, bitter and pungent.
	Spinacia	Spinage	———	Flatulent.
Radices—Roots.	Allium ascalonicum	Shallot	———	Acrid, fit for sauce.
	——— cepa	Onion	———	Stimulant.
	——— porrum	Leek	———	Idem.
	——— sativum	Garlic	———	Acrid, good for sauce.
	——— scorodoprasum	Rocambole	———	Idem.
	Beta vulgaris	Red beet	———	Very saccharine, should be well boiled.
	—— cicla	White beet	———	Idem.
	—— hybrida	Mangel wurzel	———	Wholesome.
	Brassica rapa	Turnip	———	Light and nutritious.
	Cichorium intybus	Succory	Id. in Germany as coffee	Bitter and wholesome.
	Convolvus batatas	Spanish potatoe	———	Nutritive
	Dioscorea alata	Yams	———	Idem, mealy.
	——— bulbifera			
	——— sativa			
	Daucus carota	Carrot	———	Mucilag. saccharine.
	Helianthus tuberosus	Jerusalem artichoke	———	Idem.
	Jatropha manihot	Bitter and sweet cassava	———	Nutritious. Of the root is made tapioca.
	——— janipha			
	Maranta arundinacea	Indian arrow root	———	Mucilaginous.
	Orchis mascula	Salep	———	Sweet, mucilaginous.
	Pastinaca sativa	Parsnip	———	Nutritious.
	Raphanus sativus	Radish	———	Warm, acrid, watery.
	Scorzonera hispanica	Viper's grass	Spain and S. Europe	Mucilaginous.
	Siun sisarum	Skirret	Europe gen.	Sweet, quick of digestion.
	Solanum tuberosum	Potatoe	———	Anylaceous and readily digested.
	Tragopogon porrifolium	Salsafi	———	Sweet.
Fructus—Fruits.	Artocarpus incisa	Bread fruit	Warm climates	Wholesome.
	Amygdalus persica	Peach and nectarine	Europe gen.	Delicious.
	Annona muricata	Custard apple	———	Cooling and wholesome.
	Berberis vulgaris	Barberry	———	Wholesome.
	Bromelia ananas	Pine apple	———	Acid and agreeable.
	Brosimum alicastrum	Bread nut	———	Wholesome.
	Cactus opuntia	Indian fig, or prickly pear	———	Idem.
	Citrus aurantium sinense	China orange	East	Grateful.
	——— aurantium hispalense	Seville orange	Spain	Rough, sour, bitter, yet aromatic.
	Citrus medica	Lemon	———	Acid, grateful.
	Cucurbita citrullus	Water lemon	Europe gen.	Juicy and cooling.
	Cucumis sativus	Cucumber	———	Watery, mucilag. difficult of digestion.
	——— melo	Melon	———	Watery, unwholesome
	Ficus carica	Fig	East & Europe	Mucilaginous.
	Fragaria vesica	Strawberry	Europe gen.	Pleasant, cooling.
	Garcinia mangostana	Mangosteen	———	Well flavoured.
	Mangifera indica	Mango	East	Wholesome.
	Mespilus germanica	Medlar	Europe gen.	Rough, astringent.
	Morus nigra	Mulberry	———	Cooling.
	Musa paradisaica	Plantain tree	East, &c.	Wholesome.
	Phœnix dactylifera	Date	———	Sweet, mucilaginous.
	Prunus armeniaca	Apricot	Europe gen.	Wholesome, more nutritious than peach or nectarine.

der.	Linnæan Name.	Common Name.	Where eaten.	Character as Food.
Fructus—Fruits.	Prunus domestica	Plum	Europe gen.	Apt to disorder bowels.
	——— cerasus	Cherry	———	Unwholesome.
	Punica granatum	Pomegranate	East	Cooling, disorder bowels.
	Pyrus communis	Pea	Europe gen.	Refreshing, flatulent.
	——— cydonia	Quince	———	Forms marmalade.
	——— malus	Apple	———	Wholesome.
	Ribes grossularia	Gooseberry	———	Cooling, disorder bowels.
	——— nigrum	Black currant	———	Cooling, sub-acid.
	——— rubrum	Red currant	———	More acid, but very wholesome.
	Rosa canina	Hip	———	Pleasant.
	Rubus idæus	Raspberry	———	Cooling, wholesome.
	Vaccinium myrtillus	Bilberry	———	Agreeable.
	——— oxycoccus	Cranberry	———	Astringent, acid.
	Vitis vinifera	Grape	———	Saccharine, cooling, and wholesome.
Semina—Seeds.	Amygdalus communis	Almond	Europe, Asia	Indigestible, husk acid.
	Anacardium occidentale	Cashew nut	———	Indigestible.
	Avena sativa	Oat	———	Demulcent, laxative.
	Cocus nucifera	Cocoa nut	Warm climates	Indigest. milk agreeable.
	Corylus avellana	Hazel nut and filbert	Europe	Indigestible, husk acid.
	Fagus castanea	Chesnut	———	Indigest. best roasted.
	Hordeum vulgare	Barley	———	Viscid, indigestible, except pearl barley.
	Holcus sorghum	Guinea corn	West Indies	Indigestible.
	Juglans regia	Walnut	Europe	Husk astringent and acrid, nut nutritious.
	Oryza sativa	Rice	East	Wholesome.
	Panicum miliaceum	Millet	Gen. growth	Nutritive.
	Phaseolus vulgaris	Kidney bean	Europe	Farinaceous.
	Pistacia vera	Pistachio nut	East	Wholesome.
	Pisum sativum	Pea	Europe gen.	Idem.
	Polygonum fagopyrum	Buck wheat	———	Idem.
	Secale cereale	Rye	———	Idem.
	Theobroma cacao	Chocolate nut	East	Idem.
	Triticum æstivum	Wheat	Europe	Best grain causing starch, glutinous and mucilaginous matter.
	Vicia faba	Broad bean	———	Astringent, flatulent.
	Zea mays	Indian corn	West Indies, America, & S. Europe	Laxative & wholesome.
æ— hens Sea- eds.	Lichen islandicus	Iceland liverwort	North	Bitter, mucilaginous.
	Fucus esculentus	Eatable fucus	———	Mucilaginous.
Mush- rooms.	Agaricus campestris	Common mushroom	Europe	Stimul. but indigestible.
	A great number of Fungi are edible, others are not.—See Sowerby's Coloured *Figures of English Fungi*, 3 vols. and suppl. fol.			

Chemical analysis has satisfactorily determined at the nutritive qualities of vegetables depend on the nature of their compost, and are in proportion to the relative quantities of mucilage, , starch, gluten, and sugar which they contain. his species of aliment, less stimulating indeed, an that which is derived from the animal kingom, nevertheless yields its nutriment more adily to the process of digestion. The quality chyle derived from vegetables, is inferior to at which is derived from animals; and hence, much greater proportion of aliment is necessary for those whose support is derived from these substances. On a review of the above table, we shall only add by way of appendage, that the seeds of certain plants belonging to the natural order of gramina, and the leguminous family of plants, yield the greatest proportion of nutritive matter; potatoes, yams, grains, &c., claim the next rank; to these, succeed beets, carrots, acids, dulcescent fruits, as grapes, dates, plums, apricots, &c. and lastly, the oily seeds, as almonds, filberts, chesnuts, &c.

TABLE II.

ANIMAL SUBSTANCES yielding Human Food.—(MAMMALIA, Class of Linnæus.)

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character as Food.
I. Primates.	Vespertilio vampyrus	Rougette	India	Very good.
II. Bruta.	Myrmecophaga tetradactyla	Middle ant-eater	Guinea	Good.
	Manis pentadactyla	Pangolin	India	Fat, delicious.
	Dasypus	Armadillo	S. America	Delicious, when yo
	——— tricinctus	——— 3 banded	———	Idem.
	——— septemcinctus	——— 8 banded of Mr. Pennant	———	Idem.
	Rhinoceros unicornis	One-horned rhinoceros	———	Like coarse pork.
	——— bicornis	Two-horned rhinoceros	Warm climates	Idem.
	Elephas maximus	Great elephant	———	Good.
III. Phera.	Phoca vitulina	Common seal	North & South	Good.
	——— leonina	Bottle-nosed seal	———	Idem.
	Viverra vulpecula	Coasse	Universally	Idem.
	——— fossa	Fossane weasel	———	Idem.
	Lutra Braziliana	Brazilian otter	S. America	Delicate.
	Ursus arctos fuscus	Brown bear	Warm climates	Delicate, paw exqu
	——— niger	Black bear	Europe, &c.	Indigestible.
	Ursus maritimus	Polar bear	North	Like mutton.
	——— meles	Common badger	Universally	Highly esteemed.
	Didelphis woapink	Virginian opossum	America	Like sucking pig.
	——— marsupialis	Molucca opossum	———	Delicate.
	——— canerivora	Cayenne opossum	———	Equal to hare.
	Macropus major	Great kangaroo	N. Holland	Coarse.
	Erinaceus madagascariensis	Striped hedgehog	India	Flabby, insipid.
IV. Glires.	Hystrix cristata	Crested porcupine	Rome	Good.
	——— prehensilis	Brazilian porcupine	Brazil	Idem.
	Cavia cobaya	Variegated cavy, or Guinea pig	Union	Idem.
	——— paca	Spotted cavy	———	Very delicate.
	——— capybara	Capybara	———	Oily and fishy taste.
	——— aguti	Agouti	S. America	Excellent flavour.
	——— acuschy	Olive cavy		
	——— aperea	Rock cavy		
	Castor fiber	Castor beaver	N. America	Good.
	Mus perchal	Perchal rat	India	Moderate.
	——— amphibius	Water rat	France	Idem.
	——— lemmus	Lemming rat	Lapland	Resembles squirrel.
	——— maritimus	African rat	Africa	Good.
	Arctomys marmota	Common marmot	S. Europe	Disagreeable.
	——— monax	Maryland marmot	N. America	Good.
	——— bobac	Bobak	———	Resembles hare
	Sciurus vulgaris	Common squirrel	N. Europe	Resembles barn-door f
	——— cinereus	Grey squirrel	———	Delicate.
	Myoxus glis	Fat dormouse	Europe gen.	Idem.
	Dipus jaculus	Common jerboa	East	Idem.
	Lepus timidus	Hare	Europe gen.	Stimul. well-flavoured
	——— cuniculus	Rabbit	———	Easy of digestion.
	——— viscaccia	Peruvian hare	S. America	Tender.
	——— capensis	Cape hare	S. Africa	White and good.
	——— minimus	Minute hare	———	Delicate.
	——— braziliensis	Brazilian hare	Brazil	Good.
	Hyrax capensis	Cape hyrax	S. Africa	Idem.
	——— syriacus	Syrian hare	Asia	Idem.

TABLE II.—*Continued.*

	Linnæan Name.	Common Name.	Where eaten.	Character as Food.
	Camelus glama	Glama	East	Like mutton.
	——— vicugna	Viccunna	———	Excellent.
	——— guanaco	Guanaco	———	Excellent.
	——— arcuanus	Chilihucque	S. America	Idem.
	Moschus moschiferus	Tibetian musk	Asia	Moderate.
	——— americanus	Brazilian musk	America	Delicate.
	Cervus alces	Elk	N. Europe	Light and delicate.
	——— tarandus	Rein deer	———	Good tongues valued.
	——— dama	Fallow deer	Universally	Easy of digestion.
	——— elaphus	Stag	Universally	Easy of digestion.
	——— muntjac	Rib-faced deer	———	Delicate.
	——— capreolus	Roe buck	———	Delicate.
	Antilope orcas	Indian antelope	East	Idem.
	——— ourebi	Ourebi antelope	———	Excellent.
	——— oreotragus	Kljpspringer antelope	———	Excellent.
	——— bubalis	Cervine antelope	———	Dry, but delicate.
	——— saiga	Scythian antelope	N. Asia	Disagreeable.
	——— gnu	Gnou	Africa	Fair grained and juicy.
	——— rupicapra	Chamois	Switzerland	Coarse and tough.
	Capra ibex	Wild goat	Switzerland	Coarse and tough.
	——— aegagrus	Caucasan goat	Asia	Highly esteemed.
	——— hircus	Domestic goat	Universally	Strong, nutritious.
	Ovis aries	Common sheep	Generally	Digest. and wholesome.
	Bos taurus	Common ox	Generally	Digest. and wholesome.
	—— taurus indicus major	Greater Indian ox	East	Lump in the shoulders a great delicacy.
	—— americanus	American bison	America	Good.
	—— bubulus	Buffalo	Africa	Idem.
	—— moschatus	Musk bull	Warm climates	Disagreeable.
	—— caffer	Cape ox	Africa	Coarse, marrow delicate
VI. Bellue.	Equus caballus	Generous horse	Tartary	Moderate.
	——— hemionus	Wild mule	Asia	Esteemed.
	——— asinus	Ass	Arabia	Excellent.
	Hippopotamus amphibius	Amphibious hippopotamus	Africa	Idem.
	Tapir americanus	Long-nosed tapir	America	Wholesome.
	Sus scrofa	Common hog	Generally	Strong and nourishing.
	—— tajassu	Mexican, or Peccary hog	America	Coarse.
	—— babyrussa	Indian, or Babyroussa hog	East	Wholesome.
VII. Cete.	Balæna mysticetus	Common whale	North & South	Dry and insipid.
	Delphinus phocæna	Porpoise	Generally	Tough and tasteless.
	——— delphis	Dolphin	Generally	Tough and tasteless.

TABLE III.

BIRDS yielding Human Food.—Linnæan Class, AVES.

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character, as Food.
I. Accipitres.	Strix wapacuthu	Wapacuthu owl	America	Delicate.
	Lanius ruficollis	Wood-chat shrike	Africa	Good.

TABLE III.—*Continued.*

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character, as Food.
II. Piceæ.	Corvus corax	Raven	North	Indifferent.
	——— frugilegus	Rook	Generally	Digest. & well flavour
	Cuculus canorus	Common cuckoo	———	Resembles land-rail.
	Picus viridis	Woodpecker, green	Europe	Indigestible.
	—— erythrocephalus	——— red-headed	———	Good.
	Sitta Europæa	European nut-hatch	———	Idem.
III. Anseres.	Anas cygnus	Wild swan	Europe	Esteemed.
	—— anser	Goose	———	Strong stimulant.
	—— bernicla	Bernacle, or Brent goose	———	Fishy, indigestible.
	—— moschata	Muscovy duck	———	Resembles lark.
	—— penelope	Widgeon	———	Resembles wild duck.
	—— ferina	——— red-headed		
	—— crecca	Common teal		
	—— boschas	Duck, wild	———	Delicate and stimulant.
	—— domestica	——, tame	———	Idem.
	Alca arctica	Puffin	North	Fishy.
	—— torda	Razor-bill	———	Admired.
	—— cirrhata	Tufted hawk	———	
	Pelecanus bassanus	Gannet	Generally	Fishy.
	Larus marinus	Black-backed gull		
IV. Grallæ.	Phænicopteros ruber	Red flamingo	Europe	Esteemed.
	Ardea grus	Common crane	—— & Africa	Tough, bad.
	—— cinerea	———heron	———	Valued.
	—— stellaris	Bittern	Generally	Resembles hare.
	Scolopax rusticola	Woodcock		
	——— gallinago	Snipe		
	——— gallinula	Gid, or jack snipe		
	——— glottis	Great plover	Europe	Light, savoury, and di-
	——— totanus	Spotted snipe		gestive.
	——— limosa	Stone plover		
	——— lapponica	Red godwit		
	Tringa pugnax	Ruff and reeve		
	——— vanellus	Lapwing		
	——— cinclus	Purre		
	——— squatorola	Grey plover		
	Charadrius morinellus	Totterell	Europe	Savoury.
	——— pluvialis	Green plover		
	——— ædicnemus	No-kneed bustard		
	——— himantopus	Long-legged plover		
	Fulica fusca	Brown gallinule		
	——— chloropus	——— moor hen	———	Digest. and stim.
	——— porphyrio	Purple gallinule		
	Rallus aquaticus	Water rail	———	Idem.
V. Gallinæ.	Pavo cristatus	Peacock	Europe & Asia	Rarely eaten.
	Meleagris gallopavo	Turkey	———	Light.
	Penelope cristata	Guiana Guan	America	Idem.
	Crax alector	Crested curassour	———	Idem.
	Phasianus gallus	Dunghill cock and hen	Europe	Delicate.
	——— colchicus	Common pheasant	———	Idem.
	Numida meleagris	Guinea hen	———	Idem.
	Tatrao urogallus	Mountain cock	———	Disagreeable.
	—— tetrix	Black cock	———	Digestible.
	—— scoticus	Red game		
	—— lagopus	White game		
	—— perdix	Common partridge	———	Light.
	—— coturnix	Quail	———	Inferior to the above.

TABLE III.—*Continued.*

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character, as Food.
VI. Passeres.	Columba domestica	Common pigeon	Europe	Savoury and stim.
	——— palumbus	Ring dove		
	Alauda	Lark	———	Delicate.
	Turdus viscivorus	Missel thrush	———	Highly esteemed.
	——— pilaris	Fieldfare		
	——— merula	Blackbird		
	——— polyglottus	Mimic thrush	America	Delicate.
	Loxia curvirostra	Cross bill	Europe	Tender.
	——— coccothraustes	Hawfinch		
	——— cloris	Greenfinch		
	Emberiza nivalis	Snow bunting	———	Savoury.
	——— miliaria	Bunting		
	——— hortulana	Ortolan	———	Delicate in the extreme.
	——— citrinella	Yellow hammer		
	——— oryzivora	Rice bird*	India & Amer.	Esteemed.
	Fringilla cœlebs	Chaffinch	Europe	Bitter taste.
	——— anonti fringilla	Brambling		
	——— domestica	House sparrow		
	——— montana	Tree sparrow		
	Motacilla modularis	Hedge sparrow	———	Savoury and Digest.
	——— ficedula	Epicurean warbler		
	——— œnanthe	Wheatear		
	——— rubetra	Whin chat		
	——— rubicola	Stone chatter		
	——— phœnicurus	Red start		
	——— erithacus	Red tail		
	Hirundo esculenta	Esculent swallow	Generally	Digestible.

* The nests of these birds are thought a delicacy by the Indians.

TABLE IV.

AMPHIBIA yielding Human Food.

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character, as Food.
I. Reptilia.	Testudo mydas	Green turtle	South Seas	Indigestible.
	——— caretta	Loggerheaded turtle	———	Coarse.
	——— ferox			Finely flavoured.
	——— græca	Land turtle	Greece	Esteemed.
	Rana pipa	Pipa	Surinam	Moderate.
	—— temporaria	Common frog	France	Idem.
	—— esculenta	Edible	———	Not very nutritious.
	—— catesbeina	Bull frog	———	Idem.
	Lacerta alligata	Alligator	America	White, delicious.
	——— iguana	Common guana	Bahamas	Delicate.
II. Serpentes.	Crotalus horridus	Banded Rattlesnake	America	White and delicate.
	Coluber vivipera	Viper	Italy	Nourishing.
	——— berus	Adder		

TABLE V.

Pisces.—Fishes yielding Human Food.

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character as Food.
I. Apodes.	Muræna anguilla	Common eel	Generally	Indigestible.
	——— conger	Conger eel	———	——— delicate.
	——— Romana	Roman muræna	Europe	Excellent.
	——— echidna	Southern muræna	Javan	Idem.
	Monopterus javanicus	Javan monoptere		
	Gymnotus carapo	Carapo gymnote	America	Wholesome
	Ophidium barbatum	Bearded ophidium	———	Coarse.
	——— mastacembalus	Mastacembalus	Asia	Like eel.
	Odontognathus aculeatus	Aculeated odontognathus	East	Moderate.
	Ammodytes tobianus	Sand lance	Isle of Wight	Esteemed.
	Trichiarus argenteus	Silver trichiure	America	Tolerable.
	Anarhicas lupus	Common wolf fish	N. Europe	Idem.
	Xiphias platypterus	Broad-finned sword fish	Generally	Coarse.
	——— makaira	Short snouted sword fish		
	Stromateus paru	Paru stromat	America & other places	Esteemed.
	——— cinereus	Ash-coloured stromat		
	——— argenteus	Silver stromat		
	——— niger	Black stromat		
II. Jugulares.	Callionymus lyra	Generous dragonet	North	Palatable.
	——— dracunculus	Sordid dragonet		
	Uranoscopus scaber	Bearded star-gazer	Generally	Coarse.
	Trachinus draco	Weaver	Europe	Esteemed.
	Gadus morrhua	Cod	Newfoundland	Idem.
	——— æglefinus	Haddock	European & other seas	Excellent.
	——— callarias	Dorse		
	——— barbatus	Pout		
	——— luscus	Bib		
	——— minutus	Poor		
	——— saida	Saida		
	——— merlangus	Whiting		
	——— carbonarius	Coal fish		
	——— pollachius	Pollack		
	——— morluccius	Hake	———	Indifferent.
	——— molva	Ling	———	Esteemed.
	——— lota	Burbot		
	——— brosme	Torsk		
	Blennius occellaris	Ocellated blenny	———	Coarse.
	——— gunellus	Gunnel		
III. Thoracici.	Echeneis remora	Sucking fish	European & other seas	Like fried artichoke.
	Coryphæna hippurus	Common coryphene	Moluccas & Europe	Excellent.
	——— equisalis	Brazilian coryphene		
	——— novacula	Razor coryphene		
	——— quinquemaculata	Five-spotted coryphene		
	——— chrysurus	Gilt tailed coryphene		
	Gobius niger	Common goby	Generally	Esteemed.
	——— jozo	Blue-finned goby	———	Poor.
	——— plumieri	Plumiers goby	———	Esteemed.
	Cottus gobio	River bullhead	N. Europe	Liver injurious.
	——— grunniens	Grunting		
	——— scorpius	Lasher		
	Scorpæna didactyla	Didactyle scorpæna	Generally	Excellent.

TABLE V.—*Continued*

	Linnæan Name.	Common Name.	Where Eaten.	Character as Food.
	Zeus vomer	Brazilian dory	Generally	Not much esteemed.
	—— ciliaris	Ciliated dory	——	Coarse.
	—— faber	Common dory	——	Esteemed.
	Pleuronectes hippoglossus	Halibut	N. Europe	Indigestible.
	—— cynoglossus	Lesser halibut	——	Superior.
	—— platessa	Plaice	——	Wholesome.
	—— limanda	Dab	——	Excellent.
	—— lævis	Smear dab		
	—— liniandoides	Long dab		
	—— flesus	Flounder		
	—— solea	Sole		
	—— zebra	Zebra sole	Indian seas	Esteemed.
	—— marmoratus	Marbled sole		
	—— tuberculatus	Turbot	Holland, &c.	Idem.
	Chætodon imperator	Imperial chætodon	East & other places	Excellent.
	—— catesbeii	Angel chætodon		
	—— vagabundus	Wandering chætodon		
	—— rostratus	Jaculator		
	—— bifasciatus	Bifasciated chætodon		
	—— glaucus	Glaucous chætodon		
	—— sordidus	Sordid chætodon		
	Acanthurus nigricans	Blackish acanthurus	India, America, & Arabia	Idem.
	Trichopus goramy	Goramy trichopus	China	Idem.
	Sparus aurata	Gilt head sparus	Europe	Idem.
	—— spinifer	Spined sparus		
	—— mæna	Sparus		
	Labrus scarus	Scarce labrus		
	Ophicephalus punctatus	Punctated ophicephalus	——	Delicate.
	—— striatus	Striated	——	Idem.
	Scomber scomber	Mackarel	——	Indigestible.
	—— thymnus	Tunny	——	Coarse.
	Mullus barbatus	Red surmullet	——	Digestible.
	—— surmulatus	Striped		
	Trigla lyra	Piper	——	Indigestible.
IV. Abdominales.	Cobitis barbatula	Loach, or ground ling	Europe	Savoury.
	Salmo salar	Salmon	——	Digest. Nutritious.
	—— trutta	Sea-trout		
	—— fario	Trout		
	—— alpinus	Charr		
	—— salmarius	Salmon trout		
	—— eperlanus	Smelt		
	—— albula	Whiting		
	—— thymallus	Grayling		
	Esox lucius	Pike	——	Ready of digestion.
	Mugil cephalus	Mullet	——	Indigestible.
	Clupea harengus	Herring	North	Idem.
	—— sprattus	Sprat		
	—— alosa	Shad		
	—— encrasicolus	Anchovy		
	Cyprinus barbus	Barbel	Europe	Coarse.
	—— carpio	Carp	——	Ready of digestion.
	—— gobio	Gudgeon		
	—— tinca	Tench	——	Moderate.
	—— cephalus	Chub	——	Coarse.
	—— leuciscus	Dace	——	Good.
	—— rutilus	Roach	——	Wholesome.
	—— alburnus	Bleak		
	—— brama	Bream		

TABLE V.—*Continued.*

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character as Food.
V. Chondropterygii.	Accipenser sturio	Sturgeon	Europe.	Nutritive.
	——— ruthenus	Starlet	———	Tender.
	——— huso	Isinglass fish		
	Squalus carcharias	White shark	———	Coarse.
	Raia batis	Skate		Idem.
	Petromyzon marinus	Lamprey	———	Indigestible
	——— fluviatilis	Lesser lamprey		
	——— branchialis	Lampern		

TABLE VI.

INSECTA.—Insects yielding Human Food.

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character as Food.
Hemiptera.	Gryllus migratorius	Migratory locust	Africa	Moderate.
	Cicada septendecim	American	India	Idem.
Hymenoptera.	Apis mellifica	Honey bee	Generally	Yields honey.
Aptera.	Cancer mænas	Common crab	Generally	Coarse.
	——— pagurus	Black-clawed		
	——— gammarus	Lobster	———	Indigestible.
	——— astacus	Craw fish		
	——— serratus	Prawn	———	Similar to lobster.
	——— cranjou	Shrimp		
	——— squilla	White		

TABLE VII.

VERMES.—Worms sometimes Eaten.

Order.	Linnæan Name.	Common Name.	Where Eaten.	Character as Food.
Mollusca.	Limax rufus	Red slug	Generally	Nutritious.
	Sepia sepiola	Cuttle fish		
	Echinus esculentus	Edible sea urchin	———	Indigestible.
	Pholas dactylus	Dactyle pholas	Italy	Delicate.
Testacea.	Cardium edule	Common cockle	Generally	Nutritious.
	Ostrea edulis	Common oyster	———	Quick of digestion.
	——— maxima	Scallop		
	Mytilus edulis	Eatable mussel	———	Rich.
	Helix pomatia	Esculent snail	———	Nutritious.

With respect to animal food generally, it may be observed that venison seems to unite the qualities of being lighter and most nutritious of any; the flesh of young animals yields more gelatine than that of the same animal in the adult state; that of wild animals is also sooner digested than that of domesticated ones. Salt meat is not so strengthening as fresh; and meat which has been kept for a short time, is considered to be more nourishing than that recently killed. Even meat in a state of incipient putrefaction is more easily digested than that which is quite fresh: it does not follow, however, that it is more wholesome; and children universally reject it. Roast meat is considered to be more nutritious than boiled; for, by the process of boiling, much of the nutritious matter is evaporated. For CONDIMENTS and DRINKS, see those articles.

ALIMENTARII Pueri, &c. in Roman antiquity, were certain children maintained and educated by the munificence of the emperors, in public places, not unlike our hospitals. Trajan was the first that brought up any of these alimentary boys. He was imitated by Adrian. Antoninus Pius did the same for a number of maids, at the solicitation of Faustina, and hence, in some medals of that empress, we read Pvellae Favstinianae. Alexander Severus followed his example, at the request of Mammæa; and the maids thus educated were called Mammæanæ.

ALIMENTARY Duct, or Canal, ductus alimentalis, is that part of the body through which the food passes, from its reception into the mouth, to its exit at the anus; including the gula, stomach, and intestines. The whole ductus alimentalis may be divided into four parts. 1. That which conveys the food, called the æsophagus. 2. That which digests, or corrodes it, called the stomach. 3. That which distributes the chyle, called the intestines. 4. That which discharges the fæces, called the rectum. This duct is said to be the true characteristic of an animal, there being no animal without it, and whatever has it, being properly ranged under the class of animals. Plants receive their nourishment by the numerous fibres of their roots, but have no common receptacle for digesting the food received, or for carrying off the recrements. But in all, even the lowest degree of animal life, we may observe a stomach and intestines, even where we cannot perceive the least formation of any organs of the senses, except the common one of feeling, as in oysters.

Alimentary Law, was an old law among the Romans, whereby children were obliged to find sustenance for their parents.

ALIMONY, Alimonia, in law, denotes that portion, or allowance, which a married woman sues for, upon any occasional separation from her husband, wherein she is not charged with elopement or adultery. It was anciently called rationabile estoverium, reasonable maintenance, and recoverable only in the spiritual court; but now it is recoverable also in chancery. When a woman is divorced à mensâ et thoro, she may sue her husband in her own name for alimony, or maintenance, out of her husband's estate, during the separation, either in chancery, or in the spiritual court.

ALIMOS, in botany, a name given by Greek writers to liquorice, from its quality of making the appetite insensible either to hunger or thirst.

ALINDA, Αλινδα, in ancient geography, a town of Caria, whose queen, Ada, adopted Alexander the Great as her son. A medal of this town represents a club, with a lion's skin, and within which, a crown of laurel, emblematical of Hercules; the inscription is ΑΛΙΝΔΕΩΝ.

ALINDESIS, or Alindes, in the ancient gymnastic medicine, a kind of exercise, wherein persons being besmeared with oil, roll themselves naked in the dust.

ALINGSAS, or Alingsahs, an inland town of Sweden, in the province of Elsborg, where there are silk, woollen, tobacco, and pipe manufactures. Lon. 12°. 20′. E. lat. 50°. 30′. N.

ALIO Die, in mythology, the formula used by the Augur when on religious grounds she dissolved the comitia or assemblies of the people, 'Quid gravius quàm rem susceptam dirimi, si unus augur alio die dixerit.' *Cic. de Leg.*

ALIPÆNOS, or Alipantos, from αλιπαινος, *a* negative, and λιπαινειν, to fatten, in the ancient physic, an appellation given to dry topical medicines, or such as have no fat mixed with them. It stands opposed to lipara, or plasters, which have fat in their composition; called also by Celsus, lenia. Galen gives the name αλιπη to the remedies which are applied to fresh wounds, in order to check the inflammation, and hasten their healing.

ALIPASMA, in ancient medicine, an ointment applied to the body to prevent perspiration.

ALIPEDE, from ala, a wing, and pes, the foot: nimble; swift-footed.

ALIPEE, a town of Cochin, in Hindostan, belonging to the rajah of Travancore. It is situated on a river communicating with that of Quilon, and is very populous, many merchants residing here who act as agents for houses at Bombay. Pepper, grain, and timber, are the chief exports. Lat. 9°. 42′. N.

ALIPILARIUS, or Alipilus, in antiquity, an officer belonging to the baths, who, by means of waxen plasters, took off the hairs from the alæ, or arm-pits. The alipilus answered to what the Greeks called δρωπακιστης. The ancient Romans made it a point of cleanliness to keep the armpits clear and smooth; and in after times went farther, and took off the hair from their arms, legs, and other parts, with pitch, rosin, and the volsella, an instrument for that purpose.

ALIPIUS, bishop of Tagaste, in Africa, the countryman and intimate friend of St. Augustine, and, like him, at one time, a zealous Manichee. He accompanied him to Rome, where he studied law, and had some considerable employments. He embraced the Christian religion, and was baptized by St. Ambrose the same day with his friend Augustine. He afterwards went to Palestine, where he became intimate with St. Jerome. On his return to Africa, in 394, he was chosen bishop of Tagaste. He assisted at several councils, particularly that of Carthage, where he shewed his zeal against the Donatists, and died in 430.

Alipius, in ancient history, a geographer of Antioch, and made governor of Britain, by the emperor Julian, to whom he dedicated a work on geography. He was afterwards exiled for following magical divinations.

ALIPOW, Montis Ceti, a kind of white turbith. It is found in several parts of Languedoc, particularly near Cete, whence its name of Montis Ceti. It is sometimes used instead of senna; but is a much stronger cathartic.

ALIPTA, from αλειφω, I anoint, in the ancient gymnastics, a slave appointed to anoint the athletæ. The aliptæ amount to the same with what are otherwise called unctores or jatraliptæ. The word is sometimes used for the director, or superintendant of the exercises of the athletæ; in which sense, it is synonymous with gymnastes, or pædotriba.

ALIPTERIUM, αλιπτηριον, in antiquity, the

place where the athletæ were anointed before their exercises, otherwise called elæothesion, unctuarium, and sometimes also ceroma.

ALIQUANT PART, in arithmetic, that part of a given quantity which will not divide it exactly, or without remainder. It is opposed to the aliquot part of a quantity; thus four is an aliquant part of ten. The following are the aliquant parts of a pound English:

3s.	is an aliquant part	= $\frac{1}{7}$th and $\frac{1}{20}$th of 1*l.*
6s.	. . . . .	= $\frac{1}{3}$th and $\frac{1}{10}$th.
7s.	. . . . .	= $\frac{1}{3}$th and $\frac{1}{10}$th.
8s.	. . . . .	= $\frac{2}{5}$ths.
9s.	. . . . .	= $\frac{1}{4}$th and $\frac{1}{5}$th.
11s.	. . . . .	= $\frac{1}{2}$ and $\frac{1}{20}$th.
12s.	. . . . .	= $\frac{1}{2}$ and $\frac{1}{10}$th.
13s.	. . . . .	= $\frac{1}{2}$, $\frac{1}{10}$th, and $\frac{1}{20}$th.
14s.	. . . . .	= $\frac{1}{2}$ and $\frac{1}{5}$th.
15s.	. . . . .	= $\frac{1}{2}$ and $\frac{1}{4}$th.
16s.	. . . . .	= $\frac{1}{2}$, $\frac{1}{5}$th and $\frac{1}{10}$th.
17s.	. . . . .	= $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{10}$th.
18s.	. . . . .	= $\frac{1}{2}$ and $\frac{2}{5}$ths.
19s.	. . . . .	= $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{5}$th.

ALIQUOT PART, in arithmetic, that part of a given quantity which will equally and exactly divide it. It is opposed to the aliquant part; thus, four is an aliquot part of twenty. The following are the aliquot parts of a pound English:

10s.	. . . . .	= $\frac{1}{2}$ of 1*l.*
5s.	. . . . .	= $\frac{1}{4}$th.
4s.	. . . . .	= $\frac{1}{5}$th.
2s.	. . . . .	= $\frac{1}{10}$th.
1s.	. . . . .	= $\frac{1}{20}$th.
6s. 8d.	. . . . .	= $\frac{1}{3}$d.
3s. 4d.	. . . . .	= $\frac{1}{6}$th.
2s. 6d.	. . . . .	= $\frac{1}{8}$th.
1s. 8d.	. . . . .	= $\frac{1}{12}$th.
1s. 4d.	. . . . .	= $\frac{1}{15}$th.
1s. 3d.	. . . . .	= $\frac{1}{16}$th.
10d.	. . . . .	= $\frac{1}{24}$th.
5d.	. . . . .	= $\frac{1}{48}$th.

ALIRROTHIUS, a son of Neptune, killed by Mars for an attempt upon the chastity of Alcippe his daughter. Neptune cited Mars before him on the hill Areopagus, which derived its name from this circumstance.

ALISANDERS, or ALEXANDERS, in botany. See SMYRNIUM.

ALISANUS, in botany, the Rhexia virginica of Linnæus. See RHEXIA.

ALISE, a small town of France, in the department of the Cote d'Or, or the Auxois, Burgundy, about twenty miles W. N. W. of Dijon. It stands on the site of the ancient ALESIA, which see.

ALISHUNG, or ALISHUN, a district of Afghaunistan, in India, situated between the thirty-fifth and thirty-sixth degrees of north latitude, and sixty-eighth and sixty-ninth of east longitude, and surrounded by lofty mountains, generally covered with snow, whence the river Alishung has its rise. The chief town is Penjshehr.

ALISMA, or WATER PLANTAIN, so called from its supposed virtue in curing the bite of a sea-hare. It was also supposed to have the power of breaking the stone in the kidneys.—GENUS, polygynia: CLASS hexandria: NATURAL ORDER, Tetrapetaloideæ: CAL. a three leaved perianthium: COR. three roundish, large, [illegible] panding petals: STAM. six awl-shaped, [illegible] shorter than the corolla: ANTH. roundish, [illegible] more than five germina: STYLI, simple, [illegible] blunt; the seeds, small and solitary. [illegible] genus there are nine species, viz.: 1. Alisma Cordifolia, a native of America, found [illegible] nating waters. 2. Alisma Damasonium, [illegible] headed water plantain, a native of [illegible] Alisma Flava, or yellow water plantain, a native of America, grows in swamps. 4. Alisma tans, or creeping water plantain, a native Britain. 5. Alisma Parnassifolia, a native America, found in boggy ground. 6. Alisma plantago, or great water plantain, grows in the marshy parts of Scotland. 7. Alisma culoides, or lesser water plantain, also a native this country. 8. Alisma subulata, a native America. 9. Alisma repens, a native of [illegible] growing on the banks of the Manzanares.

ALISO, in ancient geography, a river of many, which flows into the Lippe, not far Paderbon. It is now called Alme. Ptolemy mentions a place near the Rhine by the name Αλισον.

ALISONTIA, or ALISUNTIA, in ancient geography, a river of Belgic Gaul, now Alsette, rising on the borders of Lorrain, and running through the duchy, waters the city of Luxemburg, and falls into the Sur.

ALITE'. A little.

He rested bot *a lite*, a sonde pe Inglis him sende
R. Brunne.

For leueth well and sooth is this
That whan I knowe all howe it is,
I woll but forthren hem *alite*.
Gower. Con. A.

ALITES, in ancient mythology, birds which afforded auguries by their flight, in contradistinction from oscines, or those which gave auguries by singing or croaking, &c. To the class of alites belonged the buzzard, osprey, &c. To the oscines, the crane, raven, owl, &c.

ALJUBARROTA, a market town in the district of Leira, Portuguese Estremadura, containing about 1600 inhabitants. It is ten miles W. of Leira.

ALJUSTREL, a town of Portugal, in the province of Alentejo, 16 miles from Beja, containing 1,500 inhabitants. There is another town of this name in Estremadura, four miles from Thomar.

ALIVE'. On live. In life. See LIVE.

Our quene pat was pen dame Helianore pe wife
pe gode, erle of Warenne, Sir Hugh was pat
R. Brunne.

For as the fishe, if it be drie,
Mote in defaute of water die;
Right so without aire, *on lieu*
No man, ne beast, might thriue.
Gower. Con. A.

Nor well *alive*, nor wholly dead, they were,
But some faint signs of feeble life appear.

Not youthful kings, in battle seiz'd *alive*;
Not scornful virgins, who their charms survive.

And to those brethren said, rise by-live,
And unto battle do yourselves address:
For yonder comes the prowest knight *alive*,
Prince Arthur, flower of grace and nobleness.
Faerie Queene

The earl of Northumberland, who was the proudest man *alive*, could not look upon the destruction of monarchy with any pleasure. *Clarendon.*

John was quick, and understood business; but no man *alive* was more careless, in looking into his accounts. *Arbuthnot.*

Contemn thou while thou art *alive*, that, which thou canst not enjoy, when thou art dead.

Bp. Hall's Remedy of Discontentment.

His soul, where moral truth spontaneous grew,
No guilty wish, no cruel passion knew;
Though tremblingly *alive* to nature's laws,
Yet ever firm to honour's sacred cause.

Falconer's Shipwreck.

ALKA, the auk. See ALCA.

ALKADARII, from Akladar, Arab. a decree, a sect of the Mahommedans, who deny any eternal, fixed, divine decrees; being asserters of free will. They are a branch of Moatazalites, and stand opposed to the Algiabarii.

ALKAHEST, in alchemy, compounded of al and geest, Germ. i. e. all spirit, according to Paracelsus and Van Helmont, is a certain fluid in nature, capable of reducing all sublunary bodies, into their ens primum, or original matter or into an uniform portable liquor, that will unite with water, and the juices of our bodies. Van Helmont, declaring that he himself possessed the secret, excited succeeding chemists and alchemists to the pursuit of so wonderful a menstruum; and Mr. Boyle is said to have declared that he had rather have been master of it than of the philosopher's stone. The different conjectures of chemists, with regard to the matter of the alkahest, are innumerable; some expected to obtain it from sea-salt and mercury; others wrought on equinoctial dew; others on rain-water, others on talc, on zinc, on antimony, &c. &c. But Kunkel very properly asks, If the alkahest dissolves all substances, in what vessel can it be contained? Alkahest is used in a more extensive sense for all fixed salts volatilized, and reduced into a quintessence.

ALKAKENGI, or winter cherry, the fruit of a species of nightshade.

ALKAKENGI, in medicine, is used as an abstergent, dissolvent, and diuretic, and is celebrated for its lithontriptic quality; it is also prescribed to cleanse the urinary passages in the gravel, and other obstructions. Its detersive quality also recommends it against the jaundice, and other disorders of the viscera.

ALKALI, in botany. See KALI and SALICORNIA.

ALKALI, a term in chemistry applied to an order of salts of considerable importance. It has been traced by some to the Arabic word, alkhalet, burnt; but it is more generally derived from the word kali, the name of a plant, from the ashes of which one species of alkali can be extracted. The substances that are met with under the denomination of alkaline, are possessed of certain properties of a peculiar kind; they are mainly characterized, however, by a power of combining with acids in such a manner as to impair the activity of the latter, so that alkalis, as chemical agents, are distinguished by properties the reverse of acids; acids and alkalies being thus generally considered as antagonist principles.

But besides the power of neutralizing acids, and thereby forming certain saline substances, the alkalies are further distinguished by the following properties:

First, they have an acrid taste, and corrosive power when applied to some substances; thus proving caustic to the skin and tongue.

Secondly, They change the blue colour of vegetables to a green, the red to purple, and the yellow to a reddish brown. If the purple have been reddened by acid, alkali will restore the original colour.

Thirdly, They are almost unlimitedly soluble in water; that is, they combine with it in every proportion.

Fourthly, They unite with oils and fats, and form by this union the well-known compound called soap.

There is another class of substances which have a strong analogy with alkalies, especially in reference to their opposition to acids, viz. the earths; these indeed by Fourcroy were arranged among the alkalies, but they have been kept apart by other systematic writers, on the ground of the analogy between the one and the other being far from amounting to an identity of essence and peculiar property.

The true alkalies have been arranged by a modern chemist into three classes.

First, Those which consist of a metallic basis, combined with oxygen. These are three in number, potash, soda, and lithia. Secondly, That which contains no oxygen, viz. ammonia. Thirdly, Those containing oxygen, hydrogen, and carbon. In this class are placed aconita, atropia, brucia, cicuta, datura, delphia, hyoscyamia, morphia, strychina. And it is supposed that the order of vegetable alkalies, may by subsequent discoveries, be proved as numerous as the vegetable acids. The original distribution of alkaline substances was into volatile and fixed—the volatile alkali being known under the name of ammonia, while one of the fixed was called potash or vegetable, because procured from the ashes of vegetables generally—the other soda, or mineral, on account of its having been principally obtained from the incineration of marine plants.

In respect to the principle of alkalescence generally, this, like that of acidity, has recently been the subject of an investigation, which has led to very important inferences. Alkalies and earths, it has already been said, display in their relations to acids, considerable analogy; and the substances that are known under the denomination of metallic oxydes, have nearly the same connexions. Now the constitution of these last having been ascertained, it might have been fair to suppose that the former are of a similar nature; but their real composition was not at all understood, until the splendid discoveries of Sir H. Davy, who, having submitted potash and soda to the action of a powerful galvanic battery, observed that at the negative pole globules were collected, having metallic lustre, while at the positive side, a gas was disengaged, which proved to be oxygen. These results, Sir H. D. fairly inferred, arose from the decomposition of the alkalies, which he thence considered as com-

pounds of metallic substances with oxygen; and thus has for ever been banished the hypothetical principle of Morveau, who conceived hydrogen to be the principle of alkalescence as Lavoisier had judged oxygen to be the essence of acidity. But although, so far, both the analytic and synthetic experiments are complete and satisfactory in relation to the components of alkalies, we must not push the inference to too great an extent; for ammonia seems to shew that the alkaline principle may exist independent of oxygen; nor is there at present any proof that metallic matter constitutes the base of this last-mentioned substance.

Analysis and synthesis have, however, gone far enough to prove, that in the composition of the acids and alkalies, there is some sort of analogy, or rather to show that it is the mode in which the constituents of each are united, rather than the nature of the constituents themselves, which gives rise to the acid or alkaline condition. According to Dr. Murray, indeed, 'the class of alkalies will exhibit the same relations as the class of acids.' 'Some,' he says, 'are compounds of a base with oxygen, such are the greater numbers of the metallic oxides, and probably of the earths. Ammonia is a compound of a base with hydrogen. Potash, soda, barytes, strontites, and probably lime, are compounds of bases with oxygen and hydrogen; and these last, like the analogous order among the acids, possess the highest powers. Acidity, he says, is produced in a higher degree by the joint action of oxygen and hydrogen, than by the operation of hydrogen alone. A similar result, there is reason to conclude, exists in their relations to alkalinity. The most powerful alkalies, potash and soda, and the earths which have the highest degree of alkaline energy have been supposed to contain water in considerable proportion, in intimate combination, in their insulated form. There is every reason to draw the same conclusion with regard to this; as with regard to the supposed pressure of combined water in the stronger acids. It is probable that the elements rather exist in the combination; and thus the alkalies, applying the term in its most extensive signification, to denote those substances which neutralize acids, display the same relations as acids.' But against this elementary hypothesis of Murray, Dr. Ure starts objections somewhat similar to those he had urged in reference to the principle of acidity; and we shall conclude the present article, by extracting the observations made by Dr. Ure on this head.—'Surely,' says he, 'perfectly *dry* and caustic barytes, lime, and strontites, as well as the dry potash and soda, obtained by Gay Lussac and Thenard, are not inferior in alkaline power to the same bodies after they are slacked or combined with water: 100 parts of lime destitute of hydrogen, that is pure oxide of calcium, neutralize seventy-eight parts of carbonic acid. But 132 parts of Dr. Murray's *strongest* lime, that is the hydrate, are required to produce the same alkaline effect. If we ignite nitrate of barytes, we obtain, as is well known, a perfectly dry barytes or protoxide of barium; but if we ignite crystallized barytes, we obtain the same alkaline earth, combined with a prime equivalent of water.' These two different states of barytes were demonstrated by M. Berthollet, in an excellent paper published in the second volume of the Memoires D'Arcueil, so far back as 1809:—'The first barytes,' says he, 'presents all the characters of a combination; it is engaged with a substance which *diminishes* its action on other bodies, which renders it more fusible, and which gives it by fusion the appearance of glass. This substance is nothing else but water; but in fact, by adding a little water to the second barytes, (that from ignited nitrate, as opposed to that from crystallized barytes,) and by urging it at the fire, we give it the properties of the other.' 100 parts of barytes void of hydrogen, or dry barytes, neutralize 28½ of dry carbonic acid. Whereas 111⅛ parts of the hydrate, or what Dr. Murray has styled the most energetic, are required to produce the same effect. In fact, it is not hydrogen which combines with the pure barytic earth, but hydrogen and oxygen in the state of water. The proof of this is, that when carbonic acid and that hydrate unite, the exact quantity of water is disengaged. The protoxide of barium or pure barytes, has never been combined with hydrogen by any chemist. For an account of the different alkalies, see under their respective names, and also the article CHEMISTRY.

ALKALIMETER, in chemistry, a scientific instrument invented by Descroizelles to measure the purity of different alkalies; it acts by ascertaining how many times their own weight they require in sulphuric acid to complete their saturization.

ALKANET, in botany. See ANCHUSA.

ALKENDI, (Jacobus,) a celebrated Arabian philosopher, born at Balsora, in the beginning of the ninth century. Alkendi appears to have studied philosophy with attention and success. He explained the writings of Aristotle to the schools, and obtained so much celebrity that Cardan ranks him as one of the first twelve sublime spirits of the world. His moderation is greatly exemplified by the following anecdote related of him by Abulfaragius. Alkendi having endeavoured to explain the doctrines of the Alcoran, as consistent with the principles of philosophy, was accused by one Abu-Maasher, an advocate for the vulgar interpretation, of impiety. Instead of using his influence with the caliph to silence this bigot, he procured a person to teach him philosophy, and by his kindness won him to become one of his most zealous disciples. Alkendi's principal works are a treatise entitled De Temporibus et Mutationibus. 2. De Gradibus Medicinarum compositarum investigandis. 3. De Ratione sex Quantitatum. 4. De Quinque Essentiis. 5. De Motu Diurno. 6. De Vegetabilibus. 7. De Theoria Magicarum Artium.

ALKERMES, in medicine, a term borrowed from the Arabs, denoting a celebrated remedy, of the consistence of a confection; whereof the kermes berries are the basis. The other ingredients are pippin-cyder, rose-water, sugar, amber-grease, musk, cinnamon, aloes-wood, pearls, and leaf-gold; but the sweets are usually omitted. The confectio alkermes is chiefly made at Montpelier. The grain which gives it the denomination, is no where found so plentifully as there

ALKIBRIC, in chemistry, sulphur vivum.

ALKIN, in chemistry, pot-ash.

ALKIR, in chemistry, smoke of coal.

ALKORAN. See ALCORAN.

ALKUSSA, in ichthyology, a name given by the Swedes to the fish which they also call lake. It is a species of the silurus, distinguished by Arredi as the silurus with one cirrus, or beard under the chin; the common silurus, the glanus of the ancients, having four cirri.

ALL, *n. adj.* & *adv.* Gothic, *alle;* Æll. alle, Sax. Old Welsh; *al*, Dutch; *alle*, German; ολως, Gr. The whole number; every one, taken together; quite; completely. In our old writers it may be often considered expletive, or emphatic. It is found, in composition, without changing the sense of the word, to which it gives additional force.

He sent for *alle* pe kynges fro Berwik vnto Kent,
And pei with fulle gode wille *alle* vnto him went.
R. Brunne, p. 19.

And who ever wole be the firste among you schal be servaunt of *alle*. *Wicklif. Mark*, x.

Six days thou shalt labour, and do *all* thy work.
Deut. v. 13.

All the fitter, Lentulus; our coming
Is not for salutation; we have bus'ness.
Ben Jonson.

When I shall wed;
That lord, whose hand must take my plight, shall carry
Half my love with him, half my care and duty:
Sure, I shall never marry, like my sister,
To love my father *all*. *Shaksp. King Lear.*

Then shall we be news-cramm'd.—*All* the better; we shall be the more remarkable. *Shakspeare.*

Up, with my tent; here will I lie to-night:
But where, to morrow?—Well, *all's* one for that.
Shakspeare.

Brutus is an honourable man:
So are they *all*; *all*, honourable men.
Shaksp. Julius Cæsar.

To graze the herb *all* leaving,
Devour'd each other. *Milton's Parad. Lost.*

Sceptre and pow'r, thy giving, I assume:
And glad, her shall resign; when, in the end,
Thou shalt be *all* in *all*, and I in thee,
For ever; and in me, all whom thou lov'st. *Milton.*

I am of the temper of most kings; who love, to be in debt; are *all* for present money, no matter how they pay it afterward. *Dryden.*

No more with fruitless care, and cheated strife,
Chase fleeting pleasure through the maze of life;
Finding, the wretched *all* they here can have,
But present food, and but a future grave. *Prior.*

Ye sons of men, with just regard attend,
Observe the preacher, and believe the friend,
Whose serious muse inspires him to explain,
That *all* we act, and *all* we think, is vain.
Prior's Solomon. Knowledge.

Our *all* is at stake, and irretrievably lost, if we fail of success. *Addison.*

Thus let me hold thee to my heart,
And ev'ry care resign;
And shall we never, never part,
My life—my *all* that's mine.
Goldsmith's Hermit.

ALL-FOURS, a game of cards played by wo persons; so called from the four sorts of cards, called high and low, jack of trumps, and the game, which, joined in the hand of either party, constitute him the winner.

ALL-GOOD, in botany, the chenopodium, or bonus henricus, of Linnæus, so called because it is applied by common people to heal slight wounds.

ALL-HALLOW FAIR, an annual fair held in Edinburgh, beginning the second Monday of November, and lasting a week, chiefly for black cattle and horses.

ALL HANDS HOAY, in sea language, the order by which the ship's company is summoned on deck by the boatswain. *All hands to quarters hoay*, is the order to the crew for preparation for battle. This command is more generally given by the boatswain piping down the hatchway.

ALL IN THE WIND, the state of a ship's sails when parallel to the direction of the wind, so as to shake and shiver, by turning the ship's head to windward, either by design, or neglect of the helmsman.

ALL-HEAL, in botany, the stachys of Linnæus. See STACHYS.

ALL-SAINTS, a festival, called also All-Hallows, celebrated on the first of November, in commemoration of all saints in general. The number of saints being excessively multiplied, it was found too burdensome to dedicate a feast day to each; there being, in fact, scarce hours enough in the year for this purpose. It was therefore resolved to commemorate, on one day, all who had no particular days. Boniface IV. in the ninth century, introduced the feast of All-Saints in Italy, which was soon after adopted into the other churches.

ALL-SAINTS ISLANDS, a small group of islands lying near Guadaloupe, in the West Indies.

ALL-SAINTS, a large convenient bay on the coast of Brazil, province of Bahia. It is thirty-seven miles from north to south, and twenty-seven from east to west. Its entrance is about eight miles from point Tagapipe to that of San Antonio. In this bay vessels are sheltered from every wind in clear ground, and there is ample space for an immense number of ships to harbour here without confusion. There are many smaller bays in it, convenient for careening vessels, and also many fertile islands. On the west side are two shoals, which, however, are not dangerous, sufficient space being left for the passage of vessels, without approaching them. Several rivers fall into this bay, the principal are Paraguasu, Sergippe, Jaguaripe, Matuim, Paranamerin, and Piraja. This capacious lake or inland sea, as it might be called, is surrounded by a rich and fertile country, the neighbouring shores being covered with sugar plantations, the productions of which are conveyed in large barges by the rivers The trade has greatly increased since the commercial treaty concluded with great Britain, after the royal family of Portugal quitted Europe. The surrounding coast abounds with whales; a few large boats are employed in this fishery; but the oil procured is hardly equal to the consumption. The eastern part of the bay lies in long 38°. 42′. W. lat. 12°. 42′. S.

ALL-SAINTS (bay of), a deep bay on the coast of New California, or New Albion. Point Grajero, its northern promontory, is situated in long 243°. 34′. E. lat. 31°. 43′. N.

ALL-SEED, in botany, a name given to the

Chenopodium polyspermum, or linum radiola of the Linnæan system.

ALL-SOULS DAY is a festival held in commemoration of all the faithful deceased; first introduced in the eleventh century, by Odilon, abbot of Cluny, who enjoined it on his own order; and soon after adopted by the neighbouring churches.

ALL-SPICE. See MYRTUS PIMENTO.

ALLA, or ELLI, the first king of Sussex, who landed in England with a Saxon army, in 477, and having made himself master of that part of the country, erected it into a kingdom, and died in 514, after a reign of twenty-three years. *Polyd. Virg.*

ALLA, OR ALLAH, the name by which the professors of Mahommedanism call the Supreme Being. The word is Arabic, derived from the verb alah, to adore. It is synonymous with the Hebrew Eloah, which signifies the Adorable Being.

ALLAGITE, in mineralogy, a carbo-silicate of manganese.

ALLAHABAD, a province of Hindostan, lying between the twenty-third and twenty-sixth degrees of north lat., and the seventy-ninth and eighty-third of east long. It is bounded on the north and north-west by the provinces of Oude and Agra; on the east by Bahar and Gundwana; on the south by Gundwana and Berar; and on the west by Agra and Malwah. Its greatest length is about 250 miles, and its breadth about 120 miles, comprehending, according to the arrangement of the Ayeen Akberry, ten circars, or counties, and 177 pergunnahs, or hundreds; and capable, at the time of the completion of that celebrated volume, of yielding 11,375 cavalry, 237,870 infantry, and 323 elephants. The chief towns are Allahabad ('the House of God,' or 'King of Adorable Places,' as it signifies); Benares, the ancient seat of Brahminical learning, Callingur, Chunar, Chatterpore, Ghazypore, Joanpour, and Mirzapour; and it is well watered by the Ganges, the Jumna, and their various tributary streams. A large portion of the inhabitants are native Hindoos, and the rest, perhaps one-eighth, Mahommedans.

On the dismemberment of the Mogul empire, in 1749, this province was seized by Mahomet Kooli, an ally of the Zemindar of Benares, with whom he entered the Bengal provinces, in 1760, at the head of 60,000 men. The British, then acting as allies of the nabob of Bengal, conducted an inferior force to meet him, to which he was ultimately obliged to surrender himself; and this district, with that of Corah, was again ceded to the mogul, the emperor having the fort of Allahabad for his residence. In return, he confirmed the rights of the British to their territorial acquisitions on the coast of Bengal, the great foundation of the British power in India. Of the Benares part of this province, the British, obtained possession on the death of Sujah Dowlah, in 1775; of the capital and central districts in 1801; and of Bundelcund, and the southern parts of the province, by treaty with the Paishwa of the Poonah Mahrattas in 1803.

The diamond mine at Pannah, in this province, was formerly considered the most remarkable mine in India, and seems to have been known to Ptolemy. It was a source of considerable revenue to the emperor Acber, as well as to the native chiefs of Bundelcund, where it is situated. To the former, it yielded eight lacks of rupees annually. In 1756 it was considerably exhausted, and only yielded four lacks of rupees to the rajah. Latterly it has excited little attention, and, we therefore conclude, affords but little profit. Muslins, cotton, opium, indigo, salt-petre, sugar, grain, and a great variety of fruits, form the other produce of Allahabad. The population is said to exceed seven millions.

Allahabad is, on the whole, one of the most productive provinces of Hindostan. In the neighbourhood of the river, particularly, wheat flourishes exceedingly well, and will yield seven quarters per acre. Land is rented here at about a pound an acre. Ploughing is begun at the commencement of the rainy season, in June; but the land is only turned up once until the rains cease. It is then ploughed fourteen or fifteen times before it is thought fit for the seed. But a still more laborious occupation of the agriculturist is to keep it watered in the dry season, a task which will employ four bullocks and three waterers, for nine days, on a single acre. They sow in September and October, after rains, peas, barley, and oil crops with the wheat.

In the province of Allahabad are two famous resorts of Hindoo superstition, Benares and Pragaya (Allahabad), which have for ages attracted their thousands from all parts of India.

The Bundelcund portion of this province rises to the south-west in elevated table lands, which abound with fortresses, but are very ill cultivated. Here the climate is as delightfully temperate, as in the flatter and more fruitful districts; it is insupportably sultry to Europeans. This part of the province has no considerable streams, and principally depends for irrigation on the periodical rains. There is a small breed of sheep cultivated in this district, the fleece of which is used as a rug for the shepherds, it being wholly unfit for weaving.

ALLAHABAD, the capital of the province of that name, is situated near the junction of the Jumna and the Ganges. It is divided into two parts, the Old Town and the New. The former stands on the site of the ancient town of Praeg, or Bhat Prayag, held in the highest veneration throughout Hindostan; so that notwithstanding all its changes of masters and of appearances, Allahabad is still the resort of numerous pilgrims, who come hither to offer their devotions to the Ganges and perform their ablutions in its waters. The surrounding country, to the extent of forty miles, is esteemed by these devotees as a sort of holy ground. This ancient part is mainly distinguished by the magnificent ruins of a fortress of stone, erected here by the emperor Acber. The walls are said to have been forty feet high throughout, including a number of elegant courts and domes. In the centre, a column of one stone, nearly forty feet high, is still standing, which records the honours of the emperor, in Sanscrit and Persian, the date of the building, 1583, &c. There is an extensive subterraneous cave in the middle of this fort, supported by

pillars, in which some of the most important rites of the Hindoo devotees are performed. It is said to extend under ground to Delhi. We should not omit to notice, that Dr. Robertson regards this place as occupying the situation of the palibothra of Strabo and Arrian, the celebrated capital of the Prasii.

On the sides that are presented to the two rivers, the fort retains its old walls, which are mounted with some pieces of cannon. The other side has three regular modern ravelins, two bastions, and a half bastion, whose foundations are much higher than the surrounding country. There is a spacious government house within the walls, containing some elegant rooms that overhang the river, and an extensive barrack.

The modern town is the residence of a British judge, and of the collector of the province. Population about 20,000. The fort stands in north lat. 25°. 27′. and east long. 81°. 50′. at about fifty-three miles from Benares, and 550 from Calcutta.

ALLAHABAD, is also the name of a district surrounding the above city, and contains some of the most fertile lands of the province.

ALLAH-SHEHR, i. e. CITY OF GOD; a town of Natolia, in Turkish Asia, the Philadelphia of the ancients. It contains some few remains of its ancient strength and importance; particularly portions of the strong walls and towers with which it was once encompassed. The inhabitants, however, are not very numerous: they are a mixture of Turks and Greeks; but during the passage of the caravans to and from Smyrna, (distant about five days' journey,) the town is much frequented. The Greeks are said to amount to about three hundred and ten families, living on friendly terms with the Mahommedans. Here is a lofty and beautiful cathedral for the use of the Greeks. Besides which, they have upwards of twenty inferior churches, though few in a state fit for public worship. This town is about five leagues from Sardis, or Sart.

ALLAMANDA, in botany; a genus of the monogynia order, and pentandria class of plants. Characters: CAL. one-leaved perianth. COR. one funnel-shaped petal: TUBE, cylindric: BORDER semiquinquefied and verticose; divisions expanding and obtuse: STAM. filaments scarce any: ANTH. five arrow-shaped, converging in the throat of the tube: PIST. oval germen, girt at the base with an annular margin; stylus uniform, the length of the tube: STIGM. headed and contracted in the middle: PER. is an orbicular, compressed, bristly capsule, containing one cell with two valves: the seeds are imbricated, orbicular, flat, with a membraneous wing on the margin, and are very numerous. There is but one species, viz. allamanda cathartica, a native of Surinam.

ALLAMPARVA, a fort on the coast of the Carnatic, Hindostan, originally presented by the native powers to the French, by whom it was ceded to the British in 1760. It is sixty-seven miles south by west from Madras. North lat. 12°. 10′. east long. 80°. 7′.

ALLAN, a river of Perthshire, which rises near Gleneagles, in the parish of Blackford, runs west through Strathallan, and, after passing Dumblane, falls into the Forth, a mile above Stirling bridge.

ALLAN, (David,) a Scottish portrait and historical painter of the eighteenth century, was born at Edinburgh. After a long course of study at Rome, he was, in 1780, appointed master of the academy established in Edinburgh for diffusing the knowledge of the fine arts. There are several engravings from his pictures, one of which, entitled the Origin of Painting, or the Corinthian Maid, drawing the shadow of her lover, is well known and justly appreciated. He died in 1796.

ALLAN, (George,) an attorney and antiquary of Darlington, in Yorkshire, who died in 1800. He had a printing-press in his own house, and issued many curious tracts, as, The Letter of Cromwell to William Lenthall, Esq. speaker of the House of Commons, for erecting a College and University at Durham, &c. 4to. Mr. Allan liberally communicated MSS. to the completion of a civil and ecclesiastical history of the county palatine of Durham, having presented to the Society of Antiquaries of London twenty-six quarto volumes of MSS. chiefly gathered by the Rev. William Smith, of University College, Cambridge, and formerly rector of Melsonby, Yorkshire.

ALLANITE is a mineral first recognised by Mr. Allan of Edinburgh. Its analysis and description, by Dr. Thomson, were published in the sixth volume of the Edinburgh Philosophical Transactions. M. Giesecke found it in a granite rock in West Greenland. It is massive and of a brownish-black colour. External lustre, dull; internal, shining and resinous—fracture small conchoidal — opaque — greenish-grey streak — scratches glass and hornblende—brittle—spec. grav. 3.5 to 4.0. Froths and melts imperfectly before the blow-pipe, into a black scoria. It consists in 100 parts, of silica 35.4, oxide of cerium 33.9, oxide of iron 25.4, lime 9.2, alumina 4.1, and moisture 4.0. It has been also found crystallized in four, six, or eight sided prisms. It closely resembles gadolinite, but may be distinguished from the thin fragments of the latter, being translucent on the edges, and of a fine green colour, whereas those of the former are commonly opaque and of a yellowish brown. The ores of cerium analyzed by Berzelius, under the name of cerin, approach very closely to it in their composition.

ALLANTODIA, in botany, from αλλας, αλλαντος, a sausage, so called from the tumid oblong figure of the sori or lines of capsules, wrapped within their membraneous covering. Class and order, cryptogamia, filices. NAT. ORD. filices. ESS. CHAR. fructification in scattered oblique lines accompanying a vein, involucrum vaulted, originating laterally from the vein, and inserted into it by both margins; at length separating at the inner one. The habit of this genus, says Mr. Brown, is between nephrodium and diplazium. Polypodium umbrosum Hort. Kew. ed. 1, affords an example of it, and there are some unpublished species. We are acquainted with.

A. umbrosa. Madeira wood sausage-fern. Frond triply pinnate; ultimate segments lan-

ceolate, decurrent, deeply serrated; the lower serratures cloven. Lines contiguous; finally confluent.—Gathered in shady woods in Madeira, by the late Mr. Masson, who sent roots to Kew, in 1779, and gave specimens to the younger Linnæus. A. australis. Southern sausage-fern. Br. n. 1.—Frond doubly pinnate, deltoid, membraneous, flaccid. Leaflets pinnatifid, tapering at the point; lobes oblong, obtuse, deeply serrated, many-flowered. Involucrum oblong.—Native of Van Diemen's island.—A. tenera. Tender sausage-fern. Br. n. 2 —Frond doubly pinnate, membraneous, flaccid. Leaflets pinnatifid: lobes oblong, obtuse, serrated, flowering at the base. Spots linear.—Gathered by Mr. Brown, in the neighbourhood of Port Jackson, New South Wales. The Aspidium axillare, Willd. Sp. Pl. v. 5. 278. Ait. ed. 2. v. 5. 512, should seem, if the specific character of Willdenow were right, to belong to the present genus.

ALLANTOIS, in anatomy, a urinary membrane so called from its resemblance to a pudding. It makes a part of the secundine, appearing differently in different animals, and most conspicuously in the cow and sheep kind. Its length in the former extends to about twelve feet. It is very dilatable, and may be blown up to above a foot diameter. The inhabitants of Iceland make use of it, instead of glass, for windows.

ALLASIA, from *αλλας*, a sausage, or black-pudding, in reference to the shape and colour of the fruit. Class and order, tetrandria, monogynia. General Character: CAL. one leaf, inferior; TUBE, short: LIMB, in five, rather acute, hairy segments: COR. superior, of four small, concave and very hairy petals: STAM. Filaments four, awl-shaped, thick, the length of the calyx: ANTHERÆ, inverted, two-lobed, each lobe two cells: PIST. Germen roundish, between the calyx and the corolla: STYLE, awl-shaped, length of the stamens: STIGM. acute: PERIC. berry large, oblong, obtuse, smooth, fleshy, pendulous, one cell. Seeds numerous, ovate, tumid, somewhat compressed and imbedded in pulp. Ess. Char. Berry with numerous seeds: GERM. between the five-cleft calyx: COR. four petals. Its common name is the black-pudding tree, or muringuiringue of the Africans. It was first observed by Loureiro, at Mozambique, near the eastern coast of Africa. It is a large tree, with spreading branches, destitute of thorns.

ALLAT, from Allah, God, Arab. the name of an idol among the Arabians and idolatrous Jews.

ALLATIUS, (Leo,) a native of Scio, keeper of the Vatican library, and a celebrated writer of the seventeenth century. He assisted the gentlemen of Port Royal in their controversy with M. Claude, respecting the belief of the Greeks as to the Eucharist. He was devoted to the see of Rome, and inveterate against the Greek church, in which he had been educated. He never engaged in matrimony, nor entered into orders. Pope Alexander VII. having asked him one day, why he did not enter into orders; he answered, 'Because I would be free to marry.' The Pope rejoined, 'If so, why do you not marry?' 'because,' replied he, 'I would be at liberty to take orders.' Patricius says, that Allatius had a very extraordinary pen, with which he wrote Greek for forty years; and when he lost it, he lamented it with tears. He published several translations of Greek authors, and some pieces of his own, the principal of which are, De Ecclesiæ Occidentalis et Orientalis perpetua Consensione, On Purgatory, De Patria Homeri, De septem orbis Spectaculis, Confutatio Fabulæ de Joanna papissa, De Georgiis, De Simeonibus. He died at Rome in 1669, aged 83.

ALLAY', *v.* & *n.*
ALLAY'ER,
ALLAY'MENT,
ALLOY'.

Supposed to be derived from *allegge*, with the *g* softened into *y* from Alecgan, to lay: to put down; to ease; to soothe; alleviate; lessen; reduce. To abate the force or strength of the predominant material with which something is made; as in *alloy*, immediately from the French alloyer.

If he no lusty thought assaye,
Whiche maye his sory thurst *allaye*,
As for the tyme yet it lesseth
To hym, whiche other ioye misseth.
Gower. Con. A. book vi.

For if that they were put to swiche assayes,
The gold of hem hath now so bad *alayes*,
With bras, that though the coine be faire at eye,
It wolde rather brast atwo than plie.
Chaucer. The Clerkes Tale, v. i. p. 360.

When flowing cups run swiftly round
With no *allaying* Thames,
Our careless heads with roses bound,
Our hearts with loyal flames:
When thirsty grief in wine we steep,
When healths and draughts go free,—
Fishes, that tipple in the deep,
Know no such liberty.
Rd. Lovelace in Ellis, v. iii. p. 277.

——— But thou'lt say
There were some pieces of as base *allay*
And as false stamp there, parcels of a play,
Fitter to see the fire-light than the day:
Adultrate monies, such as would not go.
Ben Jonson. Underwood's. On Vulcan.

Gold incorporates with lead in any proportion, so it does with copper, which is its common *alloy*. It likewise incorporates with brass and tin, which was the ancient *alloy*. *Bacon's Nat. and Exper. Hist.*

Phlegm and pure blood are reputed *allayers* of acrimony. *Harvey on Consumption.*

I will purge in the furnace thy dross;
And I will remove all thine *alloy*.
Lowth's Isaiah. Preliminary Dis.

Yet leave me not! I would *allay* that grief,
Which else might thy young virtue overpower,
And in thy converse I shall find relief
When the dark shades of melancholy lower.
Beattie's Minstrel, b. ii.

ALLAZÆZIS, among chemists, denotes a philosophical brass or copper, called also an album, aqua mercurii.

ALLE, a river of Prussia, which falls into the Pregel, near Wehlaw.

ALLE, a species of auk. See ALCA.

ALLECT',
ALLECT'IVE, *n.* & *adj.*
ALLI'CIENT,
ALLI'CIENCY.

Ad: *lacio*, *lectum*, to draw to; to attract, allure, entice, seduce; to gain over by stratagem:

——— Consider what is root and ground
Of thy mischief, which is plainly found

Woman farced with fraud and disceipt
To thy confusion most *allectiue* baite.

Chaucer. The Remedie of Love, fol. 323. c. i.

They made so cruell and deadly warre, that not lyke men, whose nature is to be satisfied with the slaughter of men, and to be merciful to the impotent and sycke persons, brent tounes, spoyled houses, and killed mē and children, and *allected* with the sweetnes of spoyle and prayes, wasted all the countrey of Northumberlād.

Hall. Hen. VII. fol. 50.

But among all thinges, the very deadly pestilēce is this: to be coūersaūt daie and night among them, whose life is not only on euery side an *allective* to synne: but ouer that all set in the expugnacion of vertue. *Sir Thomas More's Workes*, p. 12. c. i.

ALLECTOR, a species of CRAX, which see.

ALLECTUS, in ancient history, a prætorian prefect, who, having killed Carausius in England, took possession of his throne, which he held from 294 to 297; when Constantius Cæsar landing in Britain with an army, Allectus was killed in an engagement which ensued. Medals are still extant bearing his effigy.

ALLEGANY COUNTY, a county of the state of New York, in North America. It was erected from Genesee county in 1806, is about forty miles north and south, and twenty-eight east and west. It is bounded on the north by Genesee county, east by Steuben county, south by Pennsylvania, west by Cataraugus county. The area is 1120 square miles. The first settlement of this county commenced in 1804, whence it is at present in its infant state. It is watered by the Genesee river, which follows a devious course nearly through its centre from south to north, receiving many small streams from every part. In the south-west corner some small streams are collected, which form the eastern sources of Allegany river, and in the south-west corner rise the eastern sources of Cataraugus Creek. The soil is rich, though a considerable part of the land is broken. The Merino sheep have been introduced along with other agricultural improvements, which are common throughout the state.

ALLEGANY COUNTY, in Pennsylvania, extends from the junction of the river of that name with the Ohio, where its chief town Pittsburg is situated, to the New York line.

ALLEGANY, or AHALACHIAN MOUNTAINS, a range of mountains in North America, which extend in a direction west of south from the forty-second to the thirty-fourth degree of north latitude. They approach the sea, in the state of New York, whence, in their course towards the south, they recede from the sea-shore. Their breadth may be estimated at 110 miles, and they consist in a succession of parallel ridges, following nearly the direction of the sea-coast, irregularly intersected by rivers, and divided by valleys. The ridge which separates the Atlantic rivers from the western waters, generally known by the name of Allegany, preserves throughout a nearly equal distance of 250 miles from the Atlantic ocean, and a nearly uniform elevation of 3000 feet above the level of the sea. Those mountains may, however, be perhaps considered as consisting of two principal chains; between these lies the fertile Limestone valley, which, although occasionally interrupted by transversal ridges, and, in one place, by the dividing of Allegany ridge, may be traced from Newburgh and Esopus, on the Hudson river, to Knoxville on the Tennessee. The eastern and narrowest chain is the blue ridge of Virginia, which, in its north-east course, under various names, traverses the states of Maryland, Pennsylvania, and New Jersey, forms the high lands broken at West-point by the tide of the Hudson, and then uniting with the Green mountains, assumes a northerly direction, and divides the waters of the Hudson, and of lake Champlain, from those of Connecticut river. On the borders of Virginia and North Carolina the blue ridge is united, by an inferior mountain, with the great western chain, and thence to its southern extremity becomes the principal or dividing mountain, discharging eastwardly the rivers Roanoke, Pedee, Santee, and Savannah, into the Atlantic ocean; southwardly the Chatahouchee, and the Alahama into the gulf of Mexico, and westwardly the New River and the Tennessee. The New River, taking a northwardly course, breaks through all the ridges of the great western chain, and, at a short distance beyond it, unites under the name of Kanhaway with the Ohio. The Tennessee pursues at first a south-west direction between the two chains, until having reached, and in a westwardly course turned, the southern extremity of the great western chain, it assumes a northwardly direction, and joins its waters with those of the Ohio, a few miles above the confluence of that river with the Mississippi. The western chain, much broader, and more elevated, is known by the names of Cumberland and Gauley mountains, from its southern extremity, near the great bend of the Tennessee river, until it becomes in Virginia the principal or dividing mountain. Thence, in its northerly course, towards the state of New York, it discharges westwardly the Green Briar river, which, by its junction with the New River, forms the Kanhaway, and the rivers Monongahela and Allegany, which, from their confluence at Pittsburgh, assume the name of Ohio. Eastwardly it pours into the Atlantic ocean, James river, the Potomac, and the Susquehannah. From the northernmost and less elevated spurs of the chain, the Genesee flows into the lake Ontario; and in that quarter the northerly branches of the Susquehannah seem to take their source, from amongst the inferior ridges, and in their course to the Chesapeake to break through all the mountains. From the Susquehannah the principal chain assumes a more eastwardly direction, and is washed on the north by the lateral valley of the river Mohawk. Whilst it gives rise southwardly to the Delaware, it terminates under the name of Catskill mountain, near the tide-water of the Hudson. In the back parts of Pennsylvania, scarce one acre in ten of this vast range is capable of cultivation; but in other parts, extensive tracts of fine arable and pasture land intervene between the ridges, having a fine rich black soil; and some of the mountains admit of cultivation almost to their tops.

ALLEGANY RIVER, a river of North America, which rises on the western side of the Allegany mountains, about twenty miles from Lake Erie; and after a course of 200 miles in a south-west direction, meets the Monongahela at Pittsburg,

when these rivers both unite from the Ohio. In its course it is increased by French Creek and other smaller rivers, and begins to be navigated about 200 miles from Pittsburg. Its banks are fertile, and the planters settled upon it, as well as upon the Monongahela, export the products of their grounds by way of the Ohio and the Mississippi. For about 150 miles above Pittsburg the lands consist of white oak and chesnut ridges, and in many places of poor pitch pines, interspersed with tracts of good land and low meadow. The waters of the Allegany are clear and limpid in all weathers.

ALLEGATA, Lat. from allegatus, appointment; a word anciently subscribed at the bottom of rescripts and constitutions of the emperors, as signata, or testata, was under other instruments; and synonymous with verificata, verified. It was, however, less used than data, propositum, accepta, &c.

ALLEGE', ALLEGA'TION, ALLEGE'ABLE, ALLEGE'MENT, ALLE'GER. } Ad: *lego*, allegatio. To state by way of excuse or proof. To declare; affirm; maintain; urge.

I wene þe kyng *allegid*, þei were of his tresour,
Noþeles he wild haf briggid, þe fals loue and erroure.
R. Brunne, p. 247.

And eke this noble duke *aleyde*
Full many an other skill, and seide,
She had well deserued wreche.
Gower. Con. A. book iii.

Thy son Enee, mysknawing this deray,
As thou *allegeis*, is absent now away.
Douglas, book x. p. 316.

Thei wollen *a leggen* al so, and by þe godspel preoven hit
Nolite judicare quenquam.
Vision of Pier's Ploulman, p. 202.

Hath he not twit our sovereign lady here
With ignominious words, though darkly coucht?
As if she had suborned some to swear
False *allegations*, to o'erthrow his state.
Shakspeare's Henry VI.

If we forsake the ways of grace or goodness, we cannot *allege* any colour of ignorance, or want of instruction; we cannot say, we have not learned them, or we could not. *Sprat.*

He hath a clear and full view; and there is no more to be *alleged*, for his better information. *Locke.*

The narrative, if we believe it as confidently, as the famous *alleger* of it (Phamphilio) appears to do, would argue; that there is no other principle requisite, than what may result from the lucky mixture of several bodies. *Boyle.*

ALLEGEAS, or ALLEGIAS, a stuff manufactured in the East Indies; of which there are two sorts; the one of cotton, and the other of several kinds of herbs, spun like flax. They are eight ells by five, six, or seven eighths, and twelve ells by three fourths or five eighths.

ALLE'GIANCE, *n.* ALLE'GIANT. } Ad: *ligare*, to bind to. Old Fr. *allegiance*. The *tie* or *bond* of fidelity which binds the governed to the governor. Applied also to any tie or bond of duty, or good faith.

In this passe tyme, Robert duke of Normandy, moued in concyence to vysyte the holy sepulture of our Lorde, called before hym his lordes of his lande, wyllynge and cōmaundynge theym to owe theyr trewe *allegeaunce* vnto his yonge sone, Wyllyam; and to take hym for theyr lorde and duke, if he were nat agayne. *Fabyan*, p. 32.

I did pluck *allegiance* from men's hearts,
Loud shouts and salutations from their mouths,
Even in the presence of the crowned king.
Shakesp. Henry V.

For your great graces
Heap'd upon me, poor undeserver, I
Can nothing render, but *allegiant* thanks,
My pray'rs to heaven for you.
Shakesp. Henry V.

We charge you, on *allegiance* to ourselves,
To hold your slaughtering hands, and keep yourselves
Shakesp.

The house of commons, to whom every county ... tions are directed by the several counties of E... professing all *allegiance* to them, govern ... the lords concurring, or rather submitting, to ... ever is proposed. *Clarend.*

Ere wit oblique had broke that steady light,
Man, like his Maker, saw that all was right,
To virtue in the paths of pleasure trod,
And own'd a father when he own'd a God.
Love all the faith, and all th' *allegiance* then,
For nature knew no right divine in men.
Pope's Essay on Man, Epist.

ALLEGIANCE, in English law, Lat. *alligare*, to bind, is the ligamen, or tie, which binds the subject to the king, in return for protection which the king affords the ... The thing itself, substantially, is founded in nature of government; the name and form derived to us from our Gothic ancestors. In the feudal system, every owner of lands held them in subjection to some superior, from whom or from his ancestors, the tenant, or vassal, received them; and there was a mutual ... subsisting between the lord and vassal, that lord should protect the vassal in the enjoyment of the territory he had granted him, and that the vassal should be faithful to the lord, and defend him against all his enemies. This obligation on the part of the vassal was called fidelitas or fealty: and an oath of fealty was required by the feudal law to be taken by tenants to their landlord, which is expressed in almost the same terms as our ancient oath of allegiance; except that, in the usual oath of fealty, there was frequently an exception of the faith due to a superior lord, under whom the landlord himself was perhaps only a mesne vassal. But when the acknowledgment was made to the superior himself, who was superior to no man, it was no longer called the oath of fealty, but the oath of allegiance; and therein the tenant swore to bear faith to his sovereign lord, in opposition to all men, without any exception. Land held by this species of service was called feudum legium, a liege fee; the vassals, homines ligii, or liege-men; and their sovereign, their dominus ligius, or liege lord. And when sovereign princes did homage to each other, for lands held under their respective sovereignties, a distinction was always made between simple homagé, which was only an acknowledgment of tenure, and liege homage, which included the fealty before-mentioned, and the services consequent upon it. In Britain, it became a settled principle of tenure, that all lands in the kingdom are holden of the king, as their sovereign and lord paramount, no allodial

that of fealty could be taken to inferior lords; and the oath of allegiance was necessarily confined to the person of the king alone. By an easy analogy, the term of allegiance was soon brought to signify all other engagements due from subjects to their prince, as well as duties merely territorial. And the oath of allegiance, as administered in England for upwards of 600 years, contained a promise 'to be true and faithful to the king and his heirs, and truth and faith to bear of life and limb and terrene honour, and not to know or hear of any ill or damage intended him, without defending him therefrom.' But, at the revolution, the terms of this oath being thought to favour non-resistance, the present form was introduced by the Convention Parliament, which is more general and intermediate than the former; the subject only promising 'that he will be faithful and bear true allegiance to the king,' without mentioning 'his heirs,' or specifying in the least wherein that allegiance consists. The oath of supremacy is principally calculated as a renunciation of the pope's pretended authority: and the oath of abjuration, introduced in the reign of King William III. very amply supplies the loose and general texture of the oath of allegiance; as it recognises the right of his majesty, derived under the act of settlement; engaging to support him to the utmost of the juror's power; promising to disclose all traitorous conspiracies against him; and expressly renouncing any claim of the descendants of the late pretender, in explicit terms. This oath must be taken by all persons in any office or employment; and may be tendered by justices of the peace to any person whom they suspect of disaffection. It may also be tendered to all persons above the age of twelve years, whether natives, denizens, or aliens. Besides these express engagements, the law also holds that there is an implied, original, and virtual allegiance, due from every subject to his sovereign, antecedent to any express promise, and although the subject never swore any allegiance in form. Thus Sir Edward Coke observes, that 'all subjects are equally bounden to their allegiance as if they had taken the oath; because it is written by the finger of the law in their hearts, and the taking of the corporeal oath is but an outward declaration of the same.' Allegiance, both expressed and implied, is however distinguished by the law into two species, the one natural, the other local.

In natural-born subjects, and also in subjects naturalized by law, allegiance is perpetual, and cannot be dissolved. The former, immediately upon their birth, are under the king's protection; and the latter are so, immediately upon their naturalization. This species of allegiance therefore becomes a debt of gratitude, which cannot be forfeited or altered by any change of time, place, or circumstance; nor by any thing except the united concurrence of the legislature. Thus, a Briton, who removes to France or to China, owes the same allegiance to the British sovereign, as when at home; and the same twenty years hence as now.

The oath of allegiance, or rather the allegiance sworn to in it, is held to be applicable, not only to the political capacity of the king, or regal office, but to his natural person and blood-royal; and for the misapplication of their allegiance, viz. to the regal capacity, exclusive of the person of the king, were the Spencers banished in the reign of Edward II.

It is to be observed, however, in explanation of this allegiance, that it does not preclude resistance to the king, when his misconduct or weakness is such as to make resistance beneficial to the community. Allegiance is obedience to lawful commands. If the king should issue a proclamation, levying money, or imposing any service or restraint upon the subject, beyond what the law authorized, there would exist no sort of obligation to obey such a proclamation. Neither can allegiance extend to the king after he is actually deposed, driven into exile, or otherwise rendered incapable of exercising the regal office. The promise of allegiance implies, that the person to whom it is made continues to exercise the power, and afford the protection, which belong to the office of king.

Local allegiance is that which is due from an alien or stranger born, so long as he continues within the king's protection; and it ceases the instant such stranger transfers himself from this kingdom to another. It is founded on the principles of civil policy, 'that the government which gives protection requires obedience.' The common law prescribes the taking the oath of allegiance by all persons above twelve years of age, at courts leet; and there are various statutes requiring the oaths of allegiance and supremacy to be taken under penalties. Persons above the age of eighteen may be summoned by any justice of peace to take these oaths; and if any natural-born subject be withdrawn from his allegiance, and be reconciled to the pope or see of Rome, or shall promise obedience to any other state, he and his advisers incur the guilt of treason. 1 Eliz. c. i. 1 William and Mary, c. i. 8. 1 Anne, stat. i. c. 22, &c. &c.

AL'LEGORYE, or AL'LEGORY, *n.* ALLEGOR'ICAL, ALLEGOR'ICALLY, AL'LEGORIST, AL'LEGORIZER. Αλλος, another; *αγορευω*, to make a speech; *αλληγορια*, another meaning. A figurative discourse in which something is intended besides what the words literally signify.

For it is wrytten, that Abraham had two sonnes, the one by a bonde mayde the other by a fre womā. Yee and he whych was borne of the bonde woman, was born after the flesshe: but he which was of the fre womā, was borne by promes. Which thynges are spoken by an *Allegorye*. For these are two testamētes. *Bible*, 1539. *Galatians*, iv.

Wyth hys *allegoricall* exposicion of spirituall eating of Christes godhead and of his bodi by beliefe of hys passion, he goeth about to take away from vs the very lytterall truth, of the very eating and bodely receiuing of Christes own veri flesh and blood.

Sir Thomas More's Workes, p. 1041, c. i.

When our Saviour said, in an *allegorical* and mystical sense, 'Except ye eat the flesh of the Son of Man, and drink his blood, ye have no life in you;' the hearers understood him literally and grossly.

Bentley.

The epithet of Apollo for shooting, is capable of two applications; one literal, in respect of the darts

and bow, the designs of that god; the other *allegorical*, in regard to the rays of the sun. *Pope.*

Fable may be divided into the Probable, the Allegorical, and the Marvellous. *Pope.*

The stoic philosophers, as we learn from Cicero, were great *allegorizers*. *Coventry. Phil. Con.*

Neither must we draw out our *allegory* too long; lest either we make ourselves obscure; or fall into affectation, which is childish. *Ben Jonson.*

This word nympha meant nothing else, but (by *allegory*) the vegetative humour or moisture, that quickeneth and giveth life to trees and flowers, whereby they grow. *Peacham.*

On the broad stern, a pencil warm and bold,
That never servile rules of art controll'd,
An *allegoric* tale on high pourtray'd
There a young hero, here a royal maid.
Falconer's Shipwreck, can. ii.

ALLEGORY, in composition, a figure of speech which conceals, under the literal meaning of our words, another and a different sense. It seems to be derived from αλλος, another, and αγορα, an harangue; and is a species of composition with which the eastern writings abound. An allegory differs from a metaphor or simile, as it consists of a continued story, told in a chain of metaphors. Thus, likening a ship to a state is a simile; but to steer the ship through storms without, to rule it in spite of mutiny within, and to reach the destined port in safety, signifying the outward warfare and the internal rebellions of that state, overcome by the wisdom of its governor, is an allegory, and one of the most usual, and the most obvious kind. Thus Horace, l. i. ode xiv.

O navis, referent in mare te novi
Fluctus. O quid agis? fortiter occupa
Portum.

The principal subject is kept out of view, but all its circumstances and properties will be represented 'in common with all other metaphorical language.' Says a late author, 'an allegory is exactly similar to an hieroglyphical painting, only substituting words for colours.'

Numberless instances of allegory, in the highest style of excellence, might be given from writers in our own language, as it has been a favourite figure of composition with us. The Bible abounds in the finest instances, of which Blair gives Psalm lxxx. ver. 8—16 as a specimen. Spenser's Faerie Queene is an allegory throughout, and Addison, in his Spectator, abounds with allegories, any of which may be taken as a prototype for this kind of figure. The resemblance of an allegory to its real and intrinsic meaning may be too obvious; but equal care must be taken that it may not be broken or obscure; for in the one case the pleasure is destroyed, and in the other the instruction intended to be conveyed is overwrought, hidden, and finally lost. Most writers are unlucky in their choice, the analogy being generally so faint and obscure, as rather to puzzle than to please.

The distinctive characters of allegory and parable have not in general been accurately defined. The beautiful parable of the Egyptian vine, Psalm lxxx. is by no means a correct allegory. The figure in parable is altogether imaginary; in correct allegory it is real. The history of Abraham's family, particularly Sarah's miraculous, and Hagar's natural conception, with the birth and strife of their sons, are expressly called an *allegory*, Gal. iv. 24. representing the two covenants. But although this distinction applies, in general, to scriptural allegories and parables, in other writings allegory is universally understood to be a work of imagination. Thus Spenser's Faerie Queene, Butler's Hudibras, Swift's Tale of a Tub, and Gulliver's Travels, &c. are allegories, wherein the figures, personages, and scenes represented, are entirely imaginary, though the moral and satire contained in them apply to real life and historical facts. Nothing gives greater pleasure than an allegory, when the representative subject bears a strong analogy, in all its circumstances, to that which is represented.

No author ancient or modern has drawn a more complete or perfect allegory than John Bunyan, in his Pilgrim's Progress; a work which, we believe, has afforded pleasure to many readers, even among those who do not entirely approve of the doctrines it inculcates. An eminent London bookseller, lately deceased, who had made an estimate of the quantity of copies sold of the books most universally read, says, that upwards of 430,000 copies of Bunyan's Pilgrim's Progress have been printed; which exceeds the sale of all the other books in the English language, except, the Bible and Prayer books, &c. by above 100,000 copies! This affords an indubitable proof how universally a well written allegory is relished. See FABLE, METAPHOR, PARABLE, TYPE, &c.

ALLEGORICAL SYMBOLS. The following extract from one of Plutarch's moral essays, is a curious specimen of the symbolical language, in which the ancients sometimes concealed their precepts. These allegorical symbols were employed by Pythagoras; and the Chaldean oracles, given by Mr. Taylor, could they be at this day as ingeniously elucidated, might appear more significant, and less mysterious.—We must not feed on fish with black tails; that is, we must avoid all connexions with men of a malignant character.—Tread not on the scales; that is, respect justice, and be careful not to infringe the laws.—Sit not on the bushel; that is, fly all indolence, and labour for the necessaries of life.—Wear not a tight ring; that is, preserve your liberty, and be the slave of no person.—Stir not the fire with a sword; that is, irritate not a man in a passion, but strive to calm him.—Gnaw not your heart; that is, give not yourself up to devouring griefs.—Abstain from eating beans; that is, do not meddle with the affairs of government. for anciently the votes for the election of magistrates were made with beans. It is in this manner that the commencement of all knowledge has been made in enigmas; and these have appeared to remote posterity more absurd and barbarous than they really were, by metaphors which are unintelligible, and customs which are forgotten

ALLEGRANZA, a very small island, or rather rock, the most northerly of the Canaries. It is barren and destitute of inhabitants, and is only resorted to by those of the neighbouring islands at certain times to gather orchilla.

ALLEGRAMENTE, in music, rather quick.

ALLEGRESSIMO, in music, very quick.

ALLEGRETTO, in music, a diminutive of allegro, which is more quick and lively.

ALLEGRI (Alexander,) an Italian satirical poet, of the latter end of the sixteenth century, who was born at Florence. He served in the army, but afterwards became an ecclesiastic. His principal works are Rime piaceovoli, Lettere di ser poi Pedante, and Fantastica Vizioni di Parri da Pozzolatico. These were published together in one volume, which is now very scarce. Allegri left other poetry in the hands of his family, which never was published, together with a tragedy entitled Idomeneus, and several Latin poems of considerable excellence.

ALLEGRI (Gregorio,) was an eminent musical composer of the seventeenth century, a native of Rome, and by profession an ecclesiastic. He was a disciple of Nanini, who was contemporary with Palestrina, and his intimate friend. His abilities as a singer were inconsiderable, and yet he was accounted an admirable master of harmony; and the pope appointed him to be one of the singers at the Vatican in 1629. To his extraordinary merit as a composer of church music, he is said to have joined a devout and benevolent disposition, and an excellent moral character. He died February 18th, 1672, and was buried in the Chiesa Nuova, before the chapel of St. Filippo Neri.

ALLEGRI (Antonio.) See CORREGIO.

ALLEGRO, in music, a word denoting one of the six distinctions of time. It expresses a sprightly motion, the quickest of all, except Presto, and originally means gay, as in Milton.

ALLEGRO, PIU, in the Italian music, intimates to play or sing a little quicker.

ALLEGRO Poco PIU, that the part it is joined to must be played, or sung, a little more brisk and lively than allegro alone requires. The usual distinctions succeed each other in the following order: grave, adagio, largo, vivace, allegro, and presto. The movements of the same name, as adagio, or allegro, are swifter in triple than in common time.

ALLEIN (Joseph,) the son of Tobias Allein, was born in Devizes in 1633, and educated at Oxford. In 1655 he became assistant to Mr. Newton, of Taunton Magdalen, in Somersetshire; but was deprived for non-conformity. He died in 1668, aged 35. He was a man of great learning, and greater charity; preserving, though a non-conformist, and a severe sufferer on that account, great respect for the church, and loyalty to his sovereign. He wrote several books of piety, which are highly esteemed; but the most celebrated is his Alarm to Unconverted Sinners, of which the sale has always been considerable.

ALLEIN (Richard,) a nonconformist divine, born in 1611, at Ditchet, in Somersetshire. He was educated at Oxford, and in 1641 obtained the living of Batcomb, in Somersetshire, from which he was ejected for nonconformity, and preached privately till his death in 1681. His writings on practical divinity have been useful.

ALLELENGYON, in antiquity, a kind of tax or tribute, which the rich paid for the poor, when absent in the armies.

ALLELOPHAGI, from αλληλες, one another, and φαγω, I eat, in natural history, a term used by Mouffet, and other writers on insects, to express a peculiar genus of flies, which devour one another; thus called in distinction from the heterophagi, which feed on different substances, and not on one another.

ALLELUIA, ALLELUJAH, or HALLELUJAH, הללויה, Praise ye the Lord.

He will set his tongue to those pious divine strains, which may be a proper præludium to those *allelujahs* he hopes eternally to sing.

Government of the Tongue.

Then shall thy saints
Unfeigned *hallelujahs* to Thee sing;
Hymns of high praise. *Milton.*

ALLELUJA, in botany, a name used by many for the common wood sorrel.

ALLELUJAH, in sacred music, an expression formerly used in religious assemblies, as a call for each other to praise the Lord.

ALLEMAND, a sort of grave solemn music, invented by the Germans, with good measure, and a slow movement. Also a brisk kind of dance, very common in Germany and Switzerland.

ALLEMANDA, in music books, a certain air in common time, and in two parts, each part being played twice over.

ALLEMANNIC, ALAMANNIC, or ALEMANIC, from Alemanni, Allemanni, or Alamanni; the name whereby the German nation was anciently known; any thing relating to the ancient Germans. Goldastus published collections of writers on Allemannic affairs. The Allemannic language was spoken throughout the southern parts of Germany, which was divided into several districts; the principal of which are the Suevic and Helvetic. It differed from the Francic, which was the language in use through the northern parts of Germany. The chief dialects of this are the Palatine, Franconian, and Saxon.

ALLEMANNIC LAW, otherwise called the Suevic law, that which obtained in the more southern parts of the country, as the Saxon law did throughout the northern. Schilter has published the feudal Allemannic law.

ALLEN, a county town of Kentucky, in the United States, North America, population 5327; Scotsville, 160 miles south-west by south of Frankfort, is the chief town: also the name of a newly formed county in the state of Ohio.

ALLEN, BOG OF, an immense tract of moss, the largest in Ireland, which runs through part of the counties of Dublin, Carlow, Kildare, Kilkenny, and Meath. Part of it has been recovered and cultivated, by burning and sowing it with rape-seed.

ALLEN, ISLE OF, corrupted from Hy-al-lain, Irish, i. e. the district of the great plain, a district of Ireland, in the county of Kildare.

ALLEN, (John,) archbishop of Dublin, under Henry the VIII. was educated in the university of Oxford, but took his degree of A. B. at Cambridge. Being sent by Dr. Warham, archbishop of Canterbury, to the pope, he continued at Rome nine years, and was there created LL. D. After his return he was appointed chaplain to cardinal Wolsey, and judge of his court as legate a latere.

He assisted the cardinal in suppressing forty small monasteries, for the erection of his colleges at Oxford and Ipswich; and Wolsey procured him the living of Dalby in Leicestershire. In 1528 he was consecrated archbishop of Dublin, and about the same time made chancellor of Ireland. His principal works are, 1. Epistolæ de Pallii significatione activa et passiva. 2. De Consuetudinibus ac statutis in tuitoriis causis observandis; with several other pieces on ecclesiastical affairs. He was barbarously murdered in an insurrection set on foot by Thomas Fitzgerald, eldest son of the earl of Kildare, in 1534.

ALLEN, (Thomas,) a famous mathematician of the sixteenth century, born at Utoxeter in Staffordshire, the 21st of December, 1542. He went to Oxford in 1561; and in 1567 took his degree of A. M. In 1570 he retired to Gloucester-hall; and when Robert earl of Leicester would have conferred a bishopric upon him, his love of solitude made him decline the offer. The author of a book, entitled Leicester's Commonwealth, accused him of using the black art, to promote the earl of Leicester's unlawful designs, and to bring about a match between him and queen Elizabeth. He published in Latin the second and third books of Claudius Ptolemy of Pelusium, concerning the Judgment of the Stars; or, Quadripartite Construction, with an exposition. He wrote also a Commentary on Lilly's books, and on John Bale's work, De Scriptoribus M. Britanniæ. Having lived to a great age, he died in Gloucester-hall in 1632.

ALLENBURG, a town of East Prussia, in the circle of Tapiau, with 1350 inhabitants. It stands on the Alle, about thirty miles south-east of Konigsberg.

ALLENCE, in mineralogy, another name for stannum.

ALLENDALE, E. and W. townships in Tindal ward, Northumberland, nine miles and a half south-west from Hexham, and 291 miles from London; containing 790 houses and 4629 inhabitants. They are chiefly inhabited by miners, and stand, as the name implies, in a dale at the foot of Tinney-hill, on the river Allen, which flows into the South Tyne.

ALLENDORF, a bailiwick and small town of Hesse Darmstadt, between Marburg and Giessen, with 1030 inhabitants: six miles north-east of Giessen. Long. 8°. 51′. E. lat. 50°. 40′. N. Also a small town of Germany, in the duchy of Westphalia.

ALLENDORF, a town in the electorate of Hesse-Cassel, remarkable for its salt-works and three stone bridges. It is seated on the Weser, fifteen miles east of Cassel, and contains 2500 inhabitants.

ALLENSTEIN, in Polish Olsztan, a bailiwick and town, with a castle, in East Prussia. Population 2000. Sixty miles south of Konigsberg. Long. 20°. 25′. E. lat. 53°. 40′. N.

ALLENSTOWN, a town of New Jersey, North America, fifteen miles north-east from Burlington, and thirteen south by east from Princeton. Also a township of North America, in New Hampshire, situated on the east side of Merrimack river, twenty-five miles north-west of Exeter, and forty from Portsmouth.

ALLEN-TOWN, Northampton county, in Pennsylvania, is situated on the point of land formed by Jordan's creek, and the Little Leheigh, and contains about ninety houses, and an academy. Long. 75°. 30′. W. lat. 40°. 35′. N.

ALLER, a river of Germany, which rises in Magdeburg, runs north-west through the duchy of Lunenburgh, and, passing by Zell, falls into the Weser a little below Verdun.

ALLERBERG, a market-town of Bavaria, sixteen miles from Nuremberg. Inhabitants, 1570.

ALLER SANS JOUR, in law, Fr. to go without day: to be finally dismissed the court, no farther day being appointed.

ALLERIA, a decayed town of Corsica, where king Theodore first landed, in 1739. Long. 8°. 50′. E. lat. 42°. 5′. N.

ALLERION, or ALERION; from aquilario, a diminutive of aquila, an eagle: in heraldry, a sort of eagle without beak or feet, having nothing perfect but the wings. They differ from martlets by having their wings expanded, whereas those of the martlet are close and denote imperialists vanquished and disarmed; for which reason they are more common in French, than in German coats of arms.

ALLERTON, NORTH, or NORTH-ALLERTON, (anciently ALVERTON), a borough and market-town in Allertonshire wap. N. R. of York, 222 miles from London; containing 557 houses and 2626 inhabitants. The manor has been subject to the bishop of Durham from the time of William Rufus. He appoints a bailiff for life, who presides at the election for members of parliament, the choice of whom is in the whole of the housekeepers who pay scot and lot. The town chiefly consists of one street about half a mile long, on a small stream called the Wiske, a branch of the Swale. The church is a Gothic structure, built in the form of a cross, and contains several handsome monuments. Here is a new prison, erected on Mr. Howard's plan, as a relief to the county gaol at York; it consists of thirty cells, with four strong ones for capital offenders, and a place for correction and labour. Formerly there was an ancient castle at North Allerton, which was enlarged by bishop Pudsey; but seized and destroyed by Henry II. A small convent for monks of the Cistercian order was founded here by Edward I. but no remains are extant. Near this place was fought the celebrated battle between the English and Scots, called the battle of the Standard, in 1138. The spot retains the name of Standard Hill, and some caverns near are supposed to be the places where the Scots were buried. When the invaders under the command of David, king of Scotland, had advanced as far as this town, committing the most horrid murders and desolations, they were met by the English army under the command of the earls of Albemarle and Ferrers. In order to animate them, the archbishop of York brought forth a consecrated standard from the convent of Beverley, which was drawn on a four-wheeled carriage, from this circumstance it derived its name. The battle was fought with great obstinacy on both sides; until the Scots, through a mistake, imagined their king was slain, when the flight became general, and a great slaughter ensued. The town has a good weekly market on Wednesday

for corn, cattle, and provisions. The living is a vicarage, value £17. 10s., of exempt jurisdiction. Patron, the dean and chapter of Durham.

ALLERTON, a township in the parish of Bradford, North Riding of York, 199 miles from London, and three north-east of Bradford. Population 1488.

ALLERTON-CHAPEL, a township and curacy of Leeds parish, 193 miles from London, and three north of Leeds, with 1678 inhabitants. It has a hospital for ten widows, with an endowment of fifty pounds annually, given by Robert Parker.

ALLERSHEIM, a market-town of Bavaria, six miles south of Wurtzburgh.

ALLESTRY, (Richard, D. D.) born at Uppington in 1619, was educated at Coventry, and afterwards at Oxford. He took up arms for king Charles I. and was sometimes seen with his musket in one hand, and his book in the other. Being very active in the service of Charles II. before his restoration, he was seized at Dover by a party of soldiers, as an emissary of the royalists, and confined six or eight weeks. On the restoration, he was made canon of Christ-Church, chaplain to the king, and regius professor of divinity. In 1665 he was appointed provost of Eton college, and raised the school, which he found in a low condition, to great reputation.—The west side of the outer quadrangle of the college was built from the ground at his expense. He died in 1680, and lies buried in Eton chapel.

ALLESTRY, (Jacob,) of the same family as the above, entered at Christ Church, Oxford, in 1671; was elected student in 1672; took his degree in arts in 1679; and died in 1686. He published Examen Poeticum, containing verses and pastorals, spoken in the theatre at Oxford in 1681, before James, duke of York, his duchess, and the lady Anne.

ALLEVEURE, the smallest copper coin that is struck in Sweden, not worth quite two deniers Tournois, of France, or above a British halfpenny.

ALLEVIARE, in old records, to levy or pay an accustomed fine or composition.

ALLE'VIATE, *v.* } Ad: *levo*, *levis*, light.
ALLEVIA'TION, } To make light; to lift up
ALLE'VIATIVE. } a weight or burden so as to relieve the person carrying it. To lessen; to comfort; to ease; to soften.

These are, my son, special compositions of wholesome recipes for the several maladies of thy soul; wherein it shall be my happiness to have suggested unto thee such thoughts as may any whit avail to the *alleviation* of thy sorrows.
Bp. Hall's Balm of Gilead.

The pains, taken in the speculative, will much *alleviate* me in describing the practical part. *Harvey.*

Most of the distempers are the effects of abused plenty and luxury, and must not be charged upon our Maker; who, notwithstanding, hath provided excellent medicines, to *alleviate* those evils which we bring upon ourselves. *Bentley.*

Some cheering *alleviative* to lads kept in pure slavery to a few Greek and Latin words.
Corah's Doom.

All apologies for, and *alleviations* of, faults, though they are the heights of humanity; yet they are not the favours, but the duties, of friendship. *South.*

This loss of one-fifth of their income will sit heavy on them, who shall feel it, without the *alleviation* of any profit. *Locke.*

He [David] sought in piety that peace which he cou'd not find in empire, and *alleviated* the disquietudes of state with the exercises of devotion. *Horne.*

AL'LEY, *n.* Fr. *aller*, to go. Skinner defines it a way through which it is possible to go or pass. Applied to walks in a garden, to paths, or passages, from streets and roads.

So long about the *alleyes* is he gan,
Till he was comen again to thilke pery,
Wher as this Damian sitteth ful mery
On high among the freshe leves grene.
Chaucer. The Merchantes Tale, vi. p. 414.

And all within were walks and *alleys* wide,
With footing worn, and leading inward far.
Spenser.

Where *alleys* are close gravelled, the earth putteth forth the first year knotgrass, and after spiregrass.
Bacon's Natural History.

Yonder *alleys* green,
Our walk at noon, with branches overgrown.
Milton.

Come, my fair love! Our morning's task we lose:
Some labour, ev'n the easiest life would choose:
Ours is not great; the dangling bows to crop,
Whose too luxuriant growth our *alleys* stop.
Dryden.

The thriving plants, ignoble broomsticks made.
Now sweep those *alleys* they were born to shade.
Pope.

Here oft the peasant, with enquiring face,
Bewilder'd trudges on from place to place;
He dwells on every sign with stupid gaze,
Enters the narrow *alleys* doubtful maze.
Gay's Trivia, book ii.

ALLEY, in horticulture, a straight parallel walk, bounded on both sides with trees, shrubs &c. and usually covered with gravel or turf.

ALLEY, in husbandry, the vacant spaces between the uttermost row of corn on one bed and the nearest row to it on the next parallel bed; usually about four feet in breadth, exclusive of the partitions between the rows of corn in the beds. See HOEING.

ALLEY, in perspective, that which, in order to have a greater appearance of length, is made wider at the entrance than the termination.

ALLEY, (William,) a bishop of Exeter in the reign of Queen Elizabeth, was born at Great Wycombe in Buckinghamshire. From Eton, in 1528, he removed to Cambridge, where he took the degree of A. B. He also studied some time at Oxford; was presented to a living, and became a zealous reformer. Upon queen Mary's accession he left his cure, and retired into the north of England, where he maintained his wife and himself by teaching, and practising physic. On queen Elizabeth's accession he went to London, where he acquired great reputation by reading the divinity lecture at St. Paul's, and in 1760 he was made bishop of Exeter. He died in 1570; and was author of, 1. The poor man's library, two vols. fol. Lond. 1571, which contains twelve lectures on the first epistle of St. Peter, read at St. Paul's. 2. A Hebrew grammar. He also translated the Pentateuch, in the version of the Bible which was undertaken by queen Elizabeth's command.

ALLEYN, (Edward,) an English actor in the reigns of Elizabeth and James I. but principally known as the founder of Dulwich college, Surrey. He was born at London, in 1566, and in high favour with the town, in 1592. He usually played the capital parts, and was one of the original actors in Shakspeare's and Ben Jonson's plays, the latter highly applauded him. He was keeper of the royal bear-garden, which was frequented by vast crowds of spectators; and was thrice married. Aubrey mentions a tradition, that Alleyn playing as a demon, with six others, in one of Shakspeare's plays, was, in the midst of the scene, surprised by the appearance of the devil himself; and that this so worked upon his imagination, that he made a vow of charity, which he performed by building Dulwich College, which see. He met with some difficulty in obtaining a charter for settling his lands on the college, having proposed to endow it with £8000. per annum, for the maintenance of a master, warden, and four fellows, whereof three were to be clergymen, and the fourth a skilful organist; also six poor men and as many women, besides twelve poor boys to be educated till the age of fourteen or sixteen, and then put out to some trade. Lord Chancellor Bacon wished a part of them to be settled for the support of two academical lectures. He was himself the first master of this college, which he called the College of God's gift; and died, Nov. 25th, 1626, aged 61. In the chapel of his college, where he was buried, there is a tomb-stone over his grave, with an inscription. His original diary is also preserved.

ALLEZER, Fr. in military affairs, to cleanse the mouth of a cannon or other piece of ordnance, and to increase the bore, so as to produce its determined calibre.

ALLEZOIR, Fr. in military affairs, is a frame of timber suspended in the air with strong cordage, on which is placed a piece of ordnance with the muzzle downwards. In this situation the bore is rounded and enlarged by means of an instrument which has a very sharp and strong edge, made to traverse the bore by men or horses, in a horizontal direction.

ALLIA, in ancient geography, a river of Italy, now the Aja, which, running down a very steep channel from the mountains of Crustuminum, mixed with the Tiber at forty miles from Rome. It is famous for the great slaughter of the Romans by the Gauls, under Brennus; hence Alliensis dies, an unlucky day. 'Our ancestors,' says Cicero, 'deemed the day of the fight of Allia more fatal than that of taking the city.' Virgil alludes to this battle, *Æn.* vii. v. 717.

Quosque secans infaustum interluit Allia nomen.

ALLIAGE, in military affairs, a term used by the French, to denote the composition of metals used for the fabrication of cannon and mortars, &c.

ALLIANCE, with the ancient Romans, though a sort of servitude, was much coveted. Ariarathes, we are told by Polybius, offered a sacrifice to the gods by way of thanksgiving for having obtained this alliance. The Romans had different sorts of allies; some only united to them by a participation of privileges, as the Latini and Hernici; others by their foundation, as the colonies; others by the benefactions they received from them, as Massinissa, Eumenes, and Attalus, who owed their kingdoms to Rome; others again by free treaties, which last were finally subjects, as the kings of Bithynia, Cappadocia, Egypt, and most of the cities of Greece; lastly, others by compulsive treaties, and subjection, as Philip and Antiochus. For they never granted peace to an enemy, without making an alliance with him: that is, they never subdued any people without using that custom as a means of subduing others. The forms and ceremonies of alliance have been various at different ages and countries. Anciently eating and drinking and offering sacrifices together were customary rites of ratifying alliance. Among the ancient Arabs, alliances were confirmed by drinking blood out of the palms of the hands of the two contracting princes with a sharp stone, dipping in it a piece of their garments, and then with smearing other stones. Among the people of Colchis, the confirmation of alliances was said to be effected by one of the princes sucking his wife's breasts to the other to suck, which he was obliged to do till blood issued.

Alliance, in a figurative sense, is applied to any kind of union or connection; thus we say there is an alliance between the church and state.

ALLIARIA, in botany, dame's violet.

ALLICA, in entomolgy, a species of [illegible]

ALLICAR, in chemistry, the same as [illegible]

ALLIER, a department of France, so named from the river of the next article, composed of the old provinces of the Bourbonnois, &c. part of the generalitè of Moulins: having the department of the Creuse and Cher west, the Cher and Nievre, north; the Saone and Loire east, and the Pay de Dome, south, for its boundaries. It contains the four arrondissements of Mont Luçon, Moulins, Gannat, and Palesa, and 254,555 inhabitants.

Allier, a river of France, which rises in the mountains of Lozere, near Coudray, and running through the ci-devant provinces of Nivernois, Bourbonnois and Auvergne, becomes navigable near Viale, and falls into the Loire near Orleans.

ALLIGATI, in Roman antiquity, the basest kind of slaves, who were usually kept fettered. The Romans had three orders of slaves or servants; the first employed in the management of their estates; the second in the menial or low functions of the family; the third, called alligati, above mentioned.

ALLIGATION, in arithmetic. See Arithmetic.

ALLIGATOR, in botany, a species of [illegible] See Laurus.

Alligator, in zoology, a synonyme of the lacerta crocodilus. See Lacerta.

ALLIGHAR, or Ayghar, a town and fortress of Hindostan, formerly called Kole, and the residence, in the twelfth century, of Cuttub, the first Mahommedan sovereign of Delhi. It stands in the province of Delhi, between the Ganges and the Jumna, and was taken from Scindiah, by the British, in the war of 1803.

A British judge and collector are now stationed here, subordinate to the Bareily division.

ALLINGHEY, a town in the province of Dindigul, Hindostan, thirty miles south-west of Dindigul.

ALLINEGHUR, a town of Hindostan, in the Oude, twenty miles north of Ghazypore.

ALLIONI, (Charles,) a physician and botanist of Piedmont, born in 1725, and died in 1804; leaving many works on botany and medicine, of which the following are the principal: 1. Pedemontii Stirpium Rariorum Specimen Primum, 4to. Taurin. 1755. 2. Oryctographiæ Pedemontanæ Specimen, 8vo. Paris, 1757. 3. Enumeratio Stirpium Nicæensis, 8vo. Paris, 1757. 4. Synopsis Methodica Horti Taurinensis, 4to. Taurin. 1762. 5. Flora Pedemontana, 3 vols. folio, Taurin. 1785. 6. Auctarium ad Flora Pedemontana, Taurin. 1789.

ALLIONIA, in botany, a genus of plants of the monogynia order, belonging to the tetandria class; in the natural method ranking under the forty-eighth order, Aggregatæ. The characters are; the common CAL. oblong, simple, three-flowered, five-parted, and persistent; the proper one, obscure, above: the proper COR. monopetalous and funnel-shaped; the mouth quinquefid and erect: STAM. four bristly filaments, longer than the corolla, and bending to one side; the antheræ roundish: PIST. an oblong germen beneath; the stylus bristly, and longer than the stamina; the stigmata are multifid and linear: no pericarpium: the seeds are solitary, oblong, and naked: the receptaculum is naked. There are two species, viz. 1. Allionia incaranata, 2. Allionia violacea, both natives of America.

ALLIOTH, Arab. a horse: in astronomy, a star in the tail of the Great Bear, marked (ε) by Boyer, whose observation is much used at sea, for finding the latitude. The Arabs give this name to each of the three stars in the tail of the Greater Bear, on account of their appearing like three horses, ranged for drawing a waggon. See URSA MAJOR.

ALLIOTICA, ALLIOTICS, from *αλλιοω*, to vary, Galenic medicines for purifying the blood, consisting chiefly of the roots of dandelion, succory, fennel, and raisins; with the herbs endive common ox-eye, lettuce, sorrel, &c.

ALLISTAR, or ALLESTAR, a mean looking town in the peninsula of Malacca, and kingdom of Quedah, two or three leagues from the mouth of a river. The inhabitants are a mixed race of Indians and Chinese, and the natives of the latter have a large temple here. The sovereign of Quedah resides in a fortress built at Allistar, but his palace hardly equals a respectable English farm-house and yard.

ALLITERATION, ALLITERA'TIVE, ALLITERA'TOR, } Ad: *litera*, to a letter. The placing words in succession, or at short intervals from each other, commencing with the same letter.

The prosody of the Welsh bards depended much on *alliteration*. Hence they seem to have paid an attention to the scaldic versification. The Islandic poets are said to have carried *alliteration* to the highest pitch of exactness in their earliest period.

T. Warton's Hist. of the Eng. Poetry.

Thus the fields must be flowery, beauty must be beaming, ladies must be lovely; and in the same manner must the 'waves wind their wat'ry way,' the 'blust'ring blasts blow,' and 'locks all loosely lay,' not for the sake of the poetry, but the elegance of the *alliteration*. *Connoisseur*, No. 83.

ALLITERATION has been used by the most celebrated poets, both ancient and modern; Virgil, Lucretius, and even Homer not excepted. The Italians were particularly fond of it, as were also our Spenser and Shakspeare. It would be difficult to appropriate this figure to any particular passion, since rage and grief, pity and despair, have been alike expressed by it; also the roughness, strength, smoothness, airiness, and gaiety of the muse. No satisfactory account of alliteration has been given in the writings of the critics. They seem to have passed it over in silence, either as a false refinement, or as a mere trifle. Many chapters have been composed on quantity, on the beauties resulting from different arrangements of long and short syllables, and on the powers of pauses variously placed; but not a word on alliteration. This is the more extraordinary, as one should think it impossible for any man to examine minutely, and dissect a number of verses, without perceiving the vast abundance of this ornament. It is as if an anatomist should publish a complete table of the arteries in the human body, and affect never to have seen a vein nor a nerve: for we may safely affirm, that upon examining any number of verses, remarkable either for sweetness or for energy, many of them will be found in some degree alliterative. We do not say that the sweetness and energy of versification depend chiefly on this circumstance, yet we cannot help believing that it may claim a considerable share: for the poets whose fame is highest for versification, are most extensive dealers in alliteration.—The trifling appearance, and the frequent abuse, of the ornament itself, are circumstances which have induced a degree of neglect. How common is it for writers, who affect to be comic, when in want of other means for raising a smile, to use affected alliteration with success! But, in the fine arts, no beauty or grace is beyond the power of ridicule. The noblest attitudes in painting have been rendered laughable by caricature. So fares it with alliteration. Nor is it to be wondered at, that much of the delight afforded by versification arises from so trifling a cause as the occasional repetition of the same letter or sound on the accented parts of a verse; since there are many other causes of pleasure which, when dissected, seem equally contemptible. The fact is, that the principal operation of this ornament is no doubt mechanical. It is easier for the organs of speech to resume, at short intervals, one certain conformation, than to assume a number of different ones, unconnected and discordant. For example, a succession of labials, interspersed at regular distances with dentals and gutturals, are more easily pronounced than an irregular and random interspersion of all the three. Sounds of which the

articulation is easiest, are most completely in the power of the speaker. Not to add the pleasure that results to the ear from the repetition of the same letter, and which has been compared to the frequent returns of the key-note in music. The ear is pleased with alliteration, as it contributes to the superior ease of recitation; for what is recited with ease must be heard with pleasure. —These remarks might be illustrated by numberless passages from the best poets. Pope's works are full of alliterations; and Grey, who learned his versification from Dryden, as Dryden did from Spenser, seems to have paid particular attention to this grace: indeed these three abound in alliterations. This ornament is almost always founded upon a repetition of one or more consonants; and generally on those in the beginning of the emphatic words; but a verse is held to be alliterative, which has a letter repeated on its accented parts, although those parts do not begin words; the repeated letter bearing a strong analogy to the bars in a musical phrase. The following lines, selected from Pope's Essay on Man, afford instances of both kinds of alliteration.

Reason is here no guide but still a guard.

In spite of pride, in erring reason's spite.

Who for thy table feeds the wanton fawn
For him as kindly spreads the flow'ry lawn.

The bounding steed, you pompously bestride,
Shares with his lord the pleasure and the pride.

Man cares for all; to birds he gives his woods;
To beasts his pastures, and to fish his floods:
For some his int'rest prompts him to provide;
For more his pleasure; yet for more his pride.

That very life, his learned hunger craves,
He saves from famine, from the savage saves:
Nay feasts the animal he dooms his feast,
And, till he ends the being, makes it blest.

That Virtue's ends from vanity can raise:

And not a vanity is giv'n in vain.

Most strength the moving principle requires;
Active its task, it prompts, impels, inspires.

In lazy apathy let Stoics boast
Their virtue fix'd; 'tis fix'd as in a frost.

The young disease that must subdue at length,
Grows with his growth, and strengthens with his strength.

Death still draws nearer, never seeming near.

Great standing miracle! that heav'n assign'd
Its only thinking thing this turn of mind!

Alliterations contribute more to the beauties of poetry, than is generally supposed, and cannot, therefore, be deemed unworthy of a poet's regard in composition. If two words offer of equal propriety, the one alliterative, the other not, the first ought to be chosen if it suit the purpose in every other respect; but the beauty of alliteration, when happy, is not greater than its deformity when affected, or forced. Alliterations are evidently improper, where the sense is sacrificed to the sound; as in the following unnatural metaphor of Grey; "Eyes that glow and fangs that grin;" where the poet ascribes a property to the fangs, that can only belong to the face of an animal; and in the following couplet of Pope's, in the first line of which, however, the alliteration is unexceptionable, viz.

The arts of building from the bee receive;
Learn of the mole to plough, the worm to weave.

The idea of a worm weaving, which seems to [illegible] introduced as much for the sake of alliteration as of the rhyme, scarce even poetical license can justify; for though the silk-worm is an excellent spinster, we believe none of the insect tribe merit the epithet of a weaver except the spider, which does not belong to the class of vermes, or worms.

Alliteration was much affected by the Saxons, as appears from many instances of this kind which occur in their laws. It is often so frequently introduced as to make the sense which it appears completely ridiculous, an instance of which occurs in the Nugæ venales, attributed erroneously to one Lates, from Germany music master in the university at Oxford, which begins thus:

Plaudite, porcelli, porcorum pigra propago
Progreditur.

And it consisted of nearly 350 lines! The author's name, however, was Petrus Placentius and he assumed the name of Petrus Porcus, from the subject he so laboriously discussed. Alcuin, one of the three great luminaries of the Anglo-Saxons, also appears to have carried this amusement to the extreme. His letter to Eahfred contains a most elaborate specimen of Latin alliteration. Fifteen words begin with the same letter in the first paragraph: 'Primitus (pantorum creatorem pretorumque pio potissimum patrocinio præsertim privilegio) panegyricum poematis passim prosatori sub polo promulgantes strepentes vocum symphonia ac melodiæ cantilenæque [illegible] mine modulaturi hymnizemus.' In the same letter we have afterwards 'torrenda tetra [illegible] in tartara trusit.' We are told of one Theobaldus, a Monk of the order of St. Benedict, who flourished in the time of Charles the Bald, to whom he presented a panegyric on Baldness, every word beginning with the letter C. The plays and romances of Lilly, which were wholly of affectation and conceit, contributed to spoil the state of the age in which he lived. Those who are fond of the figure would perhaps equally enjoy a poem composed by the *lipogrammatists* or letter-droppers of antiquity, who would take an exception against some particular letter in the alphabet so as not to admit it once into a whole book. One Tryphidorus, a great master in this kind of writing, is said to have composed an Odyssey consisting of 24 books, excluding from the first book the letter A, from the second B, and so on: thus shewing the whole 24 letters one after another, that he could do his business without them. It must have been very pleasant to have seen this poet making his escape through the several Greek dialects, when he was pressed with it in any particular syllable, with the same earnestness as another would avoid a false quantity; for the most apt and elegant word in the whole language was rejected, like a diamond with a flaw in it, if it appeared blemished with a wrong letter. In allusion to this, Mr. Addison says he saw in a dream the phantom of Tryphiodorus the Lipogrammatist engaged in a ball with 24 persons, who pursued him by turns through all the intricacies and labyrinths of a country dance without being able to overtake him.

ALLIUM, from αλεω, to avoid, because many shun the smell of it: garlic; a genus of the monogynia order, belonging to the hexandria class of plants; and in the natural method ranking in the ninth order, Spathaceæ. The characters are: CAL. a common spatha, roundish, and multiflorous: COR. six oblong petals: STAM. six subulated filaments, often the length of the corolla; the antheræ are oblong and erect: PIST. a germen above, shorter, nearly three-cornered, with angles engraved with a line; the styli are simple; the stigmata acute: PERICARP. a very short, broad, three-lobed capsule, with three cells and three valves: the seeds are many and roundish. Of this genus forty different species are enumerated by Linnæus, among which he includes the cepa and porrum, or onions and leeks.

1. ALLIUM ASCALONIUM, or eschalot, was found wild in Palestine by Dr. Hasselquist. The root of this species is very pungent, has a strong, but not unpleasant smell, and therefore is generally preferred to the onion for making high-flavoured soups and gravies. It is also put into pickles, and in the East Indies they use a great deal of it for this purpose.

2. ALLIUM CEPA, or common onion, differs from the garlic only in the swelling pipy stalk, which is much larger in the middle than at either end. From whence this was first brought into Europe is not known; but that it is natural to Africa is beyond a doubt, it being evident that onions were eaten by the Egyptians about 200 years before Christ; and they make a great part of their constant food to this day.

3. ALLIUM PORRUM, or leek, has been so long cultivated, that its native place of growth cannot be traced. It is the same as that mentioned in the eleventh chapter of Numbers, where it is said that the Israelites longed for leeks and onions. Their general use as a potherb is well known.—Their culture is the same with that of the onion.

4. ALLIUM SATITUM, or garlic, has a bulbous root, of an irregularly roundish shape, with several fibres at the bottom; each root is composed of a number of lesser bulbs, called cloves of garlic, enclosed in one common membraneous coat, and easily separable from one another. All the parts of this plant, but more especially the roots, have an acrimonious, and almost caustic taste, with a strong offensive smell, which last has induced those who preserved some of the species in gardens, on account of their yellow flowers, to eradicate them.

5. ALLIUM SCHOENOPRASUM, or cives, is an inhabitant of Siberia, and a very small plant compared with the former. Its taste, smell, and virtues, are much the same as those of the common onion.

6. ALLIUM SCORODOPRASUM, or rokambole, grows naturally in Denmark and Sweden.

7. ALLIUM URISNUM, or wild garlic, is very common and useful in Kamschatka for medicine as well as food. Both Russians and natives gather it in great quantities for winter service. They steep it in water, then mix it with cabbage, onions, and other ingredients, and form out of them a ragout which they eat cold. It is also the principal remedy for the scurvy. As soon as this plant appears above the snow, they seem to put this dreadful disorder at defiance, and find a cure almost in its worst stages.

ALLIX, (Peter, D. D.) a learned French Protestant born at Alençon in 1641, and minister of the reformed church at Rouen, where his reputation as an author induced the reformed to call him to Chanenton, about a league from Paris, being the principal church they had in France. On the revocation of the edict of Nantz, he retired to England; and studied the language with much success, leaving behind him many testimonies of his literary abilities, and theological zeal. Among the number of his writings are 1. Dissertatio de Sanguine D. N. I. Christi. 2. Dissertatio de Tertulliani Vita et Scriptis. 3. Les Maximes du Vrai Chretien, joined with Bonnes et Saintes Pensées pour tous les Jours du Mois, Amsterdam, 1687. 4. Reflections upon the Books of the Holy Scriptures, to establish the Truth of the Christian Religion, republished by Bishop Watson in his Tracts. 5. Some Remarks upon the Ecclesiastical History of the ancient Churches of Piedmont, 4to. London, 1690. 6. Remarks upon the Ecclesiastical History of the ancient Churches of the Albigenses. 4to. Lond. 1692. 7. The Judgment of the ancient Jewish Church against the Unitarians, &c. Of this last work bishop Horsley speaks highly in his controversy with Dr. Priestley. He was complimented with the degree of D. D. and in 1690 was made treasurer of the church of Salisbury. He died in 1717.

ALLOA, a town and parish of Scotland, in the county of Clackmannan, extending about four miles from east to west and about two from north to south, containing about 3900 acres. The Forth is its southern boundary, and the course of the river is so circuitous, that its banks on the border of the parish measure five miles and a half. Upon the west it is watered by the Divon, which joins the Forth about a mile from Tullibody, and has a pier built at its mouth, where vessels of tolerable burden can load. The climate is good, and the soil various. The rivers produce salmon, trout, &c. and the coast is frequented by sturgeons, soles, turbots, skate, haddocks, Congo eels, &c.; and a peculiar species of herrings, called GANDANOOKS, which see. Upon the eastern extremity of the parish there is an artificial lake, turning various mills, cleansing the harbour, &c. On the north-east extremity is the elegant seat of Shaw Park. The colliery affords employment to many of the inhabitants, and furnishes 35,000 tons of coal annually for export. The machinery used is excellent. There were formerly 100 looms employed in the manufacture of camblets, but these are now almost wholly discontinued; as well as the manufacture of serges and inferior woollen stuffs. Here are two extensive distilleries, two celebrated breweries, tanneries of repute, and a glass manufactory of great extent.

The town of Alloa was the Alauna of the ancient Romans, and is seated on the north side of the Forth, seven miles east from Stirling by land, but above seventeen by water, about thirty-two north-west from Edinburgh by land, and twenty-seven and a half higher up the Frith than Leith. It is pleasantly situated and contains

from 5000 to 6000 inhabitants. It has two market days in the week, and four annual fairs. Alloa is remarkable for its fine castle, the seat of the ancient earls of Mar, and for the coal mines near it. The harbour is extremely commodious, with great depth of water; enabling vessels to load expeditiously. An excellent dry dock has been erected, capable of receiving ships of the reatest burden: and above the dock there is a ferry, with two very complete piers, one on each side of the river. The tower and lands of Alloa were exchanged by David II. king of Scots, in 1365, with Thomas Erskine, for the lands and estate of Strathgartney in Perthshire; and since that period the castle of Alloa has been the favourite residence of the family of Mar. The turret of the tower is eighty-nine feet in height; and the walls are eleven feet in thickness. It was built in the end of the thirteenth century. Its situation is uncommonly beautiful. The gardens were the first that were laid out on a great scale in Scotland; they contain about forty acres. In this residence of the family of Erskine, many of the Scottish princes received their education, having been for more than two centuries the wards of the lords Erskine and earls of Mar. The last heir of the Scottish monarchy who was nurtured in it, was Henry, prince of Cumberland, son of king James VI. The streets of Alloa are, in general, narrow and irregular; but there is one, called John's street, built by the late earl upon a regular plan, which runs in a line parallel to the gardens, and leads to the harbour, between seventy-six and eighty feet broad, and terminating in a beautiful gravel walk. A row of lime-trees on each side adds to its beauty, and affords an agreeable shade in summer. The church of Alloa is rather small for its population. It has a post-office and custom-house; a subscription library, on a respectable footing; and contains a burgher, antiburgher, and relief meeting houses. Alloa is governed by a baron-bailie. Market on Saturday.

ALLOBROGES, from Allobrox: a people of Gallia Narbonensis, situated between the Isara and the Rhone, and the lake Lemanus: commended by Cicero for their fidelity; but censured by Horace on account of their fondness for novelty. Epod. 16, v. 6.

Novisque rebus infidelis Allobrox.

ALLOBROX, in ancient history, a name given by Berosus to the fifteenth king of the Gauls; whence some have derived the name of the Allobroges. *Dupleix, Mem. des Gaules*, l. 2. c. 16.

ALLOCATION, in law, an allowance made on account in the Exchequer.

ALLOCATIONE FACIENDA, a writ for an accountant to receive such sums from the treasurer as he has expended. *Reg. Orig.* 206.

ALLOCATO COMITATU, in law, a new writ of exigent allowed before any county court holden, on the former not being fully served or complied with.

ALLOCATUR, in law, i. e. it is allowed; a term applied to the certificate of allowance by the master on taxation of costs.

ALLOCHROITE, in mineralogy, an opaque garnet, of a greyish, yellowish, or reddish colour. Quartz scratches it, but it strikes fire with steel. It has externally a glistening, and internally a glimmering lustre. Its fracture is uneven, and its fragments are translucent on the edges: sp. gr. 3.5 to 3.6. It melts before the blowpipe into a black opaque enamel. Vauquelin's analysis is the following: Silica 35, lime 30.5, oxide of iron 17, alumina 8, carbonate of lime 6, oxide of manganese 3.5. M. Brogniart says it is absolutely infusible without addition, and that it requires a flux, as phospate of soda or ammonia. With these it passes through a beautiful gradation of colours. It is covered at first with a species of enamel, which becomes on cooling reddish-yellow, then greenish, and lastly of a dirty yellowish-white. He represents it as rather difficult to break. It was found by M. Dandrada in the iron mine of Virums, near Drammen in Norway, and is accompanied by carbonate of lime, protoxide of iron, and brown garnets.

ALLOCUTIO, in Roman antiquity, the oration of a general addressed to his soldiers to animate them to fight, to appease sedition, &c. A mount of earth was frequently raised on the occasion, and from this the general pronounced his harangue to the several squadrons around him.

ALLOCU'TION, *n.* or ADLOCU'TION, } Ad: *loquor, locutus*, to speak to. Addressing the speech to.

Upon such a high tribunal or scaffold [the βημα, or pulpit] we often see the emperor standing, and sometimes sitting in medals and ancient bass-relievos; both in *adlocutions* to the army, and in distributing their bounty to the people.

Sir G. Wheler, on the Churches of the Prim. Chris.

ALLODIARIUS, in feudal customs, the proprietor of allodial lands; also a lord paramount of a manor. See next article; also FEE and FEODAL.

ALLODIUM, most probably of German original: a possession held in absolute independence, without any acknowledgment of a lord paramount. It is opposed to fee, or feudum, which intimates some kind of dependence. There are no allodial lands in England, all being held either mediately or immediately of the king.

ALLOEOTHETA, in rhetoric, αλλοιοθετα; from αλλοιος various, θετος disposed: a figure of grammar varying from the ordinary rules of syntax, as a noun in the singular with a verb plural, *Pars abiere*.

ALLOGIA, in antiquity, of locus, Lat. a place: winter quarters appointed for the soldiery.

ALLOGNE, in military affairs, the cordage used with floating bridges, by which they are guided from one side of a river to the other.

ALLOISI, BALDASSARE, a celebrated painter of Bologna, who obtained the name of Galanino. He was born in 1578, and studied under the Caracci, whose style he retained in all his compositions. The Italians have considered him a second Vandyck. He died in 1638.

ALLONBY. See ALANBY.

ALLONGE. *n. s. allonge*, Fr. 1. A pass or thrust with a rapier, so called from the lengthening of the space, taken by the fencer. 2. It is

likewise taken for a long rein, when the horse is trotted in the hand.

ALLOO′, *interj.* or HALLOO′. } Loo, *aloo*, *halloo*, *lo*, imperative of the verb look. Alew is found in Spenser.

Awhile she walkt and chauft; awhile she threw
Herself apon her bed and did lament:
Yet did she not lament with loude *alew*
As women wont, but with deepe sighes and singulfes few. *Spenser's Faerie Queene*, book v. c. vi.

List, list; I hear
Some far off *halloo* break the silent air.
Milton's Comus.

Alloo thy furious mastiff, bid him vex
The noxious herd, and print upon their ears
A sad memorial of their past offence. *Philips.*

ALLOOR, a town of Hindostan, in the Northern Carnatic, 114 miles north of Madras. N. lat. 14°. 40′. E. long. 80°. 3′.

ALLOPHANE, in mineralogy, a stone of a blue, and sometimes a green or brown colour, which occurs massive, or in imitative shapes. Lustre vitreous; fracture imperfectly conchoidal; transparent or translucent on the edges. Moderately hard, but very brittle. Specific gravity 1.89. Composition, silica 21.92, alumina 32.2, lime 0.73, sulphate of lime 0.52, carbonate of copper, 3.06, hydrate of iron 0.27, water 41.3. Stromeyer. It gelatinizes in acids: it is found in a bed of iron-shot limestone in greywacke slate, in the forest of Thuringia.

ALLOPHESES, αλλοφασις, in medicine, is speaking of things differently from what they are, delirium.

ALLOPHYLLUS, in botany; a genus of the monogynia order, belonging to the octandria class of plants. The characters are: CAL. a four leaved perianthium, with orbicular leaflets, the opposite ones less: COR. four orbicular equal petals, less than the calyx; the claws broader, the length of the smaller leaves of the calyx: STAM. eight slender filaments, the length of the corolla: the ANTH. are roundish: PIST. a round didymus germen above; the stylus filiform, longer than the stamina; and the stigma bifid, with revolute divisions. There is but one species, viz. allophyllus zeylanicus, a native of Ceylon.

ALLORI, Alexander, or Bronzino, a painter of Florence, who successfully followed Michael Angelo, and died in 1607, after having gained a great reputation.

ALLORI, Christophano, son and disciple of the preceding, was born 1577, and died at the age of 42, leaving many small pictures, executed with remarkable correctness and delicacy.

ALLOT′, *v.* ALLOT′MENT, ALLOT′TERY. } According to Tooke, the Ang. Sax. *lot* or *hlot* is the regular past tense of hliɒan, to cover, and means something covered. Hence, probably, the verb *allot*. To put to *lot*; to distribute by *lot*; parcel out; to give; grant; apportion.

Thy self content with that is the assinde
And vse it well that is to the *alotted*. *Wyatt.*

OLI. Let me go, I say.

ORLA. I will not till I please: you shall hear me. My father charged you in his will, to give me good education: you have trained me up like a peasant, obscuring and hiding me from all gentleman-like qualities; the spirit of my father grows strong in me, and I will no longer endure it: therefore allow me such exercises as may become a gentleman, or give me the poor *allottery* my father left me by testament, with that I will go and buy my fortunes.
Shakspeare's As you like it.

Five days we do *allot* thee for provision,
To shield thee from disasters of the world;
And on the sixth to turn thy hated back
Upon our kingdom. *Shaksp. King Lear.*

I shall deserve my fate if I refuse
That happy hour, which heaven *allots* to peace.
Dryden.

There can be no thought of security or quiet in this world, but in a resignation to the *allotments* of God and nature. *L'Estrange.*

Though it is our duty to submit with patience to more scanty *allotments*; yet thus much, we may reasonably and lawfully ask of God.
Rogers's Sermons.

It is laid-out into a grove, for fruits and shade; a vineyard; and an *allotment*, for olives and herbs.
Broome.

Since fame was the only end of all their studies, a man cannot be too scrupulous in *allotting* them their due portion of it. *Tatler.*

Of memory, which makes so large a part of the excellence of the human soul, and which has so much influence upon all its powers, but a small portion has been *allotted* to the animal world. *Rambler.*

ALLOY. See ALLAY.

ALLOY, or ALLAY, *alliage*, Fr. *Legiren metallversetsung*, Germ. *lega*, Ital. This word is supposed to be derived through the French language, from the Latin, ad-ligatio; which signifies the act of tyeing, binding, or connecting together. The term formerly was almost wholly confined in England to the goldsmiths, and the mint, where it was appropriated to the lowering of the purity of gold or silver, previous to its being coined, and hence seems gradually to have assumed the meaning of the English verb, to allay, i. e. to abate, to lower. All the other known combinations of metal with each other, were simply called 'mixed metals,' but the term alloy, has at length been made to comprehend all the binary and more complicated metallic compounds. Those of which mercury makes a part, are generally known by the name amalgam.

An alloy, therefore, amongst philosophical chemists, may be defined a combination of any two or more metals into one homogeneous mass to the exclusion of more mechanical mixtures. The most valuable and useful of these have acquired particular names, as brass; which is an alloy of copper and zinc; bell-metal which is an alloy of copper and tin, &c. When any precious metal is mixed with another of less value, the assayers call the latter the alloy.

Every alloy is distinguished by the metal which predominates in its composition, or which gives it its value. Hence, English jewellery trinkets are ranked under alloys of gold, though most of them deserve to be placed under the head of copper. Since there are about 30 different permanent metals, independent of those evanescent ones that constitute the bases of the alkalies and earths, there ought to be about 870 different species of binary alloy. Only 132 species, however, have hitherto been made and examined. Some metals have so little affinity

to others, that no compound of them has yet been effected. The most common obstacles to alloying, arise from the difference in fusibility and volatility. Yet some metals are known whose melting point is nearly the same, which refuse to unite. No two bodies will combine, unless their affinity or reciprocal attraction be stronger than the cohesive attraction of their individual particles. It is in order to overcome this cohesion of the solid bodies, and to render affinity predominant, that they are penetrated by caloric. If one be very difficult of fusion, and the other very volatile, they will not unite unless the reciprocal attraction be exceedingly strong. But if their degree of fusibility be almost the same, it is otherwise. Alloys in their physical properties have the closest relations with the metals. They are a solid at the temperature of the atmosphere, except some few amalgams: they possess metallic lustre, are opaque, and dense in a greater or less degree according to the metals which compose them. They are excellent conductors of electricity, and crystallize more or less perfectly. Some alloys are brittle, others ductile and malleable: some have a peculiar odour, and some are sonorous and elastic. An alloy consisting of metals differently fusible, is usually malleable while cold, but brittle while hot. We see this exemplified in the case of brass.

With regard to the density of an alloy, we observe that it is sometimes greater, and sometimes less than the mean density of its component parts, which evinces a diminution or augmentation of volumes, at the instant of their union. The relation between the expansion of the separate metals and that of their alloys has been in some cases investigated. Alloys containing a volatile metal are decomposed, either in whole or in part; a fact which is exemplified at a strong heat, in the case of arsenic, mercury, tellurium and zinc. Those that consist of two metals differently fusible may be often decomposed by eliquation, or exposing them to a temperature capable of melting only one of them. This mode is employed to extract silver from copper. Argentiferous copper is melted with 3½ times its weight of lead; and the triple alloy being exposed to a sufficient heat, the lead carries off the silver in its fusion, and leaves the copper under the form of a spongy lump. By a subsequent operation the silver is recovered from the lead.

'Some alloys,' says an intelligent author, 'oxidize more readily by heat and air, than when the metals are separately treated. Thus 3 of lead, and 1 of tin, at a dull red, burn visibly, and are immediately oxidized. Each by itself, in the same circumstances, would oxidize slowly, and without the disengagement of light.'

The formation of an alloy must be regulated by the nature of the particular metals; the degree of affinity between metals may be in some measure estimated by the relative facility with which, when of different degrees of fusibility or volatility, they unite, or with which, when united, they can be separated by heat. The degree of tendency to separate into different proportional alloys, by long continued fusion, may also throw additional light on this subject. Mr. Hatchett in his researches on metallic alloys, remarked, that gold made standard, with the usual precautions, by silver, copper, lead, antimony, &c. and then cast into vertical bars, was by no means a uniform compound; but that the top of the bar, corresponding to the metal at the bottom of the crucible, contained the larger proportion of gold. Hence, for thorough combination, two red-hot crucibles should be employed; and the liquefied metals should be alternately poured from the one into the other. And to prevent unnecessary oxidizement by exposure to air, the crucibles should contain, besides the metal, a mixture of common salt and powdered charcoal. The melted alloy should also be stirred occasionally with a rod of pottery.

The most direct evidence of a chemical change having taken place in the two metals by combination, is when the alloy melts at a lower temperature than the fusing points of its components. Iron, which alone is nearly infusible, when alloyed with gold acquires almost the fusibility of this metal. Tin and lead form solder, which is more fusible than either of its components, and the triple compound of tin, lead, and bismuth illustrates this remark in a still more striking manner. The analogy is here strong, with the increase of solubility which salts acquire by mixture, as is exemplified in the uncrystallizable residue of saline solutions. Sometimes two metals will not directly unite, which yet, by the intervention of a third, are made to combine. Thus, mercury and iron have been made to amalgamate by previously uniting the iron to tin or zinc. The tenacity of alloys, generally speaking, is inferior to the mean of the separate metals. One part of lead will destroy the compactness and tenacity of a thousand of gold. Brass made with a small proportion of zinc, is more ductile than copper; but when one-third of zinc enters into its composition, it becomes brittle.

In common cases, the specific gravity affords a good criterion whereby to judge of the proportion in an alloy, consisting of two metals of different densities. A very fallacious rule has nevertheless been given in some respectable works, for comparing the specific gravity that should result from given quantities of two metals of known densities in a state of alloy, supposing no chemical penetration or expansion of volume to take place. Thus it has been taught, that if gold and copper be united in equal weights, the mathematical specific gravity of the alloy is the arithmetical mean of the two specific gravities. Referring the details to the article specific gravity, the correct rule is as follows: The specific gravity of the alloy is found by dividing the sum of the weights by the sum of the volumes; compared to water, reckoned unity.—Let the sum of the weights be multiplied into the product of the two specific gravities for a numerator, and each specific gravity into the weight of the other body, and the two products added together for a denominator. The quotient then obtained by dividing the numerator by the denominator, compared with this, is the true computed mean specific gravity; and that found by experiment will show whether expansion or condensation of

volume nas attended the combination. Gold having a specific gravity of 19.36, and copper of 8.87, being alloyed in equal weights, give on the fallacious rule of the arithmetical mean of the densities, $\frac{19.36+8.87}{8}=14.11$; whereas the true mean specific gravity is only 12.6. It is evident, that by comparing the former number with chemical experiment, we should be led to infer a prodigious condensation of volume beyond what really occurs,

Mr. Hatchett observed upon the density of metals, that when a bar of gold was cast in a vertical position, the density of the metal at the lower end of the bar, was greater than that at the top, in the proportion of 17.364 to 17.035.

From the above fact some authors have inferred that melted metal is a compressible fluid, and that particles passing into the solid state under pressure, exert a superior degree of cohesive attraction. On this subject, however, we shall leave the reader to form his own conclusion.

Upon the whole, since we are far from knowing all the binary alloys, which are possible, and still further from knowing all the triple, quadruple, alloys, &c. which may exist, we must confess, with Dr. Thomson, that the chemistry of alloys is at present but little understood, and that these compounds at present are much better known to artists and manufacturers than to chemists. The following tabular views from this intelligent author, exhibit the general properties of the different alloys, as far as they have been accurately examined, and with them we shall close the present article.

The first of these tables comprehends the alloys of the malleable metals with each other; the second, the alloys of the brittle metals; and the third, the alloys of the malleable and brittle metals. In these tables, the letter M signifies malleable; B, brittle; S, submalleable, used when the alloy is malleable in certain proportions, but brittle in others. O is used when the metals do not unite. The sign + is used when the alloy occupies a greater bulk than the separate metals; the sign — when the alloy occupies a smaller bulk. The first indicates an expansion; the second, a condensation.

TABLE I.

Malleable Metals.

Zinc.	Lead.	Tin.	Nickel.	Iron.	Copper.	Iridium.	Potassium.	Sodium.	Palladium	Mercury.	Silver.	Platinum.	Gold.
M													
M	M+												
O	O	B											
S	B +	M	M										
S—	B +	B—	B	S									
					M								
B	B	B		S									
B	B	B											
	B	B +		B	S—		B						
B	B	B	O	B	B		B	B	B				
B—	B—	B —	O	M	M +	M +			M —	B —			
B	S —	S —		M—	M—	M			M +	B	M +		
B—	B +	S —	M +	M +	M +	M			M	B	M +	M +	

TABLE II.

Brittle Metals.

Titanium.	Tungsten.	Chromium.	Uranium.	Molybdenum.	Manganese.	Cobalt.	Arsenic.	Tellurium	Antimony.	Bismuth.
	B			B						
				B						
				B		B				
		B		B	O		B			
		B		S	O	O	B		B	

TABLE III

Malleable and Brittle Metals.

	Bismuth.	Antimony.	Arsenic.	Cobalt.	Manganese.	Molybdenum.
Gold	B —	B —	B	B —	M	B
Platinum . . .	B	B	B			B —
Silver	B —	B —	B	B		B
Mercury . . .	B	B	B	O	O	O
Palladium . .	B —		B			
Rhodium . .						
Potassium . .	B	B	B			
Sodium . . .	B	B	B			
Copper . . .	B —	B —	M		M	S
Iron	B +	B +	B	B	S	B
Nickel . . .	B		B +	B		S
Tin	M	M? +	B		B	
Lead	M —	M —	B	B		S
Zinc	O	B +	B	O	O	O

ALLOW', *v.* ALLOW'ABLE, ALLOW'ABLENESS, ALLOW'ABLY, ALLOW'ANCE, ALOW'. Of unsettled etymology. Some derive it from the Latin *adlaudare*. Others contend for its northern origin, as if its root was *ligan*, to lay; to low or lower, [claims or pretensions.] There is little doubt but it comes immediately from the French, *allouer*. Its principal synonymes are, to admit; grant; yield; permit; approve; concede; sanction; give up; set apart to a specific use.

þe gode bisshop Antoyn þer he bare þe pris,
His dedes ere to *alowe*, for his hardynesse.
R. Brunne, p. 281.

For selde it is, that loue *alloweth*
The gentill man withouten good,
Though his condicion be good.
Gower Con. A. book iv.

þy lord lokeþ to have *alowance* for hus bestes,
And of þe monye þow haddist þr myd.
Vision of Pier's Plouhman.

So ar his errors manifold, that many words dothe use,
With humble secret playnt, fewe words of hotte effect,
Honor thy lord; *alowance* vaine of voyd desert neglect. *Surrey.*

The pow'rs above
Allow obedience. *Shakesp.*
The Lord *alloweth* the righteous. *Bible.*

It is not *allowable*, what is observable in many pieces of Raphael; where Magdalen is represented before our Saviour, washing his feet on her knees; which will not consist with the text.
Brown's Vulgar Errours.

In actions of this sort, the light of nature alone may discover that, which is in the sight of God *allowable*. *Hooker.*

I was, by the freedom *allowable* among friends, tempted to vent my thoughts with negligence. *Boyle.*

Reputation becomes a signal and a very peculiar blessing to magistrates; and their pursuit of it is not only *allowable* but laudable.
Atterbury's Sermons.

The principles, which all mankind *allow* for true, are innate; those, that men of right reason admit, are the principles *allowed* by all mankind. *Locke.*

The pow'r of musick all our hearts *allow*;
And, what Timotheus was, is Dryden now. *Pope.*

That some of the Presbyterians declared openly against the king's murder, I *allow* to be true. *Swift.*

If we consider the different occasions of ancient and modern medals, we shall find they both agree in recording the great actions and successes in war; *allowing* still for the different ways of making it, and the circumstances that attended it. *Addison.*

The ruin'd spendthrift, now no longer proud,
Claim'd kindred there, and had his claims *allow'd*.
Goldsmith's Deserted Village.

ALLOW, EAST, a river of Durham, which runs into the Tyne.

ALLOW, WEST, a river of Northumberland, which runs into the Tyne; also a river of the isle of Anglesea.

ALLUCIUS, in anci nt history, a prince of the Celtiberi, to whom Scipio Africanus restored his beautiful bride, who had fallen into his hands in war. Plutarch calls him Lucceius.

ALLUDE', *v.* ALLU'SION, ALLU'SIVE, ALLU'SIVELY, ALLU'SIVENESS. Ad: *ludo*, to play or sport with, about, or near: referring primarily to what is sportive or playful. Subsequently it signifies to furnish hints or intimations; to convey insinuations, or make indirect observations.

These wordes, good readers, haue no great harme in theim at the firste face. But they *allude* vnto certain woordes of Tyndall wyth whyche he argueth agaynste me. *Sir T. More's Workes*, fol. 860.

As for the grace of the Latin toungue, I think vnpossible to bee liuely expressed, as this autour doeth it in the Latin by reason of soondrie *allusions*, diuerse prouerbes, many figures, and exornacions rhetoricall.
Udall. Preface to St. Luke.

These speeches of Jerom and Chrysostom do seem to *allude* unto such ministerial garments, as were then in use. *Hooker.*

Here are manifest *allusions* and footsteps of the dissolution of the earth, as it was in the deluge, and will be in its last ruin. *Burnet's Theory.*

This last *allusion* gall'd the Panther more;
Because indeed it rubb'd upon the sore.
Dryden.

Expressions now out of use, *allusions* to customs lost to us, and various particularities, must needs continue several passages in the dark. *Locke.*

The Jewish nation, that rejected and crucified him, within the compass of one generation, were, according to his prediction, destroyed by the Romans, and preyed upon by those eagles (*Matt.* xxiv. 28.), by which, *allusively*, are noted the Roman armies, whose ensign was the eagle. *Hammond.*

Where the expression in one place is plain, and the sense affixed to it agreeable to the proper force of the words, and no negative objection requires us to depart from it; and the expression, in the other, is figurative or *allusive*, and the doctrine deduced from it liable to great objections; it is reasonable, in this latter place, to restrain the extent of the figure and allusion to a consistency with the former.
Rogers's Sermons.

ALLUM. See ALUM.

ALLUM BAY lies round the Needles Point, or north-east from the rocks so called, at the west end of the Isle of Wight, on the coast of Hampshire. It has good anchorage, with a sufficient depth of water, not far from the bottom of the bay, and out of the strong run of the tide, which is frequently very rapid here.

ALLUMEE, *allumé*, French, in heraldry, denotes the eyes of an animal when they are represented light or sparkling, and of a different colour from the animal itself, as when they are red, and the animal proper. Also applied to the flame of a torch, when illumined, and the handle itself is of the colour of nature.

ALLURE', *v.* & *n.* ALLURE'MENT, ALLUR'ER, ALLUR'ING. *A leurre*, Fr. to call or beckon to the *lure*, or artificial bird exhibited in order to call off the hawk from his prey—a term of falconry. To practise art with a view to entice; to call in order; to deceive; to tempt. Sometimes used in a good sense.

Vpe þe *alurs* of þe castles þe laydes þanne stode,
And byhulde þys noble game, and whyche kynȝts were god. *R. Gloucester*, p. 192.

What shoulde I speake of the other lesse euils, that he *aleured* and alected her with, as the pleasure of the eye in the beholdynge of that frute, wyth likorous desyre of the delicious taste.
Sir T. More's Workes, fol. 1274.

An eye whose judgment no effect could blind,
Friends to *allure*, and foes to reconcile;

Whose piercing look did represent a mind
With virtue fraught, reposed, void of guile.
Earl of Surry's Poems.

Unto laws that men make for the benefit of men, it hath seemed also needful to add rewards; which may more *allure* unto good, than any hardness deterreth from it; and punishments, which may more deter from evil, than any sweetness thereto allureth.
Hooker.

Hunger and thirst at once
Powerful persuaders! quickened at the scent
Of that *alluring* fruit, urg'd me so keen.
Milton's Par. Lost.

Against *allurement*, custom, and a world
Offended; fearless of reproach and scorn,
Or violence. *Id.*

The golden sun, in splendour likest heav'n,
Allur'd his eye. *Id.*

—Adam, by his wife's *allurement*, fell.
Paradise Regained.

To shun th' *allurement* is not hard
To minds resolv'd, forewarn'd, and well prepar'd;
But, wond'rous difficult, when once beset;
To struggle through the straits, and break th' involving net. *Dryden.*

The rather to train them to his *allure*, he told them both often, and with a vehement voice, how they were over-topped and trodden down by gentlemen.
Hayward.

Each flatt'ring hope, and each *alluring* joy.
Lyttleton.

He tried each art, reprov'd each dull delay,
Allur'd to brighter worlds and led the way.
Goldsmith.

ALLUSH, or rather ALUSH, in ancient geography, a place in Palestine, where the Israelites encamped, Numb. xxxiii. 13, supposed by Eusebius, Jerome, and Ptolemy, to have belonged to Idumæa, and to have been situated near Petra, the capital of Arabia Petræa.

ALLUSION, from ad, to, and *ludere*, to play, in rhetoric, a figure originating in a comparison or association of ideas, suggested by some similitude of name, sound, or circumstances. Camden defines allusion a playing with words alike in sound, but unlike in sense; whence words resembling one another become applicable to different subjects; in which sense it is synonymous with punning. Thus the Romans played on their tippling emperor Tiberius Nero, by calling him Biberius Mero; and thus in Quintilian the sour fellow Placidus is called Acidus. But allusion has, in modern times, a more extended and important signification. We cannot illustrate its graver uses better than by the following fine passage of Dr. Ogilvie's respecting religious controversy. 'If it be the obscure, the minute, the ceremonial parts of religion for which we are contending, though the triumph be empty, the dispute is dangerous; like the men of Ai we pursue, perhaps, some little party that flies before us, and are anxious that not a straggler should escape, but when we look behind us we behold our city in flames.' Pope illustrates its admirable service in irony, alluding to Denton's well-known passage respecting the Thames:

Flow, Welsted, flow! like thine inspirer, *beer:*
Though stale, not ripe; though thin, yet never clear;
So sweetly mawkish, and so smoothly dull;
Heady, not strong; o'erflowing, though not full.
Pope. The Dunciad, book iii.

ALLUT, a large village of Ceylon, north-east of Candy, from which it is distant about [illegible] miles.

ALLU'VION, *n.* Ad: *luo, lutum*, to wash [illegible] the washing away; the washing up of [illegible] earth, so as to form a mud soil.

Some rivers by insensible *alluvions* take [illegible] let out the waters that feed them, yet the [illegible] to have the same beds. *Hawk's Lett.*

ALLUVION, from *adluo*, I wash to, [illegible] pounded of ad and lavo; in law, a gradual [illegible] crease of land along the sea-shore, or the [illegible] of large rivers. The civil law places [illegible] among the lawful means of acquisition; [illegible] fines it to be a latent, imperceptible [illegible] But where any considerable portion of [illegible] torn away at once by an inundation, [illegible] to some neighbouring estate, this is not [illegible] by right of alluvion, but may be claimed [illegible] by the former owner. Great alterations [illegible] made in the face and limits of countries [illegible] vions of the sea, rivers, &c. whose [illegible] sometimes formed by alluvions.

ALLY', *v.* & *n.* } Fr. *allier*, to fas[illegible]
ALLI'ANCE, } attach to; from the [illegible]
ALLI'ANT. } *adligo*, to join, [illegible] kindred, marriage, friendship, confederacy, resemblance.

Gisors my gode cite, with alle pe purueiance,
Richard I gaf it fre, to mak pis *aliance.*
R. Brunne, [illegible]

Or to adione vp fryendschip and *ally*,
With Tirrhene pepill and folk of Tuskany.
Douglas, b. [illegible]

SIL. If this man
Had but a mind *allied* unto his words,
How blest a fate were it to us and Rome.
Ben Jonson's Sejanus, act [illegible]

He in court stood on his own feet; for the [illegible] of his *allies*, rather leaned upon him, than [illegible] him. [illegible]

We could hinder the accession of H[illegible] France; either as subjects, with great immunities [illegible] the encouragement of trade; or as an inferior [illegible] dependent *ally*, under their protection. [illegible]

Two lines are indeed remotely *allied* to [illegible] sense; but they are too like the tenderness of [illegible]
Dryden.

Remembrance and reflection how *allied*,
With thin partitions, sense from thought [illegible]
Pope.

Wants, frailties, passions, closer still *ally*
The common int'rest, or endear the tie.
To the sun *ally'd*,
From him they draw the animating fire. *Thomson.*
Time was, ere yet in these degenerate days
Ignoble themes obtained mistaken praise;
When sense and wit with poesy *allied*,
No fabled graces, flourished side by side,
From the same fount their inspiration drew,
And reared by taste, bloomed fairer as they [illegible]
Lord Byron's English Bards and Scotch Reviewers.

ALLY, (Vizier,) ex-nabob of Oude, was [illegible] adopted son of Ausuf ab Dowlah, late [illegible] Oude. His reputed father, a wealthy and [illegible] tric prince, who had succeeded to the [illegible] or throne of Oude, under the protection [illegible] British, was in the habit, whenever he saw a [illegible] nant woman whose appearance pleased [illegible]

inviting her to his palace to lie in; such an one was the mother of vizier Ally, in 1781, and her child, engaging the affections of the nabob, was by him finally adopted as his successor. Vizier Ally accordingly succeeded, but was deposed by the English government in favour of the brother of the late nabob: and a pension of two lacks of rupees, or £25,000 sterling settled on him. Proceeding to Benares, where Mr. Cherry the company's agent was despatched to make arrangements for his future residence, he came to breakfast with Mr. C. attended by an armed retinue, and, after complaining bitterly of the treatment which he had received from the Indian Company, gave a signal, on which his followers rushed in and cut to pieces Mr. Cherry and his assistant Mr. Graham. Ally made his escape into the territory of Berar; but was at length given up, on condition that his life should be spared. He died in confinement in May, 1817.

ALLYGUNGE, a town of Bengal, in the district of Purneah, forty miles north-north-east of the town of that name. N. lat. 26°. 16′. E. long. 87°. 38.

ALMACANTAR, in astronomy, ALMICANTARATH, from the Arabic Almocantharat; a name for the parallels of altitude on the celestial globe, whose zenith is the pole or vertical point.

ALMACANTER'S STAFF is an instrument for observing at sea the sun's amplitude rising and setting.

ALMADA, a town in Portuguese Estremadura, on the Tagus, opposite Lisbon.

ALMADE, a town of Spain, in the province of La Mancha, and kingdom of Castile, situated upon the top of a mountain, where are some of the most ancient silver mines in Europe.

ALMADEN, a town of Seville, in Andalusia, near which there are also silver mines.

ALMADEN DE LAZOGUE, a town of Spain, in Mancha, famous for its rich mines of mercury and vermilion. It is forty-five miles south-west of Ciudad Real.

ALMADIE, in commercial affairs, a small vessel or canoe, used by the negroes of Africa, about four fathoms long, and made usually of the bark of a tree. This name is also given to the vessels of Calicut, in India, called likewise cathuri. They go with great swiftness.

ALMAGEST, in antiquity, a celebrated book, composed by Ptolemy; being a collection of the observations and problems of the ancients, relating to geometry and astronomy. In the original Greek it was called *συνταξις μεγιστη*, i. e. greatest construction, or collection: which last word *megiste*, joined to the particle al, gave occasion to its being called almagest by the Arabians, who translated it into their language about the year 800. The Arabic word is almaghesti. Ricciolus also published a body of astronomy, which he entitled, the New Almaghest; being a collection of ancient and modern discoveries in that science.

ALMAGRA, in chemistry, red bole or ruddle; sometimes a lotion, or wash.

ALMAGRA, in natural history, the sil atticum of the ancients, an ochre of a fine and deep red, with some mixture of purple, very heavy, and of a dense yet friable structure, and rough dusty surface. It adheres firmly to the tongue, melts easily in the mouth, and is of an austere and strong astringent taste. It stains the skin, and ferments very violently with acid menstruums; by which quality it is sufficiently distinguished from the sil syricum, to which it has in many respects a great affinity. It is found in immense quantities, in many parts of Spain; and in Andalusia there are in a manner whole mountains of it. It is used both in painting and in medicine, being a very valuable astringent.

ALMAGRO, a fortress of Spain, the capital of one of the districts of La Mancha. It was built by the archbishop Roderic of Toledo, who finished it in 1214; and put a considerable garrison into it, to restrain the incursions of the Moors.

ALMAGRO, (Diego de), a Spanish commander, of mean descent, who accompanied Pizarro in the expedition against Peru in 1525. He is accused of having given orders for the murder of Atahualipa the inca. In 1535 he took Cuzco, the capital of Chili, and reserved the plunder for himself, which giving offence to Pizarro's brothers, who were there, he made them prisoners, and a civil war ensued. For some time Almagro's party experienced great success; but at length he was taken prisoner, after an obstinate battle. He was kept in confinement several months, and strangled in 1538, aged seventy-five. His son Diego endeavoured to revenge his father's death, but failed in the attempt, and was beheaded by De Castro in 1542.

ALMAGUER, a city of South America, twenty-one miles south of Popayan, in the kingdom of Quito, and province of Popayan, founded in 1543, on the top of a small mountain. Its temperature is mild and pleasant, and in its district are some gold mines.

ALMAKERK, or MALLENTROY, a market town of Transylvania, upper county of Weissenburg.

ALMA MATER, in literature, a title given to Oxford, Cambridge, &c. by such as have received their education in these and other academical foundations.

ALMANCHERY, a town of Hindostan, in the Carnatic, about eleven miles north of Bomranzepollam.

ALMAMON, or ABDALLAH, caliph of Bagdad, was the son of Haroun Al Raschid, and succeeded his brother Al Amin in 813; he was a great patron of learning, and founded a celebrated academy at Bagdad. He calculated a set of astronomical tables, and caused the works of the most celebrated ancient authors to be translated into Arabic. He died in 833, exclaiming in the mortal struggle, 'Oh Thou that never diest, have mercy on me, a dying man!' His conduct towards his uncle and rival Ibrahim, was an unusual example of clemency and magnanimity. That prince, after his deposition, kept himself some years concealed in Bagdad. Being at length discovered, he was brought before the caliph, and told that the council had unanimously condemned him to death. 'Your counsellors (said Ibrahim) have judged according to the customary rules of political government; if you pardon me, you will not, indeed, judge according to precedent but you will have no equal among sovereigns.' The caliph, raising

and tenderly embracing him, said, with great emotion, 'Uncle, be of good cheer—I will not do you the least injury;' and he not only pardoned him, but bestowed upon him a rank and fortune suitable to his birth. When Almamon's courtiers came in crowds to compliment him on this generous action, he exclaimed, in the fullness of his heart, 'Oh! did men but know the pleasure I feel in pardoning, all who have offended me would come and confess their faults!'

ALMANACK, a calendar, or book, in which the revolutions of the seasons; the rising and setting of the sun; the phases of the moon; the most remarkable conjunctions, positions, and phenomena of the heavenly bodies are marked down for every month and day in the year; also the several feasts and fasts to be observed in the church and state; together with the common ecclesiastical notes, &c. Some derive the etymology of the word from the Arabic particle *al* and *manach*, to count; others from *al* and *μανακος*, the course of months. Golius thinks it derived from a custom prevailing throughout the East, for all subjects, at the beginning of the year, to make presents to their princes. He observes that the astrologers, among the rest, present him with their ephemerides for the new year, called *alman-ha*, or new-year's gifts. Verstegan and others write the word *almonat*, and consider it of German origin. Not a few derive it from the Teutonic *al* and *maan*, the moon, or an account of every moon or every month, so our ancestors, observes Verstegan, used to carve the courses of the moon for the year upon a square piece of wood, which they called *almonaght*, signifying in old English, or Saxon ALL-MOON-HEED. With respect to the opinion of Golius, Murza Ja à far, a gentleman belonging to the court of the prince of Persia, and a native of great intelligence and veracity, assures us, that though the custom still remains, yet neither the Persians nor the Arabians have any such word in their language as *almanha*. He has also favoured us with the inspection and explanation of a Persian almanack, which is no ordinary curiosity. The first page contains a list of fortunate days for certain purposes, as for example, for buying, for selling, for marrying, for taking medicine, &c.; after which follow predictions of events, as earthquakes, storms, political occurrences, &c., after the manner of Moore's Almanack, occupying only one page. Then begins the calendar arranged much after the manner of our almanacks, in which the days of the month and of the week are arranged from the top of the page downwards. The second column exhibits the rising and setting of the sun, and the seven succeeding ones the distance of the sun from the six primary planets, according to their imperfect notions of astronomy, the Moon, Mercury, Venus, Mars, Jupiter, and Saturn. The next page contains the days of the month repeated, with columns of the distance of the moon from the other planets. The column next succeeding shews the time of her coming upon the meridian both above and below the horizon, commonly called the zenith and nadir; and the right hand column is an entire register of the several feasts and remarkable events connected with the Mahometan religion. The last two pages contain a scheme of the configuration of the planets, the calculation of eclipses, &c., formed upon the Ptolemaic system; and as the system is erroneous, the calculations are extremely imperfect. The Persian almanacks according to this example of them, greatly correspond with the genius of the nation, who are much addicted to astrology and astronomy, which a pastoral life, perhaps, inclines them, and also furnishes them leisure to apply themselves. To the present time they neither sow nor plant, travel, buy, sell, nor undertake any expedition without consulting first of all the stars and almanacks. There are astrological rules for doing any thing, bleeding, purging, cutting down to the cutting of the hair, and paring the nails. In this kingdom and in many states of Europe we have almanacks of various denominations, both in pamphlets and sheets; some of them annual and some perpetual. The principal subject of our almanacks are the calendar, months, weeks, and days; the motions, changes and phases of the moon, to which are added astronomical, astrological, meteorological, chronological, political, medical, and rural precepts, &c.; calculations of eclipses, solar ingresses, prognostics of the weather, table of tides, law terms, lists of princes, nobility, posts, offices, dignities, public institutes, &c. The name almanack answers, in a word, to the *fasti* of the ancient Romans. In France, however, the astrological observations are expunged by an edict promulgated by Henry III; and so little encouragement is given to them generally, that they are at the present time confined to one or two of these publications. The first almanack is said to have been printed at Constantinople in 1716, under the direction of Abdonaham. Regiomontanus was the first in Europe who made a complete revision in the plan of almanacks, and reduced them to their present form, with the exception of their predictive observations, which have been in all probability introduced into Europe from the Persians. The utility of almanacks cannot for a moment be doubted, and though they appear abstruse and difficult, yet by the help of good astronomical tables they are very easily made.

The most popular almanacks of the present day, are Poor Robin's Almanack, which commenced in 1652; the Lady's Diary, which appeared first in 1705; Season on the Seasons, which began in 1735; the Gentleman's Diary, first printed in 1741; Moore's Almanack; Partridge's Almanack; White's Ephemeris, or Celestial Atlas; Goldsmith's Almanack, and Robertson's Pocket Almanack.

The Lady's and Gentleman's Diary, have, to a remarkable degree, subserved the cultivation of the mathematical sciences in this kingdom. All learned foreigners aver, that there is a greater proportion of our population acquainted in a certain extent with mathematical science and knowledge, than of any other country in Europe, and perhaps of the world; and this circumstance is chiefly owing to the extensive circulation and influence of the two publications already mentioned. The proposing of so great a variety of questions

in every stage of advancement, from the first and most easy to the most remote and difficult to be answered. The succeeding year is well calculated to excite emulation among the younger branches of society, who, drawn insensibly to the consideration of the subject, are delighted by new truths, arising out of the plainest principles. The observer becomes an amateur, and the amateur a proficient. Many eminent mathematicians of the last century, as Simpson, Emerson, Landen, Wildbore, and other satellites, by the diffusion of whose light posterity shall discover truth, began with expounding the different axioms and positions laid down in the above publications.

The almanack, included in the book of Common Prayer, forms a part of the law of England, of which the courts must take notice in the return of writs, &c. It is in short a perpetual almanack, but will require frequent revision, being founded on the Gregorian calendar, which supposes 365 days, 5h. 49′, 12″, in the year; whereas its true duration of time is 365 days, 5h. 48′. 45½″. Another important publication is the Nautical Almanack, published annually under the direction of the Board of Longitude, two or three years in advance. In addition to all the essential parts of other almanacks, this contains a great variety of particulars generally interesting, although especially adapted to nautical purposes. It particularizes the distances of the moon from the sun, and from the most important fixed stars for every three hours of apparent time, according to the meridian of the Royal Observatory, Greenwich. By comparing these with the distances carefully observed at sea, the mariner may readily infer his longitude, and by having immediate recourse to Mayer's Lunar Tables, avoid the trouble and uncertainty of many intricate calculations. The sun's longitude, formerly computed from Mayer's Tables, printed in 1770, under the inspection of Dr. Maskelyne, late astronomer royal, to whom the almanack itself owes its origin, has been rendered more accurate by the additional tables of Delambre, as improved by professor Vince; and since the year 1791, the phases of the sun and moon have been both inserted.

In the almanack of 1803 the latitudes and longitudes are connected, and the moon's distance from them ascertained, according to Taylor's valuable tables, to every second of the quadrant. Since 1780, the calculations have been made from Lalande's Tables, as exhibited in the second edition of his Astronomy; and those of the eclipses of Jupiter's satellites, till the year 1795, from both Lalande's tables and Wargentine's (with the exception of the second satellite), computed by new tables of Wargentine, found in the Nautical Almanack for 1779. The eclipses have, however, from 1793, been computed to mean time from the new tables of Delambre, subjoined to the third edition of Lalande's Astronomy. Many valuable papers have appeared in this publication, adapted to facilitate nautical calculations generally. One of the most conspicuous is the rule laid down by Brinkley in 1819, for clearing the lunar distance. From the commencement of this valuable work, down to the death of its institutor and conductor, great accuracy was observed. Since that event, numerous errors have been detected, calculated to render the publication not only useless, but injurious. At length the subject was brought before parliament—the board of longitude remodelled, and the Almanack submitted to the care of a secretary. It is hoped that no interest will prevail with the British government to place any individual in that situation who is not duly qualified.

The French have a similar publication to our Nautical Almanack, which they call *Connaissance des Tems*. It commenced in the year 1698; and though subject to slight alterations, and occasionally discontinued, it has for many years been conducted with great regularity and accuracy. There are, in this work, many valuable speculations on mathematical subjects, which greatly heighten its practical importance. A minute history of the work is given in the Almanack for 1808.

Almanacks, Wooden. Antiquaries give the name of Almanacks also to a kind of instrument, usually of wood, inscribed with various figures and Runic characters, and representing the order of the feasts, dominical letters, days of the week, and golden number, with other matters necessary to be known throughout the year; used by the ancient northern nations, in their computations of time, both civil and ecclesiastical. Almanacks of this kind are known by various names among the different nations wherein they have been used; as rimstocks, primstaries, runstocks, runstaffs, Scipiones Runici, Bacculi Annales, clogs, &c. They appear to have been used only by the Swedes, Danes, and Norwegians. From the second of these people, their use was introduced into England, whence divers remains of them in the counties. Dr. Plot has given the description and figure of one of these clogs, found in Staffordshire, under the title of the Perpetual Staffordshire Almanack. The external figure and matter of these calendars appear to have been various. Sometimes they were cut on one or more wooden leaves, bound together after the manner of books; sometimes on the scabbards of swords, or even on daggers; sometimes on tools and implements, as portable steelyards, hammers, the helves of hatchets, flails, &c. Sometimes they were made of brass or horn: sometimes of the skins of eels, which, being drawn over a stick properly inscribed, retained the impressions of it. But the most usual form was that of walking staves or sticks, which they carried about with them to church, market, &c. Each of these staves is divided into three regions; whereof the first indicates the signs, the second the days of the week and year, and the third the golden number. The characters engraven on them are, in some, the ancient Runic; in others, the later Gothic characters of Ulsilus. The saints' days are expressed in hieroglyphics, significative either of some endowment of the saint, the manner of his martyrdom, or the like. Thus, against the notch for the first of March, or St. David's day, is represented a harp; against the twenty-fifth of October, or Crispan's day, a pair of shoes; against the tenth of August, or St. Lawrence's

day, a gridiron; and, lastly, against new-year's day, a horn, the mark of good drinking, which our ancestors gave a loose to at that season.

ALMANACKS, method of constructing. The first thing to be done is, to compute the place of the sun and moon for each day of the year, or it may be taken from some ephemerides and entered into the almanack; next, find the dominical letter, and, by means thereof, distribute the calendar into weeks; then, having computed the time of Easter, by it fix the other moveable feasts; adding the immoveable ones, with the names of the martyrs, the rising and setting of each luminary, the length of day and night, the aspects of the planets, the phases of the moon, and the sun's entrance into the cardinal point of the ecliptic, i. e. the two equinoxes and solstices.

ALMANAR, in the Arabian astrology, the pre-eminence of one planet over another.

ALMAND, a river of Athol, Scotland, which runs into the Tay. It has a cascade near thirty yards high; not far from which two rocks meet across the river, in such a manner as to form a natural bridge.

ALMAND CATHARTICA, in botany, a plant of Surinam, supposed by the inhabitants to be good for the colic.

ALMANDINE, in mineralogy, a coarse sort of ruby, approaching in colour nearer to the granite than the ruby. It takes its name from Alabanda, a city of Caria, whence Pliny says it was brought.

ALMANASOR, (Jacob,) a caliph of the Saracens in Africa, who, after conquering territories to the extent of above 1200 leagues in length, and 180 in breadth, including the whole country from Messa to Tripoli, at last met with such a reverse of fortune, that, to save his life, he fled to Alexandria, where he commenced baker, and died in that honest profession, A. D. 1205.

ALMANZA, a small town of New Castile, on the frontiers of Valencia in Spain, rendered memorable by the defeat of the allies in 1707, under the marquis de las Minas, and the earl of Galway. It stands in a fertile plain, on the frontiers of Valencia, thirty-five miles south-west of Xativa, and sixty-two north of Murcia.

ALMANZOR the Victorious, the second caliph of the house of Al Abas, succeeded his brother Abul Abbas Al Saffa, in the year 753. During his reign the city of Bagdad was raised from the foundation, and became the imperial residence. He was opposed by his uncle Abdalla-ebn-Alli, who was defeated by Almanzor's general, Abu-Moslem. Fearing this general's abilities and popularity, he caused him to be assassinated. Several insurrections took place in his reign, which were all suppressed. He died on a pilgrimage to Mecca, in the sixty-third year of his age.

ALMARHHA, a sea-port of Arabia, near the northern extremity of the Red Sea, two miles east of Cape Almarhha.

ALMARHHA, CAPE, a cape on the west coast of Arabia, in the Red Sea, forming the southern extremity of port Firaoun. Lon. 33°. 3′. 40″. E. lat. 29°. 1′. 41″. N.

ALME, or ALMA, singing and dancing girls in Egypt and Hindostan, who, like the [illegible] improvisatori, can occasionally pour [illegible] premeditated verse. They are called [illegible] having received a better education [illegible] women; and form a celebrated society [illegible] To be received into it, according to M. S[illegible] it is necessary to have a good voice, [illegible] stand the language well, to know the [illegible] poetry, and be able to compose and [illegible] plets impromptu. The almé know by [illegible] the new songs. Their memory is [illegible] with the most beautiful tales. There is [illegible] tival without them; no entertainment of [illegible] they do not constitute the ornament. They [illegible] placed in a rostrum, from whence they [illegible] during the repast. They then descend [illegible] saloon, and form dances which have no [illegible] blance to ours. They are pantomime [illegible] which they represent the usual occurrences [illegible] life. The suppleness of their bodies is [illegible] ceivable, as well as the mobility of their [illegible] to which they give at pleasure the [illegible] suited to the characters they play. Freq[illegible] however, they lay aside, with their [illegible] modesty of their sex. They are the [illegible] Bacchants in a delirium. It is then that [illegible] ple, far from delicate, redouble their [illegible] These almé are sent for into all the [illegible] They teach the women the new airs, am[illegible] with amorous tales, and recite in their [illegible] poems, which contain lively pictures of [illegible] manners. The common people have [illegible] almé of a secondary order.

ALMEDINA, a decayed town of Me[illegible] on a declivity of mount Atlas. The [illegible] around it is very fertile.

ALMEHRAB, among the Mahom[illegible] denotes a niche in their mosques, which [illegible] to the kebla, or temple of Mecca, to which [illegible] are obliged to bow in praying. See KEBLA.

ALMEIDA, a frontier town of Port[illegible] the province of Tralos Montes, on the [illegible] of Leon, where there was a very brisk [illegible] between the French and Portuguese in [illegible] seventeen miles north-west of Ciuidad R[illegible]

ALMEIDA, a fortified town of Port[illegible] Beira, on the Spanish frontier, containing [illegible] 2500 inhabitants and two parishes. It [illegible] miles north-east of Lisbon. This place [illegible] taken by the French in 1810, and retaken [illegible] the British at the beginning of the following [illegible]

ALMEIDA, (Francis,) a Portuguese ge[illegible] appointed in 1505 the first viceroy of Ind[illegible] took the city of Quiloa, and made many [illegible] conquests. Being informed that a rich [illegible] fleet lay in the harbour of Panama, he pro[illegible] thither with his squadron, and found the [illegible] protected by a rampart and a strong [illegible] Almeida, however, ventured to land, and [illegible] an obstinate conflict, defeated the enemy, [illegible] set the city and ships on fire. On the [illegible] his son, who was killed in a severe engag[illegible] Almeida only said, 'he thanked God for [illegible] honoured him with so glorious a death.' [illegible] he was thus engaged, Albuquerque [illegible] orders from Portugal to supersede him, [illegible] meida being about to proceed to Da[illegible] fleet, refused to deliver up his government [illegible] this expedition he sullied his reputation [illegible]

putting all the inhabitants of the city to the sword, and not sparing even the infants. He afterwards fell in with the fleet of the enemy, and defeated it, making a slaughter of 4000 men. This produced a peace. On his passage to Europe he was slain at the Cape of Good Hope, in a skirmish with the natives.

ALMELILETU is used, by Avicenna, to express a preternatural kind of heat, a degree less than that of a fever.

ALMELOO, a small town and lordship of Overyssel, Holland, district of Twenthe, belonging to the count of Rechteren. It had 2162 inhabitants in 1796, and carried on a considerable trade in the linen which is here manufactured. Twenty miles east-north-east of Deventer.

ALMELOVEEN (Theodore Jansen Van), a physician, was born in 1657, at Medrecht, near Utrecht, and died in 1712. Among his works are, 1. Hippocratis Aphorismi, Gr. et Lat. 12mo. Amst. 1685. 2. Aurelius Celsus de Medicina, 12mo. Amst. 1687; 8vo. 1713; 8vo. Patav. 1722. 3. Apicii Cælii de Obsoniis et Condimentis, sive de Arte Coquinaria, Libri x. 8vo. Amst. 1709. 4. Aurelianus de Morbis Acutis et Chronicis, 4to. Amst. 1709. 5. Bibliotheca Promissa et Latens, 8vo. 1688, 1698, 12mo. 1692; 8vo. Nuremberg, 1699. 6. The Anatomy of the Muscle, 8vo. Amst. 1684. 7. Onomasticon Rerum Inventarum et Inventa Nova et Antiqua, id est Brevis Enarratio Ortûs et Progressûs Artis Medicæ, ibid. 1684. 8. Fasti Consulares, 8vo. Amster. 1705. As he had no children, he left his collection of the different editions of Quintilian to the University at Utrecht. His library, which was extensive, was sold the following year at Amsterdam.

ALMENDVALAIO, a town of Spanish Estremadura, near the borders of Portugal.

ALMENE, in botany, a name given by some of the Arabian writers to the prickly lotus of Africa, called by the ancients lotus acanthos, and by Virgil acanthus only.

ALMENE, in commerce, a weight of two pounds used to weigh saffron in several parts of the continent of the East Indies.

ALMERIA, a river of Spain, on the mouth of which is seated the town of that name. See next article.

ALMERIA, a sea-port town of Granada, in Spain, pleasantly situated in a fine bay on the Mediterranean. This town is by some thought to have risen from the ruins of the ancient Abdera, and was formerly a place of great consequence. It was taken from the Moors in 1147, by the Emperor Conrad III. in conjunction with the French, Genoese, and Pisans; being at that time the strongest place in Spain held by the infidels, from which their privateers, which were exceedingly numerous, gave equal disturbance to the maritime provinces of Spain, France, Italy, and the adjacent islands. The city being well fortified and provisioned, having a strong castle, and a numerous garrison, was at last taken by storm, and upon its reduction was made a bishopric, suffragan of Granada. The harbour is commodious and well sheltered, and the castle yet remains. It is forty-five miles south of Baza, and fifty-four south-east of Granada. Long. 2°. 41. W. lat. 36°. 50′. N.

ALMERIA, a sea-port town of Mexico, in the province of Vera Cruz; on the coast, and near the river Noadan. It is fifty miles north of Vera Cruz, and 150 east of Mexico. Long. 97°. 30′. W. lat. 20°. 18′. N.

ALMERICIANS, in ecclesiastical history, a short lived sect of the thirteenth century, who insisted that the power of each of the persons of the Holy Trinity commenced at certain periods of time. That of the Father was, according to their creed, restricted to the Mosaic dispensation, that of the Son reached to the beginning of the thirteenth century, and the reign of the Holy Ghost then commencing, all the ceremonies of external worship were to be discontinued.

ALMESFEOH, alms money, or Peter pence, a tribute formerly paid in England to the pope, on the eighth of August.

ALMIGGIM Wood, a word used in the scriptures to signify a beautiful and light sort of wood, used for musical instruments. Meibomius proves, that it was the Indian pine or fir tree.

ALMIGH'TY, *adj.* } All might. Having
ALMIGH'TINESS. } all might or power.

Greete and wounderful ben thi werkis, Lord God *Almighti*, thi weies ben iust and trewe Lord kyng of worldis. *Wiclif's Apocalip.* c. xv.

It serveth to the world, for a witness of his *almightiness*, whom we outwardly honour with the chiefest of outward things. *Hooker.*

In creating and making existent the world universal, by the absolute act of his own word, God shewed his power and *almightiness*.
Sir Walter Raleigh.

In the wilderness, the bittern and the stork, the unicorn and elk, live upon his provisions, and revere his power, and feel the force of his *almightiness*.
Taylor.

The Lord appeared unto Abraham; and said unto him, I am the *almighty* God: walk before me, and be thou perfect. *Genesis*, xvii. 1.

Th' infernal serpent! he it was whose guile
Stirred up with envy and revenge deceived
The mother of mankind.
Him th' *almighty* power
Hurl'd headlong flaming from the ethereal sky,
With hideous ruin and combustion down
To bottomless perdition. *Milton.*

ALMIRANTE, a river of the province of Florida, which runs south-east, and falls into the sea in the bay of Pensacola.

ALMIRANTE BAY, a bay of South America, on the coast of Veragua, and kingdom of Terra Firma, so called from its having been discovered by Columbus in his fourth voyage. He was nearly wrecked at its entrance.

ALMISSA, a strong town and district in Venetian Dalmatia, anciently called Peguntium; seated on the mouth of the Cetina, between two high mountains, on a steep rock inaccessible to shipping. It lies ten miles east of Spalatro, directly opposite to the isle of Brassa. Long. 39°. 33′. E. Lat. 43°. 56′. N.

ALMIZADIR, among alchemists, is sometimes used for verdigris; sometimes for the process of the philosopher's stone; and sometimes for the aqua mercurialis, or aqua philosophorum.

ALMO, in ancient history, a rivulet of Cam-

pagna, falling into the Tiber at Rome; now called Rio d'Appio. On the 25th of March, the image of Cybele, and whatever was consecrated to her was washed in this river.

Est locus in Tiberim quo lubricus influit Almo,
Et nomen magno perdit ab amne minor;
Illic purpureâ canus cum veste sacerdos
Almonis dominam, sacraque lavit aquisi.
Ovid. Fast. l. 4. v. 387.

ALMODAVAR, a small town of Alentejo, Portugal, having 1800 inhabitants. It is nine miles south of Ourique.

ALMODAVAR DEL CAMPO, a handsome town of New Castile, Spain, with a castle, and containing 3000 inhabitants. It is eighteen miles south of Cividad Real, and included in the district of that name.

ALMOHARAM, the first month of the ancient Arabs.

ALMOHEDES, in history, the name of an African dynasty which succeeded that of the Almoravides, in Barbary, in the commencement of the twelfth century. It took its rise in the reign of Al Abraham, or Brahem, and derived its name from an obscure founder, a Barber, of the tribe of Muzamada, originally named Abdallah. In order to secure success to the design he had conceived, he assumed the title of Mohdi, or Mohedi, and set up for the head or leader of the orthodox, who were now become so numerous by his preaching, that he presumed to bid defiance even to his sovereign. Their unexpected increase at last alarmed him, and he prepared for subduing them. His force, however, was insufficient for the purpose, and in his first engagement he was totally defeated. Abdallah was wary, and secured the capital; so that Brahem, pursued as a fugitive by Abdolmumen, one of the party, was obliged to seek refuge in the city of Fez. But the gates of the city were not only shut against him, but opened to receive his pursuers. The next place to which this prince repaired was Auran, or Oran; but that city was soon invested by Abdolmumen, and the magistrates, unable to defend themselves, and dreading the consequences of an hostile attack, urged him to leave the town. Under the shelter of a dark night, he, with his favourite wife on horseback behind him, set out from Oran, but being discovered and pursued, he spurred the animal in a fit of despair, and leaped down a precipice, where he and his wife were dashed to pieces. The fatal end of this prince put a period to the empire of the Almoravides. As soon as Abdolmumen, vulgarly called Abdalman, was apprised of Brahem's death, he traversed the kingdom of Tremeçen in his way to Morocco, where, Abdallah being dead, he was declared his successor by the chiefs of the party, and proclaimed king of the Almohedes, under the title of Al Emir Al Mumin Abdallah Mohammed Abdal Mumen Ebn Abdallah Ibni Ali, i. e. chief or emperor of the true believers of the house of Mohammed Abdal Mumen, the son of Abdal Mumen, the son of Abdallah of the lineage of Ali. Abdallah had appointed a council of forty disciples of his sect, all of whom were preachers; some were commissioned to regulate all public affairs, and at proper seasons to itinerate in the country, and others to the number of sixteen, were to act as secretaries. From the former of these two [illegible] the successors to the regal and pontifical [illegible] were to be elected. The disciples of this [illegible] were by the Arabian writers styled [illegible] and by the Spanish Al Mohedes; but the [illegible] scendants and successors of that tribe [illegible] to retain the appellation of Emir Al Mumin, or chiefs of the faithful or true believers, as [illegible] as their dynasty lasted.

ALMOIN, in law. See FRANK-ALMOIN.

ALMON (John), a political writer, [illegible] Liverpool in 1738. After serving his apprenticeship to a bookseller, he went to sea, and [illegible] settled in London. On the death of George the Second, he published a Review of his [illegible] which went through two editions. His [illegible] piece was a review of the administration of Mr. Pitt, which gained him the patronage of Lord Temple. In 1765 he opened a shop in Piccadilly, but his success, however, in trade [illegible] not adequate to his activity, and he was obliged to give up the bookselling business. He died in 1805. His principal publications were—1. Anecdotes of Lord Chatham, 3 vols. 8vo. 2. Biographical Anecdotes of Eminent Persons, 3 vols. 8vo. 3. An edition of Junius, 2 vols., in which he attempted to prove, that Hugh Boyd was the author of those celebrated letters.—*Gen. Biog. Dict.*

ALMOND, a river in Perthshire, which rises in Glenalmond, and falls into the Tay, a little above Perth.

ALMOND, in botany. See AMYGDALUS.

ALMOND, in commerce, a measure by which the Portuguese sell their oil; twenty-six almonds make a pipe. Almonds, the fruit, are also used instead of a small money, in several parts of the East Indies; particularly where the cowries, those small shells which come from the Maldives, are not current.

ALMOND, in anatomy, a name for the glandular substances, otherwise called tonsils, on each side the uvula at the root of the tongue.

ALMOND-STONE, in mineralogy, the amygdalites of Linnæus, a sort of stones consisting of glandules resembling the almond in shape.

ALMONDBURY, a small town of England, in the West Riding of Yorkshire, about 3 miles from Huddersfield, on the river Calder. It is said to have been the Campodonum of the Romans, and the residence of some of the Saxon kings. But Dr. Whittaker disputes the former. The vestiges of a castle are still perceptible on a neighbouring hill. Population 4613. Distant 186 miles from London.

ALMONER, in its primitive sense, denotes an officer in religious houses to whom belongs the management and distribution of the alms of the house. By the ancient canons, all monasteries were to spend at least a tenth part of their income in alms to the poor. The almoner of St. Paul's was to dispose of the monies left for charity, according to the appointment of the donors, to bury the poor who died in the neighbourhood, and to breed up eight boys in singing, for the use of the choir. By an ancient canon, all bishops are required to keep almoners. The Great Almoner, (le grand aumonier,) of France, was a

highest ecclesiastical dignity in that kingdom, before the revolution. To him belonged the superintendency of all hospitals and houses of lepers. The king received the sacrament from his hand; and he said mass at all grand solemnities. Almoner is also a fashionable title given by some writers to chaplains. In this sense we meet with almoner of a ship, almoner of a regiment, &c.

ALMONER, Lord, or Lord High Almoner, of England, is an ecclesiastical officer, generally a bishop, who had formerly the forfeiture of all deodands, and the goods of felos de se, which he was to distribute among the poor. He had also the power of giving the first dish from the king's table to whatever poor person he pleased.

ALMORA, a garrison town in northern Hindostan, situated in the district of that name, of which it is the capital, as well as of Kemaoon. The district is hilly, covered with impervious forests and jungles, and thinly peopled. It is a subdivision of Kemaoon, the whole being tributary to the Goorkkali rajah of Nepaul. The town is built on the top of a ridge of mountains, the thinly scattered houses extending down the slope on each side. It is said to be more extensive and populous than Serinagur, and a place of greater traffic, but has not yet been entered by any European. The inhabitants are foreigners, or the descendants of emigrants from the low lands. Lat. 29°. 35′. north, long. 79°. 40′. east.

ALMORAVIDES, in history, a name given by the Spanish historians to an Arab tribe, which took possession of a district of Africa in order to live at their ease, and in a state of retirement; or, as they pretended, to follow the dictates of the Koran more closely than others of their sect, from whence they took the name of Morabites, which the Spaniards changed into that of Almoravides. The first prince or chief of this nation was Abubeker Ben Omar, who is commonly called by Spanish authors Abu Texfein, or Texifian, and who founded the dynasty of the Almoravides in Barbary, A. D. 1051.

ALMOST′. *adv.* All and most. Most or greatest; part of the whole or all.

And in the sabot suynge *almest* al the citee cam togidre to heere the word of God.
Wiclif's Dedis. c. xiii.

Who is there *almost:* whose mind, at some time or other, love or anger, fear or grief, has not so fastened to some clog, that it could not turn itself to any other object. *Locke.*

There can be no such thing or notion, as an *almost* infinite; there can be nothing next or second, to an omnipotent God. *Bentley's Sermons.*

Atlas becomes unequal to his freight;
And *almost* faints, beneath the glowing weight.
Addison.

ALMOXARIFARGO, in commerce, a duty of two and a half per cent. on bulls' hides in Spain.

ALMS, *n.* ALM′ONER, ALM′ONRY, AL′MORY. } Said to be derived from ελεημοσυνη, from ελεος mercy, by the following process, '*Almosine—almosie—almose—almes—alms.*' *Tooke's Charitable Donation.*

Reufol he was to neody men, of hys *almesse* large and fre. *R. Gloucester,* p. 330.

And yet he geueth *almesse,*
And fasteth ofte and heareth messe,
Gower. Con. A. b. 1.

And lo a man stood before me in a whyt clooth and seide, Cornelie thi prerier is herd, and thin *almesdedes* ben in mynde in the sight of God.
Wiclif. The Dedis of Aposlis, c. x.

The second was an *almner* of the place,
His office was the hungry for to feed,
And thirsty give to drinke; a work of grace:
He fear'd not once himselfe to be in need.
Spenser's Faerie Queene, b. i. c. x.

He endowed many religious foundations, and yet was he a great *alms-giver* in secret; which shewed, that his works in publick were dedicated rather to God's glory, than his own. *Bacon.*

This woman was full of good works, and *alms-deeds,* which she did. *Acts* ix. 36.

Hard-favour'd Richard, where art thou?
Thou art not here: murder is thy *almsdeed;*
Petitioner for blood thou ne'er put'st back.
Shakspeare.

I'll give my jewels, for a set of beads;
My gorgeous palace, for a hermitage;
My gay apparel, for an *alms-man's* gown. *Id.*

My arm'd knees,
Which bow'd but in my stirrup, bend like his,
That hath received an *alms.* *Id.*

The poor beggar hath a just demand of an *alms* from the rich man, who is guilty of fraud, injustice, and oppression, if he does not afford relief according to his abilities. *Swift.*

Many penitents, after the robbing of temples and other rapine, build an hospital or *alms-house,* out of the ruins of the church, and the spoils of widows and orphans. *L'Estrange.*

Such statter'd ears as are not worth your care,
Your charity for *alms* may safely spare,
For alms are but the vehicles of pray'r.
Hind and Panther. Dryden's Poems.

Behold yon *alms-house,* neat, but void of state;
Where age and want sit smiling at the gate. *Pope.*

Power and authority are sometimes bought by kindness; but they can never be begged as *alms,* by an impoverished and defeated violence. *Burke.*

ALMS in the early ages of Christianity, were divided into four parts; one of which was allotted to the bishop, another to the priests, and a third to the deacons and subdeacons, which made their whole subsistence; and the fourth part was employed in relieving the poor, and in repairing the churches. No religious system is more frequent or warm in its exhortations to alms-giving than the Mahommedan. The Alcoran represents alms as a necessary means to make prayer be heard. Hence that saying of one of their caliphs: 'Prayer carries us half way to God; fasting brings us to the door of his palace, and alms introduces us into the presence-chamber.' Many illustrious examples of this virtue are recorded among the Mahommedans. Hassan, the son of Ali, the grandson of Mahomet, in particular, is related to have thrice in his life divided his substance equally between himself and the poor, and twice to have given away all he had. And many of them extended their charity even to brutes.—Alms also signify lands or other effects left to churches or religious houses, on condition of praying for the soul of the donor. They were divided into alms free, which were liable to no

rent or service; reasonable alms, a certain portion of the estates of intestate persons, allotted to the poor; paschal alms at Easter, &c.

ALMS-BOX, or ALMS-CHEST, a small chest or coffer, called by the Greeks Κιβατιον, wherein anciently the alms were collected, both at church and at private houses. Thus also a strong box, with a hole in the upper part, having three keys, was formerly directed to be placed in every church in England, by the book of canons.

ALMUCANTARS, in astronomy, the same as parallels of altitude. See ALMACANTAR.

ALMUCIUM, in ecclesiastical affairs, a kind of cover for the head, worn chiefly by monks and ecclesiastics: it was of a square form, and seems to have given rise to the bonnets of the same shape still retained in the universities and cathedrals. Almucium was also used for the furs or muffs which were worn by the canons on their left arms.

ALMUDE, in commerce, a liquid measure in Portugal, &c. At Lisbon, wine and oil are sold by the pipe of twenty-six almudes; but the pipe of Lisbon wine sent to England contains about thirty-one almudes; and the standard gauge at the London custom-house is 140 gallons; the Lisbon almude is therefore reckoned at 4½ English gallons. At Oporto, the pipe is divided into twenty-one almudes; which almude and its sub-divisions are 49⅛ per cent. greater than those of Lisbon; so that the standard gauge of a pipe of port at the custom-house of London, is 138 gallons, and the almude of Oporto is accordingly equal to six English gallons and five pints nearly.

ALMUDEVAR, a town and district of Arragon, included in the district of Huesca.

ALMUGAVARI, in archæology, a name for the Spanish soldiers who distinguished themselves against the Saracens.

ALMUGIA, in astrology, denotes a certain configuration of the five planets, in respect to the sun and moon, correspondent to that which is between the hours of those planets, and the sun's and moon's hours.

ALMUGIM. See ALMIGGIM.

ALMUGNECAR, a town of the province of Granada, Spain, with 2000 inhabitants, a good harbour, and a castle. It was long in the possession of the Moors, and is thirty-six miles south south-west of Granada.

ALMUNIA, in archæology, a sort of tenure in use among the Spaniards.

ALMUTEN, in astrology, the lord of a figure, or strongest planet in a nativity.

ALMUTRIUM, in archæology, a cap made with lambs or goats' skins. *Dugd. Mon. Angl.*

ALNA, a river in the county of Orkney.

ALNA FIRTH, a small voe, or harbour, at the mouth of the Alna, in the parish of Delting, in Orkney.

ALNABATI, in the materia medica, a name given by Avicenna and Serapion to the siliqua dulcis, or carob-tree. They called both this and the acacia, by the common name charnub; but distinguish this as a gentle purge, whereas the other is astringent.

ALNAGAR, ALNAGER, or ALNEGER, *n. s.* from alnage, a measure by the ell, a sworn officer, whose business it formerly was to [illegible] the assize of woollen cloth, and to [illegible] appointed upon it for that purpose.

ALNCESTER, a town in Cumberland, [illegible] on the Alne, memorable for a synod [illegible] glo-Saxons held in it.

ALNEE, in mineralogy, a name [illegible] given to tin.

ALNEMOUTH, a sea-port in Northumberland, seated on the mouth of the Aln[illegible] some bones of a gigantic size have been [illegible] The harbour is safe for fishing and other [illegible] vessels. Some of 300 tons burden [illegible] here. In the reign of queen Elizabeth, [illegible] French took possession of this town and [illegible] it. Distant five miles from Alnwick, [illegible] from London.

ALNERIC, in chemistry, sulphur virgin.

ALNEY, a small island in the Severn [illegible] the city of Gloucester, famous for the [illegible] fought upon it, in sight of both their armies, between king Edmund Ironside, and Canute of Denmark; the latter being wounded, [illegible] posed an amicable division, and accordingly tained the north part of the kingdom, the [illegible] falling to Edmund.

ALNUS, in botany, the alder-tree, a [illegible] of betula. See BETULA.

ALNUS, in the ancient theatres, that part [illegible] was most distant from the stage.

ALNUS BACCIFERA, the berry-bearing [illegible] in botany, a name given by some writers [illegible] frangula.

ALNWICK, the county town of Northumberland, on the road to Scotland; a place [illegible] fatal to some of the ancient Scots monarchs. Here Malcolm III. making an inroad into Northumberland, was killed, with Edward [illegible] and his army defeated by Robert Mowbray, [illegible] of this county, A.D. 1093. Malcolm having [illegible] sieged this town, and obliged it to surrender, soldier pretending to present the keys on a [illegible] stabbed him to the heart; and his son Edward attempting to avenge his death, was also [illegible] and his army routed. Here too his [illegible] grandson, William I. invading England with [illegible] army of 80,000 men, was encountered, his [illegible] routed, and himself made prisoner, A.D. [illegible] Alnwick appears to have been formerly fortified by the vestiges of a wall still visible in many parts, and three gates which are almost entire. But its chief ornament is the stately Gothic [illegible] of the duke of Northumberland, which stands on the south side of the town, and commands a beautiful view of the surrounding country. It was a strong fortress in the time of the Scots, and has been lately repaired and improved with great taste and judgment. The market-place is a spacious square, and there is a large [illegible] house, where the quarter-sessions and other courts are held. The duke of Northumberland has also built a stone bridge over the Aln[illegible] The government of the town is vested in four chamberlains, who are chosen once in two years, [illegible] of a common-council of twenty-four. The manner of making freemen is said to be as follows: The persons who are to be made free, or, as the phrase is, leap the well, assemble in the market-place, very early in the morning, on St. Mark's

day. They appear on horse-back, with every man his sword by his side, dressed in white, and with white night-caps, attended by the four chamberlains and the castle bailiff, mounted and armed in the same manner; hence they proceed, with music playing before them, to a large dirty pool, called Freeman's Well, where they dismount and draw up in a body, at some distance from the water; and then rush into it all at once, and scramble through it as fast as they can. As the water is generally foul, they come out in a dirty condition; but taking a dram, they put on dry clothes, remount their horses, and ride full gallop round the confines of the district; then re-enter the town sword in hand, and are met by the inhabitants dressed in ribbons with bells and garlands. These are called timber-wasts. The houses of the new freemen are on this day distinguished by a great holly bush, as a signal for their friends to assemble and make merry with them after their return. This ceremony is ascribed to an order of king John, who was mired in this neighbourhood. Market on Saturday.—Alnwick is seated on the Alne, 310 miles north by west from London, thirty-three north of Newcastle, and twenty-six south of Berwick. Inhabitants, 6000.

ALOA, in Grecian and Roman antiquity, a festival held in honour of Ceres, by the husbandmen, and supposed to resemble our harvest-home. Some derive the name of the town of Alloa, from this festival.

ALOADDIN, better known by the appellation of the old man of the mountains, was prince of the Arsacides, or assassins, from whence the word assassin is derived: his residence was a castle between Antioch and Damascus, and he had a number of young men with him who were so devoted to his will, as to engage in any undertaking he chose to send them upon. This made the neighbouring princes very careful not to offend him. He and his subjects were Mahommedans.

ALODIUM. See ALLODIUM.

ALOE, in botany, ἀλοή, the name of a plant. It is derived, in all probability, from the Hebrew אהלה. The aloe which comes from India is said to resemble the squill, with the exception, that it is bigger, and provided with fatter leaves. The juice, which is found sticking to the plant like a tear, is exceedingly bitter; but is greatly famed for its medicinal virtues. *Dioscor.* l. 3. c. 25. *Ruff. Ephes. Fragment. de Med. Purg. Gal. Comm.* 2. *in Hippocrat. de Art.* c. 49. *Cels. de Re Med.* l. 2. c. 12. *Oribas. Med. Coll.* l. 7. c. 27. *Aet. Tetrab.* i. *Serm.* iii. c. 24. *Actuar. de Meth. Med.* l. 5. c. 8. *Salmas. Exercitat. Plin.* 1053. *Plin.* l. 27.

Aloe, in the Linnæan system, is a genus of the order monogynia, class hexandria; and, in the natural method, ranking under the tenth order, coronariæ. The characters are: No CALYX: COR. monopetalous, erect, six-cleft, and oblong; tube gibbous; border spreading, and small; with a nectary-bearing bottom: STAM. six subulated filaments, rather surpassing the corolla in length, and inserted into the receptacle: the ANTHERÆ oblong and incumbent: the PIST. ovate germen; STYLE simple, the length of the stamina; the STIG. obtuse and trifid: the PER. an oblong capsule, three-furrowed, three-celled, three-valved: seeds many and angular. The proper earth for planting these vegetables in, is, one half fresh light earth from a common, and the rest an equal mixture of white sea-sand and sifted lime-rubbish. This mixture should always be made six or eight months before the plants are to be set in it. The common aloe will live in a dry green-house in winter; and may be placed in the open air in summer in a sheltered situation, but must have very little water. Most of the other aloes are best preserved in an airy glass-case, in which there is a stove, to make a little fire in very bad weather. The tenderest kinds require a greater share of heat to preserve them in winter, and should be kept in a good stove, in air ten degrees above temperate. Many other kinds may also be kept in this heat; but the greater the heat, the more water they always require. About the beginning of June, it is usual in England to set the pots of aloes out of the house; but they should be set under the shelter of hedges or trees, to keep them from the violence of the sun; the rains also, which usually fall in this and the following month, are apt to rot them. It is therefore best to keep them under cover the greatest part of the year. The best time to shift these plants is the middle of July. They are, on this occasion, to be taken out of the pots, the loose earth to be picked from about their roots, and the decayed or mouldy parts of them cut off; then a few stones are to be put at the bottom of the pot, and it is to be filled with the composition before described, and the plants carefully put in, the roots being so disposed as not to interfere with one another. They are to be carefully watered after this, at times, for three weeks, and set in a shady place. The common kind will bear the open air from May to October, and should be shifted every year. All the aloes are propagated by off-sets, or by planting the leaves. The off-sets should be taken from the mother plant at the time when it is shifted: they are to be planted in very small pots of the proper mixed earth; and if that part of them which joined to the mother plant be observed to be moist when taken off, it should lie on the ground in a shady place two or three days before it is planted, otherwise it will rot. After planting these, they should remain in a shady place a fortnight; and then be removed to a very moderate hot bed, plunging the pots therein, which will help their striking new roots. Towards the end of August they must be, by degrees, hardened to the open air, by taking off the glasses of the hot-bed; and, in September, they may be removed into the green-house. Of this genus, some botanical writers enumerate only ten species; Miller and others mention twenty-five; while others, with Dr. Johnson, as above, state no fewer than thirty-nine species But, in enumerating so many, those writers must have confounded the various species of different genera, such as those of the agave, aletris, &c. with this genus: of which we shall only particularise the following:—

1. Aloe Disticha, by some called the soap aloe, by others the caballine aloe, seldom rises

above two feet high. The leaves are very broad at the base, where they closely embrace the stalk, and gradually decrease to a point. The edges are set with sharp spines, and the under leaves spread open horizontally every way. These are of a dark green colour, spotted with white, somewhat resembling the colour of soft soap, from whence the plant got the name of soap-aloe. The flowers grow in umbels on the tops of the stalks, are of a beautiful red colour, and appear in August and September.

2. Aloe lingua-formæ, or tongue aloe, has its leaves about six inches in length, and shaped like a tongue. The flowers grow in slender loose spikes, each hanging downward, of a red colour below, and green at the top.

3. Aloe margaritifera, or pearl aloe, is a very beautiful plant. It is smaller than most of the aloe kind. The leaves are short, very thick, sharp pointed, and turning down, with a large thick end, appear there triangular. The colour of the leaves is a fine green striped in an elegant manner with white, and frequently tipped with red at the point. The flower-stalk, which rises in the midst of the leaves, is round, smooth, of a purple colour, and generally about eight inches high. When the plant has been properly cultivated, the flowers are striped with green and white; and sometimes they are entirely white. This aloe is singular in not having the bitter resinous juice with which the leaves of most others abound; when a leaf of this species is cut, what runs from it is watery, colourless, and perfectly insipid.

4. Aloe perfoliata, or Socotorine aloe, has long, narrow, succulent leaves, which come out without any order, and form large heads. The stalks grow three or four feet high; and have two, three, and sometimes four of these heads branching out from it. The flowers grow in long spikes, each standing on a pretty long footstalk; they are of a bright red colour, tipped with green, and generally appear in the winter season.

5. Aloe retusa, or cushion aloe, hath very short, thick, succulent leaves, compressed on the upper side like a cushion. This grows very close to the ground; the flowers grow on slender stalks, and are of an herbaceous colour.

6. Aloe spiralis, with oval crenated flowers, grows somewhat like the former; only the flowers grow upon taller stalks, which branch out and grow in very long close spikes.

7. Aloe variegata, or partridge breast aloe, is a low plant, seldom rising above eight inches high. The leaves are triangular, and curiously veined and spotted, somewhat like the feathers of a partridge's breast. The flowers grow in very loose spikes, and are of a fine red colour, tipped with green.

8. Aloe viscosa, with funnel-shaped flowers, grows near a foot high, with triangular leaves of a dark green colour. The flowers grow thinly upon very slender footstalks, are of an herbaceous colour, and their upper part turns backward. The species, of which aloe is the most commonly received name, are the crapula perfoliata, the agave Americana, the dacæna marginata, the aletris uvaria, and the yucca [illegible] of Linnæus.

ALOES. *n. s.* אהלם, as it is supposed [illegible] applied to three different things. 1. A pre[illegible] wood used in the East, for perfumes, of w[illegible] the best sort is of higher price than gol[illegible] was the most valuable present given by the [illegible] of Siam, in 1686, to the king of Franc[illegible] called tambac, and is the heart, or interior [illegible] of the aloe-tree; the next part to which is [illegible] calembac, which is sometimes imported [illegible] rope; and, though of inferior value to [illegible] tambac, is much esteemed: the part next [illegible] bark is termed, by the Portuguese, pao d'[illegible] or eagle-wood; but some account the eagle-[illegible] not the outer part of the tambac, but [illegible] species. Our knowledge of the wood is yet [illegible] imperfect.—Savary. 2. Aloes is a tree [illegible] grows in hot countries, and even in the mo[illegible] tains of Spain. 3. Aloes is a medicinal [illegible] extracted not from the odoriferous, but the [illegible] mon aloes-tree, by cutting the leaves and [illegible] posing the juice that drops from them to the [illegible] It is distinguished into Socotorine and cabal[illegible] or horse aloes: the first is so called from So[illegible] tora; the second, because, being coarser, it [illegible] to be confined to the use of farriers. It [illegible] warm and strong cathartic.

With respect to the manifold uses of aloes [illegible] shall now make a few observations. The ma[illegible] a kind of symbolic plant to the Mahometa[illegible] especially in Egypt, and in some measure [illegible] dicated to the offices of religion; for whe[illegible] returns from a pilgrimage to Mecca, hangs [illegible] over his street door, as a token of his ha[illegible] performed that holy journey. The superst[illegible] Egyptians believe that this plant hinders [illegible] spirits and apparitions from entering the ho[illegible] and, on this account, whoever walks the str[illegible] in Cairo, will find it over the doors both [illegible] Christians and Jews. From this plant the Eg[illegible] tians distil a water, which is sold in the apo[illegible] caries' shops at Cairo, and recommended [illegible] coughs, hysterics, and asthmas. An expe[illegible] rienced French surgeon, says Hasselquist, [illegible] a Coptite, forty years old, afflicted with the ja[illegible] dice, four tea-cups full of the distilled water [illegible] species of aloe, and cured him in four da[illegible] This remedy, unknown to our apothecaries, [illegible] not difficult to be obtained, as the plants may [illegible] easily be raised in the warm southern part [illegible] Europe. The Arabians call it sabbara. [illegible] leaves of the Guinea aloe, mentioned by M[illegible] Adanson in his voyage to Senegal, the na[illegible] make very good ropes, not apt to rot in [illegible] water. Dr. Sloane mentions two sorts of aloe[illegible] one of which is used for fishing-lines, bo[illegible] strings, stockings, and hammocks; the other [illegible] leaves which, like those of the wild pine [illegible] banana, hold rain water; and, therefore, [illegible] a very necessary refreshment to travel[illegible] in hot countries, where there is generally [illegible] scarcity of wells and water. The magu[illegible] species of aloe in Mexico, yields almost ev[illegible] thing necessary to the life of the poor In[illegible] country. Besides making excellent hedges [illegible] their fields, its trunk serves in place of [illegible] for the roofs of their houses, and its leaves [illegible]

stead of tiles. From those leaves they obtain paper, thread, needles, clothing, shoes, stockings, and cordage; and, from its copious juice, they make wine, honey, sugar, and vinegar. Of the trunk, and thickest part of the leaves, when well baked, they make a very tolerable dish of food. Lastly, it is a powerful medicine in several disorders, and particularly in those of obstructions of the urine. It is also one of the plants the most valued and most profitable to the Spaniards.

As to the medical properties of Aloes, the substance, known by the name of aloes, is the inspissated juice of some of the above-mentioned species. The ancients distinguished two sorts of aloes: the one was pure, and of a yellowish colour, inclining to red, resembling the colour of a liver, and thence named hepatic; the other was full of impurities, and hence supposed to be only the dross of the better kind. At present, various sorts are met with, distinguished either from the place whence they are derived; from the species of the plants; or from some difference in the juices themselves. Of these, we shall notice the common aloes, or juice of the officinal aloe—hepatic aloes, the juice of the guinea aloe, so called from its liver-like colour—caballine, or horse aloes, from the same plant, but a coarser sort, commonly given to horses; Socotorine aloes, from the juice of the aloe of Socotora. Those commonly sold in the shops may be arranged in three classes, viz.

1. Aloes caballinæ, fœtid, caballine, or horse-aloes, is supposed to be a coarse sort obtained from the aloe perfoliata; according to others, it is the produce of the aloe disticha. It is chiefly distinguishable by its strong rank smell.

2. Aloes hepaticæ, hepatic, Barbadoes, or common aloes, the juice of a variety of the former, is not so clear and bright as it; it is also of a darker colour, more compact texture, and for the most part drier. Its smell is much stronger and more disagreeable; the taste intensely bitter and nauseous, with little or nothing of the fine aromatic flavour of the Socotorine. The best hepatic aloes come from Barbadoes in large gourd shells; an inferior sort, which is generally soft and clammy, is brought over in casks. Of the cultivation and preparation of hepatic aloes in the island of Barbadoes, we have the following account in the London Medical Journal, vol. viii. art. 8.—'The lands in the vicinity of the sea, that is, from two to three miles, which are rather subject to drought than otherwise, and are so stony and shallow as not to admit of the planting of sugar-canes with any prospect of success, are generally found to answer best for the aloe plant. The stones, at least the larger ones, are first picked up, and either packed in heaps upon the most shallow barren spots, or laid round the field as a dry wall. The land is then lightly ploughed, and very carefully cleared of all noxious weeds, lined at one foot distance from row to row, and the young plants set, like cabbages, at about five or six inches from each other. This regular mode of lining and setting the plants is practised only by the most exact planters, in order to facilitate the weeding of them, by hand, very frequently; because, if they are not kept perfectly clean and free from weeds, the produce will be but very small. They will bear being planted in any season of the year, even in the driest, as they will live on the surface of the earth for many weeks without a drop of rain. The most general time, however, of planting them, is from April to June. In the March following the labourers carry a parcel of tubs and jars into the field, and each takes a slip or breadth of it, and begins by laying hold of a bunch of the blades, as much as he can conveniently grasp with one hand, while with the other he cuts it just above the surface of the earth, as quickly as possible, that the juice may not be wasted; and then places the blades in the tub, bunch by bunch, or handful by handful. When the first tub is thus packed quite full, a second is begun (each labourer having two;) and, by the time the second is filled, all the juice is generally drained out of the blades in the first tub. The blades are then lightly taken out, and thrown over the land by way of manure; and the juice is poured out into a jar. The tub is then filled again with blades; and so, alternately, till the labourer has produced his jar full, or about four gallons and a half of juice, which is often done in six or seven hours; and he has then the remainder of the day to himself, it being his employer's interest to get each day's operation as quickly done as possible. It may be observed, that although aloes are often cut in nine, ten, or twelve months after being planted, they are not in perfection till the second and third year; and that they will be productive for a length of time, say ten or twelve years, or even for a much longer time, if good dung, or manure of any kind, is strewed over the field once in three or four years, or oftener if convenient.—The aloe juice will keep for several weeks without injury. It is therefore not boiled till a sufficient quantity is procured to make it an object for the boiling house. In the large way, three boilers, either of iron or of copper, are placed to one fire, though some have but two, and the small planters only one. The boilers are filled with the juice; and as it ripens or becomes more inspissated, by a constant but regular fire, it is ladled forward from boiler to boiler, and fresh juice is added to that farthest from the fire, till the juice in that nearest to the fire (by much the smallest of the three, and commonly called by the name of tatch, as in the manufactory of sugar) becomes of a proper consistency to be skipped or ladled out into gourds, or other small vessels used for its final reception. The proper time to skip or ladle it out of the tatch, is when it is arrived at what is termed a resin height, or when it cuts freely, or in thin flakes, from the edges of a small wooden slice, that is dipped from time to time into the tatch for that purpose. A little lime water is used by some aloe boilers, during the process, when the ebullition is too great.—As to the sun-dried aloes, which is most used for medicinal purposes, very little is made in Barbadoes. The process is, however, very simple, though extremely tedious. The raw juice is either put into bladders, left quite open at top, and suspended in the

sun, or in broad shallow trays of wood, pewter or tin, exposed also to the sun, every dry day, until all the fluid parts are exhaled, and a perfect resin formed, which is then packed up for use, or for exportation.'—The Barbadoes aloes is said to be common also in the other West India islands; and the following account of the manner of preparing it in Jamaica is given by Dr. Wright in the same volume of the Medical Journal, art. 1. 'The plant is pulled up by the roots, and carefully cleansed from the earth or other impurities. It is then sliced and cut in pieces into small hand-baskets or nets. These nets or baskets are put into large iron boilers with water, and boiled for ten minutes; when they are taken out, and fresh parcels supplied till the liquor is strong and black. At this period the liquor is thrown through a strainer into a deep vat, narrow at bottom, to cool, and to deposite its feculent parts. Next day the clear liquor is drawn off by a cock, and again committed to the large vessel. At first it is boiled briskly; but towards the end of the evaporation, is slow, and requires constantly stirring to prevent burning. When it becomes of the consistence of honey, it is poured into gourds or calabashes for sale. This hardens by age.'

3. Aloes perfoliatæ, Socotorine aloes, brought from the island of Socotora in the Indian ocean, wrapt in skins; it is obtained from the fourth species above-mentioned. This sort is the purest of the three; it is of a glossy surface, clear, and in some degree pellucid; in the lump, of a yellowish red colour, with a purple cast; when reduced to powder, of a bright golden colour. It is hard and friable in the winter, somewhat pliable in summer, and grows soft betwixt the fingers. Its taste is bitter, accompanied with an aromatic flavour, but insufficient to prevent its being disagreeable: the smell is not very unpleasant, and somewhat resembles that of myrrh. With regard to the physical effects of aloes, all the different kinds are gum resins, which contain more gummous than resinous parts. Water, when of a boiling heat, dissolves all the soluble parts of aloes; but if let stand till it grows cold, they drop most of their resin. A strong spirit dissolves and keeps suspended almost the whole of the aloes, though they contain such a large portion of gummous parts; hence it is evident, that aloes contain some principle, saline or other, which renders water capable of dissolving resin, and spirit capable of dissolving gum. Aloes are a stimulating stomachic purge, which, given in small quantity, operates mildly by stool; but in large doses acts roughly, and often occasions an irritation about the anus, and sometimes a discharge of blood. They are good opening medicines to people of lax habit, or who live a sedentary life; and to those whose stomach and bowels are loaded with phlegm or mucus, or who are troubled with worms, or are debilitated; because, at the same time that they carry off those viscid humours, which pall the appetite, and overload the intestines, they serve as strengtheners. In small doses, repeated from time to time, they not only cleanse the primæ viæ, but likewise tend to promote the menstrual discharge in women; and therefore are frequently employed in chlorosis, or where the menstrua are obstructed. They are a good stomachic purge, and given in all cases where such a one is wanted; but are considered as a heating medicine, and not proper in bilious habits, or where there is much heat or fever, and a continued use is apt to bring on the piles. Aloes are given in substance from five grains to a scruple, though formerly it used to be prescribed in doses of two or three times that quantity; but these large doses sometimes brought on troublesome symptoms. As they operate slowly they are generally taken at bed time, and operate next day. With regard to aloes, as well as other resinous purges, it ought to be observed that when they are given in substance without any mixture, they are apt to adhere to the coats of the intestines, and to occasion pain and uneasiness; for these reasons aloes are generally mixed with some saponaceous or resinous body to destroy their viscid tenacity: they are given in substance. The substances which are most used for this purpose are, a small quantity of the fixed alkaline salts, soap, the yolk of egg, and gummous vegetable extracts. Dr. Barton alleges, that by triturating aloes with a small quantity of alkaline salts, their activity was more effectually destroyed than by any thing he tried: that Castile soap and the yolk of an egg answered next best; that manna, honey and honey, were far inferior to them; and that gummous, or mucous vegetable extracts, such as the extracts of gentian, or of liquorice, triturated with the aloes, in the proportion of one part of the extract to two of the aloes, and then made up into pills with a sufficient quantity of syrup, destroyed the viscidity of the aloes, and rendered their operation mild. Socotorine aloes contain more gummy matter than hepatic, and hence are likewise found to purge more with greater irritation. The first sort therefore is most proper where a stimulus is required for promoting or exciting the menstrual flux, whilst the latter is better calculated to act as a common purge. For preparations of aloes, see Pharmacy, *Index*.

With regard to aloes wood, many authors mistake the plant and tree for each other; but we have but little knowledge of the tree; the drug which the plant produces is much better known, and of much greater use. The aloe tree grows in China, in the kingdom of Lao, Cochin China, Champac, and Sumatra. It is about the same height and form as the olive; its trunk is of three colours, and contains three sorts of wood: the heart is dearer in the Indies than even gold itself; it serves to perfume clothes and apartments, and is reckoned a sovereign cordial in fainting fits, and against the palsy. It destroys the tinea and ascarides in children. It is used at sacrifices, as incense, by the Chinese and all the heathen Moors. It is also used to set the most precious jewels that are worked in the Indies. The aloes wood is very highly valued, and divers strange fables have been invented as to the origin of the tree that yields it; some feign that it grew in paradise, and was only conveyed to us by means of the rivers overflowing

their banks, and sweeping off the trees in their way!!! Others suppose it to grow on inaccessible mountains, where it is guarded by certain wild beasts, &c. See XYLOE ALOES.

We shall only add that Braconnot was the first person who imagined he detected in aloes a peculiar principle, similar to the bitter resinous which Vauquelin has found in many febrifuge barks. The recent juice of the leaves absorbs oxygen, and becomes a fine reddish purple pigment.

ALOE, THE BASTARD. See ALETRIS.

ALOE, THE GREAT AMERICAN. See AGAVE.

ALOE, XYLOE. See XYLOE.

ALOEDARY, aloedarium, *αλοηδαριον*, a purging medicine, wherein aloes is an ingredient; or an aloetic. It is also used for a history of the class of plants, under the denomination of aloes.

ALOEUS, in entomology, a species of scarabæus, or beetle. Characters: thorax three-horned, intermediate longer and simple; head submuticous; elytræ unistriated; found in America.

ALOEUS, in ancient mythology, a giant, the son of Titan and Terra, who married Iphimedia, by whom Neptune had the twins Othus and Ephialtus. Aloeus educated them as his own, whence they were called Aloides. They grew nine inches every month, and when nine years old, made war against the gods, but were slain by Apollo and Diana. They also built Ascra, a town at the foot of Mount Helicon.

ALOEXYLUM, *αλοηξυλον*, in botany, aloes-wood, a name given to the tree producing this precious wood, by Loureiro; who refers it to the class and order decandria monogynia, and its natural order seems to be lomentaceæ, Linnæus; leguminosa, Jussieu. Its General Characters are: The CAL. perianthium inferior, of four acute, hairy, deciduous leaves; the lowermost falcate, incurved, nearly twice as long as the rest: COR. petals five, unequal, longer than the calyx: STAM. filaments ten: PIST. germ. superior, elongated, curved, compressed: STYLE thread-shaped: PERIC. legume woody, smooth, falcate: SEED solitary, oblong, curved, tunicated. Essential Characters: CAL. four acute deciduous leaves; the lower one longest: PETALS five, unequal: LEGUME curved: SEED solitary, tunicated. 1. A. Agallochum. Fragrant aloes-wood.—Native of the loftiest mountains of Cochin China, near the great river which runs between that kingdom and Laosios, and is a large lofty tree, with erect branches. Bark fibrous, brown, smooth, thin. Leaves alternate, stalked, lanceolate, flat, entire, smooth, coriaceous, about eight inches long. Flower-stalks terminal, many-flowered.

ALOFT'. *adv.* & *prep.* On loft; A. S. Lyft, air: Lyft, luft, loft, above.

þe weder was fulle soft, þe wynde held þam stille,
þe saile was hie *o loft*, þei had no wynde at wille.
R. Brunne. p. 169.

The great luminary
(*Aloft* the vulgar constellations thick,
That from his lordly eye keep distance due)
Dispenses light from far. *Milton's Par. Lost.*

The fiend look'd up and knew
His mounted scale *aloft*: nor more, but fled
Murm'ring and with him fled the shades of night.
Paradise Lost, b. iv.

For I have read in stories oft,
That love has wings, and soars *aloft*. *Suckling.*

Upright he stood; and bore *aloft* his shield,
Conspicuous from afar; and overlook'd the field.
Dryden.

All crimes shall cease, and ancient frauds shall fail,
Returning Justice lift *aloft* her scale,
Peace o'er the world, her olive wand extend,
And white rob'd innocence from heaven descend.
Pope's Messiah.

All hands unmoor! proclaims a boist'rous cry,
All hands unmoor! the cavern'd rocks reply.
Rous'd from repose, *aloft* the sailors swarm,
And with their levers soon the windlass arm.
Falconer's Shipwreck.

ALOGIANS, in church history, from *α*, privative, and *λογος*, the word, a sect of ancient heretics, who denied that Jesus Christ was the Logos, and rejected the gospel of St. John.—Some ascribe the origin of the name, as well as of the sect of Alogians, to Theodore of Byzantium, by trade a currier. They rose toward the close of the second century.

ALOGOTROPHIA, in medicine, a term signifying the unequal growth or nourishment of any part of the body, as in the rickets.

ALOIDES, in botany, a name given by some to the aloe palustris, or fresh water aloe; often called in England, water soldier, and by Linnæus, *stratiotes*.

ALONE', *adv.* & *adj.* } All one: one being
ALONE'LY, *adv.* & *adj.* } all; unaccompanied.
ALONE'NESS.

He fond no man þat durst, for non had myght,
With Colibrant alone in bataile to fight.
R. Brunne, p. 31.

Let us *alone*, to guard Corioli:
If they set down before's; 'fore they remove,
Bring up your army. *Shakesp.*

Let you *alone*, cunning artificer;
See, how his gorget peers above his gown,
To tell the people in what danger he was. *Ben Jon.*

Eagles we see fly *alone*; and they are but sheep, which always herd together. *Sidney.*

Alone, for other creature in this place,
Living or lifeless, to be found was none. *Milton.*

I never durst in darkness be *alone*. *Dryden*

But midst the crowd, the hum, the shock of men,
To hear, to see, to feel, and to possess,
And roam along, the world's tired denizen,
With none who bless us, none whom we can bless:
Minions of splendour shrinking from distress!
None that with kindred consciousness endued,
If we were not, would seem to smile the less
Of all that flatter'd, follow'd, sought, and sued;
This is to be *alone*; this, this is solitude!
Lord Byron's Childe Harold.

ALONG, *v.* & *prep.* } On long. See LONG.
ALONG'ST. } Along, the past participle, means, produced from the A. S. Gelanz, (Tooke) to long, to make long.

Here I salle þe gyne alle myn heritage,
& als *along* as I lyue to be in þin ostage.
R. Brunne, p. 196.

I your commission will forthwith dispatch;
And he to England shall *along* with you.
Shakesp. Hamlet.

Hence then! and Evil go with thee *along*!
Thy offspring, to the place of evil, hell. *Milton.*

Religious zeal is subject to an excess, and to a defect; when something is mingled with it, which it

should not have; or, when it wants something, that ought to go *along with* it. *Sprat.*

Command thy slaves: my free-born soul disdains
A tyrant's curb, and restive breaks the reins.
Take this *along*; and no dispute shall rise
(Though mine the woman) for my ravish'd prize.
Dryden.

A needless Alexandrine ends the song:
That like a wounded snake drags its slow length *along*.
Pope's Essay on Criticism, 356.

Slow sinks, more lovely ere his race be run,
Along Morea's hills the setting sun;
Not as in northern climes obscurely bright,
But one unclouded blaze of living light!
Lord Byron's Corsair.

ALONG-LYING, in maritime affairs, a term applied to a vessel when pressed down sideways, by the action of a side wind against the sails.

ALONG-SHORE, is applied to coasting navigation, or to a course which is in sight of, or nearly parallel to, the shore.

ALONG-SIDE, side by side, or parallel to a wharf, ship, or any other object.

ALOO, STRAITS OF, a channel in the Eastern seas, between the islands of Lomablem and Pantar.

ALOOF', *adv.* All off, entirely separate; at a distance. Perhaps of the same origin with aloft.

Then bade the knight this lady yede *aloof*,
And to an hill herself withdraw aside;
From whence she might behold the battle's proof,
And else be safe from danger far descried.
Faerie Queene.

As next in worth,
Came singly where he stood, on the bare strand;
While the promiscuous crowd stood yet *aloof*.
Milton's Paradise Lost.

The noise approaches; though our palace stood
Aloof from streets, encompass'd with a wood.
Dryden.

Under the law we might look at Christ *aloof*; now, under the gospel, we may come near him.
Hall's Contemplations.

No domestic difficulties, no domestic weakness reached him; but *aloof* from the sordid occurrences of life, and unsullied by its intercourse, he came occasionally into our system, to counsel and to decide.
Grattan's Character of Lord Chatham.

ALOOF, has been supposed to be a sea term; and its similarity with the phrases keep a luff, or keep the luff, probably gave rise to this conjecture. If a sea phrase originally, it seems to have referred to the danger of a lee shore, in which situation the pilot might naturally apply it in the sense of keep all off; it is, however, never expressed in that manner by seamen now. See LUFF.

ALOPE, in entomology, a species of the sphinx, with wings dentated and brown, the posterior yellow and black at the apex, the abdomen black, and having interrupted pale-coloured bands, found in India.

ALOPE, in ancient history, a daughter of Cercyon, king of Eleusis, who having a child by Neptune, exposed it in the woods, covered with a piece of her garment. The child being found, and brought to Cercyon, he recognised the garment, and ordered his daughter to be put to death. She was changed by Neptune into a fountain. Her son, named Hippothoon, was afterwards placed by Theseus on the throne of his grandfather.

ALOPECIA, or ALOPECE, in ancient geography, two islands: viz. 1. An island of the Bosphorus Cimmerius; and 2. In the Ægean sea, over against Smyrna.

ALOPECIA, in medicine, a total falling off of the hair from certain parts, occasioned either by the defect of nutritious juice, or by a viscous corrosion of the roots of it. The word is formed from αλωπηξ, vulpes, a fox; because it is a disease which is common to that creature. The alopecia properly differs from defluvium capillorum, as in the former certain parts are left entirely bald, whereas in the latter the hair only grows immoderately thin. It also differs from the ophiosis, as this latter creeps in spires about the head, like windings of a serpent, whereas the former is not confined to any figure. The remedies which remove the proximate cause of this malady are called μετασυγκριτικα, metasyncritica. A multitude are to be found in the works of Taranta, Rondeletius, Hollerius, Celsus, and other physicians. Alopecia is also used by Galen, for a change of the hair to another colour. See PLICA POLONICA.

ALOPECIAS, in ichthyology, a name of the vulpes marina, or sea fox.

ALOPECURUS, or FOX-TAIL GRASS, in botany, a genus of the triandria digynia class; and in the natural method ranking under the 4th order, gramina. The characters are: CAL. a single flowered bivalve glume: COR. one valved: STAM. three capillary filaments; the antheræ bifurcated at both ends: PIST. a roundish germen; there are two styli; and the stigmata are villous. The pericarpium is a corolla clothing the seed; and the seed is ovate and covered. There are 8 species: viz. 1. A. agrestis, a native of France. 2. A. bulbosus, or bulbous fox-tail grass. 3. A. genikulatus, or flote fox-tail grass; these two species grow wild in Britain. 4. A. hordeiformis, a native of India. 5. A. Monspeliensis, a native of France, and the southern parts of Europe. 6. A. Indicus, or Indian fox-tail grass, a native of the East Indies. 7. A. Paniceus, a native of France, and the south of Europe. 8. A. pratensis, grows wild in Britain. See GRASS.

ALOPEX, in zoology, a species of the canis, with a strait tail and black tip. It is commonly called the field-fox.

ALOPEX, in entomology, a species of the scarabæus melolontha, hair yellow; clypeus reflex and emarginated; elytræ smooth and black: found at the Cape of Good Hope. Gmelin refers to this genus the following species, beside those above enumerated, viz. A. ciliatus, with a culm spiked and erect, and ciliated glumes. A. Carolinianus, with radicating culm, subspiked panicle, smooth glumes, and awned corollæ. A. typhoides, with simple raceme, and awnless flosculi. A. caudatus, with spiked caudated panicle, and flosculi intrenched with awns. A. ovatus, with panicle ovated, contracted, resembling a spike, and exterior petal awned before the apex. A. Capensis, with cylindric spike, and smooth awnless glumes, a native of the Cape of Good Hope. A. Antarcticus, with erect

culm, ovated spike, hairy glumes, and awned corollæ, the awns being longer than the calyx; native of the Straits of Magellan. A. echinatus, with spiked ovated panicle, punctuated, ciliated glumes, and geniculated culm; native of the Cape of Good Hope.

ALOSA, in ichthyology, the shad, a species of the clupea. See CLUPEA.

ALOSAT, in chemistry, *argentum vivum.*

ALOSE', *v.* } Latin, *laus*, praise. To praise,
ALOSED'. } or commend. Loos was formerly common.

Noþer lacky ne *alose*, ne leyve þat þer were
Eny wickeder in þis worlde, þan ý were myself.
Vision of Pier's Ploughman, p. 326.

ALOSE, in ichthyology, a species of fish, which some take for the shad, (see ALOSA,) but it more in fact resembles the sardine, or pildine, or pilchard, though it is much larger. It is seldom seen in the British seas, and only visits the rivers in spring. The roes are valued in the East Indies, and form a lucrative article of trade.

ALOS'ING. In loosing.

And as they were *a lossynge* ye colte, the owners thereof sayde vnto them, why loose ye the colte?
Bible, 1539, *S. Luke*, chap. xix.

ALOST, or ALEST, a district of the Netherlands, which was the scene of some manœuvres during the French revolutionary war; also a town in the above-mentioned district, seated on the Dender, fifteen miles north-west of Brussels, and thirteen south-east from Ghent. It has but one parish; the church is collegiate, and has a provost, a dean, and twelve canons. It has two convents of Carmelites, one of capuchins, three nunneries, an hospital, and a convent of Guillemins, in which is the tomb of Theodore Martin, who first introduced the art of printing into the low countries. It was taken from the French in 1706, after the battle of Ramillies. Near this place Lord Moira effected a junction of the troops under his command, with those of General Clairfayt, in July 1793.

ALOUATE, in zoology, Buffon's name for the simia seniculus, or long-tailed, bearded, red monkey, of the Linnæan system, having a prehensile tail; the arabata of Gumilla, Oronoko, and royal monkey of Pennant. This species is sometimes found in Brazil, and is common in Cayenne. Its voice and manners are the same with those of the Simia Beelzebul. They are commonly seen in the woody islets of large flooded savannahs. Their cry or scream inspires terror, and seems as if the forests contained the united howlings of all its savage inhabitants together. This clamour, usually made in the morning and evening, is repeated in the course of the day, and sometimes in the night. In a state of captivity the animal loses its voice, and seldom lives long. The male is larger than the female, and the latter always carries her young on her back. In order to kill these animals, it is necessary to fire several times; while any life remains, and after they are dead, they will remain clinging to the branches by the hands and tail. Their flesh, after all the trouble of possessing them, is not good; it is always tough, and never admitted to any tables but to those of indigent inhabitants and travellers, to supply the want of other food. This animal when full-grown is said to be as large as a calf, and to live on the fruit of the banana-tree.

ALOUD', *adv.* On loud. Past part of the verb to low, or to bellow (i. e. be-low); lowed, low'd, loud.

And he wepte *alowde*, so that the Egypcians, and the house of Pharao herde it.
Bible, 1539. *Genesis*, c. xiv.

Strangled he lies! yet seems to cry *aloud*,
To warn the mighty, and instruct the proud;
That of the great, neglecting to be just,
Heav'n in a moment makes an heap of dust. *Waller.*

Then heav'n's high monarch thund'red thrice *aloud*,
And thrice he shook aloft a golden cloud. *Dryden.*

ALOW', *v.* & *adv.* See ALLOW. Signifying to be humbled.

Narcissus may example bee
and myrrour to the prowde,
By whome they may most plainely see
how pride hath been *allowde*. *Turberville.*

The quene [widow of Edward 4th] her self satte alone *alowe* on the rishes all desolate and dismayde, whome the archebishoppe comforted in the best manner hee coulde. *Sir Thos. Moore's Works*, f. 43. c. 1.

ALOWAY, or ALLOWAY. See ALLOA.

ALP, in zoology, an English name used for the bull-finch.

ALPAGE, alpagium, in ancient writers, denotes the right of feeding cattle on the Alps or other high mountains, or a sum paid for the purchase of such a right.

ALPAGNA, or CAMELUS PACO of Linnæus, in zoology, an animal of South America, much like the vigognas, except that the legs are shorter, and its muzzle thicker and flatter, so that it almost resembles a human face. The Peruvians use these animals as beasts of burden, and some of them carry a hundred weight. Of their wool they make stuffs, ropes, and bags, and of their bones tools for weavers.

ALPAM, in botany, the siliquosa indica, a native of the Indies. The stem of this plant, which divides itself twice or thrice, is covered with a bark of an ashy-green colour, inodorous, and of an acid astringent taste. It bears flowers and fruit as well at the end of the year as at the beginning, and is always full of leaves. Any part of this shrub made into an ointment with oil, is a remedy for the scab, and old ulcers. The juice of the leaves, with calamus aromaticus, is good against the venom of serpents.

ALP ARSLAN, the second sultan of the dynasty of Seljuk in Persia, was the son of David, and great grandson of Seljuk, the founder of the dynasty. He was born A. D. 1030, of the Hegira, 412. In place of Israel, which was his original name, he assumed that of Mohammed, when he embraced the Mussulman faith, and was afterwards surnamed Alp Arslan, which, in the Turkish language, signifies a valiant lion, on account of his military prowess. Having held the chief command of Khorasan for ten years, as lieutenant of his uncle, Togrel Beg, he succeeded him in 1063, and at the commencement of his reign saw himself sole monarch of all the countries from the river Oxus to the Tigris. In 1068 he invaded the Roman empire, the seat of which

was then at Constantinople; and, at the head of 40,000 cavalry, according to the highest accounts, he defeated Romanus Diogenes, commanding an army of 100,000 men, in the Armenian territory, and took him prisoner; but treated him kindly till he was ransomed, when he was dismissed loaded with presents. After a reign of ten years, in which he was not more distinguished for his valour, than for his liberality, piety, patience, justice, and sincerity, he was stabbed by a desperate Carizmian, whom he had taken prisoner, in 1072. His words to his attendants, when he found his end approaching, are worthy record: 'In my youth,' said he, 'I was advised by a wise man to humble myself before God; never to confide in my own strength, or despise the most contemptible enemy. These lessons I have neglected, for which I have now met deserved punishment. Yesterday, when I beheld from an eminence the number and discipline of my troops, I said in the confidence of my heart, 'What power on earth can oppose me? What man dares to attack me? To day, vainly trusting to my own strength and dexterity, I foolishly checked the prompt zeal and alacrity of my guards for my safety, and now I have fallen by the hand of an assassin! but I perceive that no force or address can resist fate.' Alp Arslan had a fine appearance, and covered his head with a high turban, folded in the form of a crown. The caliph Bemrillah conferred on him the title of Ezzedin, or Adadheddin, signifying 'Defender of the Faith.' It is said 1200 princes, or sons of princes, have stood at the foot of his throne.

ALPEN, a town of Germany, in the circle of the Lower Rhine, and electorate of Cologne; eight miles south-west of Wesel, and fifty north north-west of Cologne.

ALPHA, the name of the first letter in the Greek alphabet; corresponding to our A. It is formed from the Hebrew א (aleph); and according to Plutarch, was placed at the head of all the letters, because, in the Phœnician language, it denotes an ox; which was thought the most important among beasts. In composition this letter sometimes denotes privation, ir the same sense with *ατερ*, without; sometimes augmentation, as *αγαν*, much; and sometimes union, as *αμα*, together. It is also used as a letter of order, to denote the first; and of number, to signify one; but when it was a numerical letter, a little stroke, or an acute accent, was drawn above it thus, A, to distinguish it from the mere A, which was a letter of order. See A.

ALPHA and OMEGA, in Scripture, signify the beginning and the end, or the first and the last, (i. e. before and after all things; and are therefore used as a hieroglyphic of the Divine Being.) They were also formerly the symbol of Christianity, and engraved accordingly on the tombs of the ancient Christians, to distinguish them from those of idolaters. They are still seen on some altar-pieces. 'The Alpha and Omega' is a title of Jesus Christ in the Apocalypse, derived from a mode of expression frequent amongst the Jewish rabbin. Some have supposed the verb *αω* to breathe, is designedly formed from the first and last letters of the Greek alphabet, to denote the first and last act of life.

ALPHA, in ancient geography, a tree [illegible] vicinity of Aquileia, near which [illegible] was killed, and into which his body was [illegible]

ALPHABET, *n.*
ALPHABET'ICAL,
ALPHABETICALLY,
ALPHABETA'RIAN.
} Αλφα alpha, [illegible] The literal [illegible] any language [illegible]

Thou shalt not sighe,
Nor winke, nor nod, nor kneele, nor make a [illegible]
But I of these will wrest an *alphabet*,
And by still practice learne to know thy [illegible]
Shakesp.

The letters of the *alphabet*, formed by the [illegible] motions of the mouth; and the great variety [illegible] lables, composed of letters, and formed with [illegible] equal velocity; and the endless number of [illegible] capable of being framed out of the *alphabet*, [illegible] more syllables or of one, are wonderful.

Taught by their nurses, little children get
This saying, sooner than their *alphabet*.
Dryd. ju[illegible]

I have digested, in an *alphabetical* order, [illegible] counties, corporations, and boroughs in Great [illegible] with their respective tempers.

I had once in my thoughts, to contrive a [illegible] more than I can now comprise in short hand, [illegible] dictionary, *alphabetically* containing the words [illegible] language, which the deaf person is to learn.
Holder's Elements of [illegible]

ALPHABET, in grammar, of *αλφα* [illegible] Greek; alphabetum, Latin: the whole [illegible] collection of letters which are used in [illegible] guage. An extensive controversy has [illegible] amongst learned men, whether the [illegible] expressing our ideas by visible symbols, [illegible] letters, be really a human invention; or [illegible] we ought to attribute an art so exceedingly [illegible] ful, to an immediate intimation from the [illegible] In favour of the latter opinion it has been [illegible] 1. That the five books of Moses are universally acknowledged to be the most ancient compositions, as well as the most early specimens of alphabetical writing extant. If, therefore, we suppose writing to be the result of human invention, it must be different from all other arts, [illegible] been brought to perfection at once; as the Hebrew alphabet contains every thing essential to the exposition of human thoughts. It may indeed be replied, that alphabetical characters perhaps existed ages before the writings of Moses, though the more ancient specimens have perished. But the simplicity of manners predominant in the early ages, and the little intercourse which nations had with one another, will scarcely allow us to suppose that such a complex and artificial contrivance as alphabetical writing could be invented by a race of men whose wants were few, their advantages so circumscribed, and their ideas so limited. 2. If alphabetical characters were a human invention, it might be expected that different nations would have fallen upon the same expedient independent of each other during the compass of so many ages. But no such thing has taken place; and the writing of every people on earth may be referred to a common original. If this can be proved by an argument from successive derivation, without a single instance of independent discovery [illegible] be allowed to amount to the very highest

of probability in favour of our hypothesis, which will now rest on the evidence for or against this fact; and which may be summed up in the following manner:—Among the European nations we find none who can pretend any right to the discovery of letters. All of them derived the art from the Romans, excepting only the Turks, who had it from the Arabians. The Romans never laid claim to the discovery; but confessed that they derived their knowledge from the Greeks, and the latter owned that they had it from the Phœnicians; who, as well as their colonists the Carthaginians, spoke a dialect of the Hebrew scarcely varying from the original. The Coptic or Egyptian resembles the Greek in most of its characters, and is therefore to be referred to the same original. The Chaldee, Syriac, and latter Samaritan, are dialects of the Hebrew, without any considerable deviation, or many additional words. The Ethiopic differs more from the Hebrew, but less than the Arabic; yet that these languages have issued all from the same stock, the similarity of their formation, and the numberless words common to them, all sufficiently evince; and the Persic is very nearly allied to the Arabic. Alterations indeed would naturally be produced, in proportion to the civilization of the several nations, and their intercourse with others; which will account for the superior copiousness of some above the rest. It appears then, that all the languages in use amongst men, that have been conveyed in alphabetical characters, have been the languages of people connected ultimately or immediately with the Hebrews, who have handed down the earliest specimens of writing to posterity; and we have therefore the greatest reason to believe, that their method of writing, as well as their language, was derived from the same source. This proposition will be farther confirmed from considering the sameness of the artificial denominations of the letters in the Oriental, Greek, and Latin languages, accompanied also by a similar arrangement, as alpha, beta, &c. Herodotus informs us, that 'those Phœnicians who came with Cadmus, introduced many improvements among the Greeks, and alphabetical writing too, not known among them before that period. At first they used the Phœnician character; but in process of time, as the pronunciation altered, the standard of the letters was also changed. The Ionian Greeks inhabited at that time the parts adjacent to Phœnicia; who having received the art of alphabetical writing from the Phœnicians, used it, with an alteration of some few characters, and confessed ingenuously, that it was called Phœnician from the introducers of it.' He tells us that he had himself seen the characters of Cadmus in a temple of Ismenia Apollo at Thebes in Bœotia, engraven upon tripods, and very much resembling the Ionian characters. Again, the old Samaritan is precisely the same as the Hebrew language; and the Samaritan Pentateuch does not vary by a single letter in twenty words from the Hebrew: but the characters are widely different; for the Jews adopted the Chaldaic letters during their captivity at Babylon, instead of the characters of their forefathers. 3. What we know of those nations who have continued for many centuries unconnected with the rest of the world, strongly militates against the hypothesis of the human invention of alphabetical writing. The experiment has been fairly made upon the ingenuity of mankind for a longer period than that which is supposed to have produced alphabetical writing by regular gradations; and this experiment determines peremptorily in their favour. The Chinese, a people famous for their discoveries and mechanical turn of genius, have made some advances towards the delineation of their ideas by arbitrary signs, but have nevertheless been unable to accomplish this exquisite device; and after so long a trial to no purpose, we may reasonably infer that their mode of writing, which is growing more intricate and voluminous every day, would never terminate in so clear, so comparatively simple an expedient as that of alphabetical characters. The Mexicans, too, had made some rude attempts of the same kind; but with less success than the Chinese. Hieroglyphics were also in use among the Egyptians posterior to the practice of alphabetical writing by the Jews; but whether the epistolography, as it is called, of the former people, which was in vogue during the continuance of the hieroglyphics, might not be another name for alphabetical writing, cannot be decided.

We shall not pursue this argument further, but offer the reader a table of the most celebrated alphabets of ancient and modern times referring to GRAMMAR, LANGUAGE, and the articles which treat of the respective countries, where they are or have been spoken, for further information respecting them.

ABYSSINIAN Alphabet. In substance the same as the ETHIOPIC, which see.

ADAM, Alphabet of, a Chaldean alphabet attributed to Adam.

ÆOLIAN, an ancient Greek alphabet, according to Thesius Ambrosius.

ANGLO-NORMAN, a variety of the GOTHIC alphabet, which see.

The ARABIC Alphabet is in its most ancient form called the Kufic from the city Kufa, on the Euphrates. It consists of initial letters used at the beginning; medial letters, or those used in the middle; and final letters, or those used at the end of words. The modern Arabic is said to have been invented by the vizier Molach, A. D. 933, who wrote the Koran three times in it, so fair and correct as to make it a perfect model of writing. This consists also of four sorts of characters, namely, single, initial, medial, and final, which is the common character of the Arabians, Turks, and Persians; but the two latter nations have added four more letters, namely, پ *p*, چ *ch*, ژ *zh*, گ *g*, and given a different power to others. There are two other variations of the Arabic, namely, the African and Mauritanian, which are said to be used in different parts of Africa.

ARCADIAN, a Latin alphabet, taken from the Eugubian tables, and so called because supposed to have been brought by Evander from Arcadia into Latium.

ARMENIAN approaches, in many respects, very near to the Chaldee or Syriac, and to the

Greek in others. There is a common printing character of the Armenian capitals and small letter; and an ornamental kind of character, which is termed blooming, or flowery, because it is used for the titles of books: Duret likewise mentions an ancient Armenian character, which he says was taken from an inscription over an entrance into the castle of Curcho. *Schroeder. Thesaur. Ling. Armen.; Duret. Tresor. des Lang.* p. 725. It is used in Asia Minor, Syria, and Tartary, as well as Armenia.

ATTIC, a variation of the ancient Greek, which see.

BALI, a dialect used in Bali, an island north of Java.

BARMAN, an alphabet of the kingdom of Ava, in the order, power, and general form of its letters greatly resembling the Sanscrit.

BASTARD or MONGREL, first made by a German named Heilman, in 1490, was in common use in France, in the fifteenth century; so called because it was derived from the Lettres de Forme, or Gothic character; but it has most of its angles cut off or diminished. Fournier gives four varieties of this bastard character.

BATTA, one of the most extensive languages in the island of Sumatra.

BENGALLEE, the alphabet of Bengal, very similar to the Sanscrit.

BULGARIAN, a character similar to that of the Illyrian.

BULLANTIC or IMPERIAL, an alphabet of ornamented capitals, so called because it was employed in writing the papal bulls.

CADEAUX, flourishing capitals, that were used in French writing of the fifth century.

CADMEAN, the original Greek alphabet, supposed to have been first introduced into Greece by Cadmus.

CHALDEE alphabets can scarcely be distinguished from the Phœnician or Syriac. Several have been ascribed by the Rabbin to Adam, Enoch, Noah, &c. Its character, as at present known, is that of the Hebrew.

Of CHARLEMAGNE, the name of three alphabets attributed to the emperor Charlemagne, by whom they are said to have been introduced, at the commencement of the ninth century, for the purpose of improving the letters used in his dominions.

The CHINESE language has no literal alphabet, but consists of 214 key-words, or radical characters, that serve to form 80,000 characters, of which it is composed.

COPTIC, so called from Coptos, in Egypt, a mixture of Greek and Egyptian. There are two characters under this name, one of which is the ancient, and the other the modern Coptic. The latter, consisting of thirty-two letters, is only to be met with in the books of Egyptian Christians, by whom it was used in the translation of the Sacred Writings. *Kircher. Œdip. Ægypt. et Copt.; Pocock. in Not. ad Spec. Hist. Arab.*

CROATIAN, a variety of the ILLYRIAN alphabet, which see

DALMATIAN, said to have been invented by St. Jerome. *Duret. Tresor. des Lang.* &c. p. 738.

DORIC, a variety of the ancient GREEK.

EGYPTIAN. Ancient Egyptian characters were of three kinds; namely, ἐπιστολογραφικὸς, or vulgar; ἱερατικὸς, or sacred; and ἱερογλυφικὸς, or hieroglyphic. Vestiges remain of them all, but only conjectural explanations can be given. Their letters are in all probability lost. The Coptic is the only Egyptian character that remains. *Herod.* l. 2, c. 36; *Diodor. Sic.* l. 1; *Heliodor. Æthiop.* l. 4; *Clem. Alexandrin.* Strom. l. 5; *Eustath. ad Hom. Il.* 6, v. 168.

ENGLISH, Old, or Black Letter, called by the French, Lettres de Forme, was first used by Gutemberg and Faust, at Mentz, and by them denominated Lettres Burgeoises.

The ETHIOPIC, AMHARIC, or ABYSSINIAN alphabet, is evidently derived from the Samaritan or Phœnician; only, contrary to the Oriental custom, it is written from right to left.

ETRUSCAN was the earliest alphabet used in Italy, so called from the Etrusci, the most ancient inhabitants of that country. It is a species of Pelasgian or Arcadian character, frequently found on coins, and disposed after the Greek manner, βουστροφηδὸν, i. e. alternately from left to right and from right to left. Two other alphabets are attributed to the Etruscans, which were used in sacred characters by their priests.

FLEMISH is the proper alphabet of the Austrian and French Netherlands, and is used in common printing, which resembles the English.

FRANCO-GALLIC, so called from its being a mixture of French and Gaulish characters, was used under the first race of the kings of France in their public acts.

FRANKS, an alphabet used by the early inhabitants of the Low Countries, and afterwards transferred to Gaul, was a variety of the Latin alphabet. Another alphabet under this name belonging to the Lingua Français, is a kind of jargon spoken on the shores of the Mediterranean, the characters of which are composed of French, vulgar Greek, Spanish, and Italian.

FRENCH, Ancient, an alphabet of this name was used in the fifth century, under the first race of the French kings.

The GEORGIAN is an alphabet which consists of four different characters; namely, the Georgian, immediately derived from, and nearly allied to, the Greek; two, called sacred, consisting of capitals and small letters; and the last a writing-hand of the Georgians.

GERMAN consists of two characters, capital and small letters, which are used for print, and two also for writing, or the current-hand.

GOTHIC. To Ulphilas, a bishop of the Goths in 388, is attributed the most ancient alphabet of this name. It bears a strong affinity to the Runic; a second Gothic alphabet is formed from the Greek and Latin; a third, attributed to Albert Durer in the sixteenth century, is nearly similar to the German.

GOTHIC, Modern, an old English or Norman character, called in French, les Lettres Tournées. It was much used in adorning the missals of the Romish church.

GREEK. We have seen the testimony of Herodotus, (similar to that of Pliny, Plutarch, and others,) that Cadmus, the Phœnician, introduced the first Greek alphabet into Bœotia, where it

settled B. C. 1500; although Diodorus is of opinion that the Pelasgian letters were prior to the Cadmean. From comparing the Cadmean and Pelasgian alphabets, however, with the Phœnician, it is clear that they sprung from one and the same origin. The Cadmean, or, as it is otherwise called, the Attic or Ionic alphabet, is principally found on coins and medals, the Pelasgian is drawn from the Eugubian tables: the former consisted originally of only sixteen letters, to which eight others were afterwards added; the number of the latter varies, according to the account of different writers, from twelve to twenty letters. The next Greek alphabet of ancient times is the Sigean, so called because the letters which composed it are taken from the inscription on a marble pillar near the town of Sigeum. The antiquity of this alphabet is evinced by its being read alternately from left to right, and from right to left, which manner of writing was called *βουστροφηδον*, because it resembled the turning of oxen at both ends of a furrow. It is besides observable that the H for the long E, and the Ω for the long O were not then in use, but afterwards introduced by Simonides. Other Greek characters are drawn from medals and inscriptions; namely, the Nemean, B. C. 430, engraven on marbles, as is supposed, before the Peloponnesian war; the Delian, from inscriptions on the remains of a stately building on Mount Cynthus, in the island of Delos; the Athenian; and the Teian. About 500 years before the Christian æra, Simonides completed the Greek alphabet, called the Ionic; and other Greek alphabets of different ages are—one used in the time of Alexander the Great, B. C. 330; another drawn from the coins of the Antiochi, kings of Syria, &c. B. C. 240 to 187; that of Constantine the Great, A. D. 306; of Justinian the Great, A. D. 527; of Heraclius, A. D. 610; of Leo Jaurus, A. D. 716. To these may be added that of the Alexandrian MS. of the New Testament. See ALEXANDRIAN MANUSCRIPT, for a specimen.

HEBREW. The Rabbins attribute the invention of two Hebrew alphabets to Solomon. Those most worthy of note are the ancient and modern Hebrew, the former of which is supposed to have been invented by Esdras after the captivity, and to have given rise to the latter. This question, however, has undergone much discussion among the learned, both Jews and Christians; but while the two Buxtorfs contend that the Hebrew now in use was that in which Moses wrote, the prevailing opinion is, that the Samaritan or Phœnician was the original Hebrew character, and that the present alphabet was invented after the captivity. Pl. III. MISCELLANEOUS, contains specimens of Samaritan inscriptions on coins, which it is admitted were struck prior to captivity. Fig. 1, represents the censer on the obverse, and, on the reverse, Aaron's rod budding; the inscriptions, the 'Shekel of Israel' and 'Jerusalem the Holy.' The first, which has ש over the censer, was a half shekel; the second having ר, the third of a shekel; and the third also having ר the fourth of a shekel. The Rabbinical Hebrew is the current hand in use among the Jews at present.

The HUNS, an alphabet so called because used by the Huns, who settled in Pannonia, or Hungary, in 370.

JACOBITE, a corruption of the Greek alphabet, used by the Jacobites, an heretical sect, in their religious services.

JAPANESE consists of three characters; namely, two that are in common use, and one that is used only at court. Like the Chinese, it is written from top to bottom.

ICELANDIC, the same as the Runic.

ILLYRIAN. There are two alphabets of this name; one said to have been invented by St. Cyril, and the other by St. Jerome, or, according to Aventinus, by one Methodius, a bishop of Illyrium, who used it in the translation of the Scriptures: the former bears a great affinity to the Russian, the latter to the Dalmatian. *Duret. Tres. des Lang.* p. 741.

INDIAN, the same as the Ethiopian. Duret mentions another Indian alphabet, which is generally used among the Easterns.

The IRISH alphabet bears, in the opinion of Vallancy, a great affinity to the Phœnician, from which he supposes it to be derived. The Irish also used mysterious alphabets in their incantations, after the manner of those given under the name of ogums, from oga and ogma, an augury. Their three principal ogums, were the ogum Beath, when bt or beath was placed always for the letter a; ogum coll, when, for vowels, diphthongs, and triphthongs in the ogum, the letter c was variously repeated; ogum croabh, or the virgular ogum, having a line or stem called the croabh, through which, on each side, are drawn perpendicular strokes.

KUFIC, the ancient Arabic. See ARABIC.

LATIN, from the ETRUSCAN, which see. This alphabet underwent successive changes, until it arrived at its present state, in which it is more generally known by the name of Roman.

The LOMBARD is also a variety of the Latin character.

MÆSO-GOTHIC, an alphabet attributed to Ulphilas, bishop of the Goths, in the ninth century, and used in the translation of the Scriptures.

MALABARIC, an alphabet consisting of sixteen vowels, and thirty-five simple consonants or radicals. *Alphabet Var. Congregat. de Propagand. Fide*, vol. ii.

MALAYAN is a character similar to the Arabic.

MANTCHON, a sort of Tartaric. See TARTARIC.

MENDEAN, an alphabet used by the Mendes, a people of Egypt, A. D. 277; formed from the Syriac.

MONK'S, a mode of writing among the ancient Britons by cutting letters upon sticks, either in a square or triangular form, very similar to that which is given as a specimen of the Welsh or Bardic alphabet.

NORMAN. Two alphabets are given under this name on the authority of Bede, one of which was a variety of the Greek.

PALMYRIAN was first decyphered by the Abbe

Barthelemé, is read from right to left. It bears a strong affinity to the Hebrew.

Pelasgian is a name given to the alphabet which the Greeks derived from the Phœnicians, whom they called Πελασγοι, Pelasgii, quasi Pelagi, from πελαγος, the sea, because they traversed the ocean for the purposes of commerce.

Persian, Modern, is nearly the same as the Arabic alphabet, except the addition of four letters, and a few slight differences in the powers given to the letters. Hyde gives an ancient character called Zend or Pazend, and supposed to have been used by Zoroaster. *Hyde de Relig. Vet. Persar.*

The Phœnician alphabets comprehend a great variety of characters, drawn generally from coins or inscriptions, and as ancient characters as any in the world. Scaliger supposes this to have been the original Hebrew character, otherwise called the Samaritan.

Runic, a variety of the Mæso-Gothic, used by several nations of the North.

The Russian alphabet is evidently derived from the Greek.

Samaritan is the name given to that variety of Phœnician character, which is supposed to have been used by the Jews from the time of Moses to the captivity. See Hebrew. This name was given to it, because the Samaritans continued to use it, after the captivity, in writing the Pentateuch. It has been collected by Walton from coins and inscriptions: the modern Samaritan differs somewhat from the ancient.

Sanscrit. The alphabet of the Sanskrita, i. e. the perfect or polished language of the Hindoo class, is called also the Devanagari.

Saracen. The Saracen alphabet, used at the time of their conquests, bears some affinity to the Phœnician. Another alphabet under this name is quoted by Morton, on the authority of Kircher, which is very similar to the Arabic.—*Duret. Tres. des Lang.* p. 475.

Saxon consists of two characters, the ancient and modern.

Sclavonian, the alphabet used by the ancient inhabitants of Sclavonia, and which bore some resemblance to the Illyrian.

Servian, an alphabet bearing some resemblance to the Greek, is attributed to St. Cyril, A. D. 700; and other characters, under this name, to St. Jerome.

Siamic is an alphabet bearing affinity to the Chinese.

Stranghelo, the ancient Syriac, from the Greek στρογγυλος, round, or rather, rude and rough, said to have been in use, B. C. 300. The modern Syriac, consists of initials, medials, and finals, like the Arabic. From this character two others were formed, called Nestorian, from the Nestorians of Syria, but differing only in some slight particulars. A fifth and sixth sort of Syriac have been given under the names of Syro-Galilean and Syro-Hebraic.

Sumatran. The dialects of Sumatra have each a peculiar alphabet, of which Marsden has taken notice in his Comparative Vocabulary, as the Batta, Lampoor, Rejang, &c.

Talenga, an alphabet of the kingdom of Decan, similar to the Malabaric.

Tamoulic, an alphabet of India, much used in letter-press printing.

Tartaric, the same as the Arabic; but the Mantchou Tartar is a different character.

Teutonic, a northern alphabet, bearing considerable affinity to the Saxon.

Thibetan, the alphabet used by the Lamas, according to the 'Alphabeta Varia Typis sacræ Congregationis de Propaganda Fide.'

Turkish is the same as the Arabic, with the addition of five letters.

Welsh, (Coelbren y Beirs, i. e. the Bardic alphabet,) consisted of sixteen primitive or radical characters, and twenty-four secondary ones. It was formed by cutting the letters on a stick in a triangular or square character.

The learned author of Hermes states, that to about twenty plain elementary sounds, we owe that variety of articulate words which have been sufficient to explain the sentiments of such an innumerable multitude as all the past and present generations of men. Mr. Sheridan says, that the number of simple sounds in our tongue are twenty-eight; while Dr. Kenrick contends, that we have only eleven distinct species of articulate sounds, which even by contraction, prolongation, and composition, are increased only to the number of sixteen; every syllable or articulate sound in our language being one of the number. Bishop Wilkins and Dr. William Holder speak of thirty-three distinct sounds.—After the analysis or decomposition of language into the elementary sounds, the next step towards the notation of it by alphabetical characters would be the delineation of a separate mark or letter to represent each sound; which marks, though few in number, would admit of such a variety of arrangements and combinations, as might be capable of producing that infinity of articulate sounds which compose language. The ingenious Wachter, in his Naturæ et Scripturæ Concordia, p 64, endeavours to show, that ten marks or characters are sufficient for this purpose. From a calculation made by Mr. Prestet, it appears, that, allowing only twenty-four letters to an alphabet, the different possible words that may be made out of those letters, would amount to the following number, 1391,724,288,887,252,999,425,128,493, 402,200! Of all known languages, the Greek has been regarded as one of the most copious, the radices only of which are estimated at about 3244; but then it abounds so exceedingly in compounds and derivatives, that Wilkins thinks they may be moderately computed at about 10,000. Hermanus Hugo asserts, that no language has so few as 100,000 words; and Varro is frequently quoted by learned men, as having affirmed that there are in the Latin no less than 5,000,000; reckoning all the variations of nouns and verbs by composition, conjugation, declension, and inflection.

Bishop Wilkins charges all the alphabets extant with great irregularities, in respect to order, number, power, figure, &c. The order of them certainly appears inartificial, precarious, and confused: and even in the Hebrew alphabet there are letters both redundant and deficient. Most known alphabets are redundant, either by allotting several letters to the same power and

sound, as in the Hebrew ב and ו, and the ordinary Latin *c* and *k*, *f* and *ph*; or by reckoning double letters among the simple elements of speech; as in the Hebrew ש, the Greek ξ and ψ, the Latin *x*, *z*, and *j* consonant: and deficient, in various respects, especially in regard to vowels, of which there are seven or eight kinds commonly used, though the Latin alphabet only takes notice of six; besides which, the difference among vowels, in respect of length or brevity, is not sufficiently provided for: the ancients, we know, used to express a long vowel, by doubling its character, as *amaabam*, *naata*, *ree*, *seedes*; and the vowel *i*, instead of being doubled, was frequently prolonged, as in ÆDILIS, PISO, VIVUS. The method used in English for lengthening and abbreviating vowels, viz. by adding *e* quiescent to the end of a word, for prolonging a syllable; and doubling the following consonants, for the shortening of a vowel, are equally improper; because the sign ought ever to be where the sound is. Again, their powers are not always fixed; the vowels, for instance, are generally acknowledged to have each of them several sounds: thus the vowel *i* has at least three different sounds, and one of these only is expressed in writing no less than in six several ways, viz. by *e*, as in *he*; by *ee*, as in *three*; by *ie*, as in *field*; by *ea*, as in *near*; by *eo*, as in *people*; and by *i*, as in *privilege*. Nor are the consonants of more determinate power; witness the two different pronunciations of the same letter *c* in the same word *circo*; and of *g* in *negligence*. To add no more, the letters *c*, *s*, and *t* with an *i* after it, are used alike to denote the same power; and the letter *s* is commonly used for *z*; and which is yet worse, some letters of the same name and shape are used at one time for vowels, and at another for consonants; as *j*, *v*, *w*, *y*; which yet differ from one another, says bishop Wilkins, *sicut corpus et anima*; 'as much as soul and body.'—From this confusion in the power of letters, there arise divers irregularities; such as, that some words are distinguished in writing, which are the same in pronunciation, e. gr. *cessio* and *sessio*, &c. and others are distinguished in pronunciation, which are the same in writing; as *I now read—I have read*, &c.

Various plans have been suggested to remedy these imperfections, and very plausible schemes have been exhibited for that purpose, by Mr. Lodwick, Bp. Wilkins, Dr. Franklin, &c.; but the great difficulty, if they should be ever so perfect, lies in bringing them into general use. Mr. Sheridan observes, that, in our English alphabet, there are many sounds for which we have no letters or marks: and that there ought to be nine more characters or letters to make a complete alphabet, in which every simple sound should have a mark peculiar to itself. The following is his scheme of the English Alphabet. *Rhet. Gram.* p. 9.

Number of simple sounds in our tongue 28.

	3	1	2	3	2	3	1	1	1
9 Vowels,	*a*	*a*	*a*	*e*	*o*	*o*	*e*	*i*	*u*
	hall	hat	hate	beer	note	noose	bet	sit	but

w *y*

short oo short ee

19 Consonants, { *b d f g k l m n p r s t v z th sh zh ng.*

2 Superfluous, *c*, which has the power of *k* or *s*; *q*, that of *k* before *u*.

2 Compound, *j*, which stands for *dzh*; *z* for *ks* or *gz*.

1 No letter, *h*, only a mark of aspiration.

Consonants divided into mutes and semivowels.

6 Mutes, *b d g k p t.*

3 Pure mutes, *k p t.*

3 Impure, *b d g.*

13 Semivowels, or liquids. { *f l m n r s v z th th sh zh ng.*

9 Vocal, *l m n r v z th zh ng.*

4 Aspirated, *f s th sh.*

Divided again into

4 Labial, *b p r f.*

8 Dental, *d t th th z ss zh esh.*

4 Palatine, *g k l r.*

3 Nasal, *m n ng.*

ALPHÆA, in entomology, a species of the phalæna bombyx, with ferruginous wings, a white point in the middle, and a punctuated brown streak;—found in New Holland.

ALPHENUS VARUS. See ALFERNUS.

ALPHERATZ, in astronomy, a fixed star of the third magnitude in Aquarius.

ALPHERY (Mikipher), a native of Russia, and of the imperial line. When that country was torn in pieces by intestine quarrels, in the latter end of the 16th century, this gentleman and his two brothers were sent over to England under the care of a Russian merchant, who entered them at Oxford, where two of them died of the small pox. This surviving brother entered into orders; and in 1618 obtained the rectory of Wooley in Huntingdonshire; and though twice invited to return to his native country by a political party, he chose rather to remain with his flock. In 1643 the republicans took him by force from his pulpit, as he was preaching, and turned his wife and children into the street. He raised a tent in the church-yard, over against his house, and lived there with his family for a week. Mr. Alphery afterwards left Huntingdonshire, and resided at Hammersmith till the restoration again put him in possession of his living; but, being aged and infirm, he could not perform its duties; and having settled a curate, retired to his son's house at Hammersmith, where he died.

ALPHESIBŒA, Ἀλφεσιβοία, in mythology daughter of Phlegeus, and wife of Alcmæon, the son of Amphiareus, abandoned by her husband for Calirrhoe, the daughter of Achelous. He attempted to obtain a necklace from her which she had received as a bridal present, and was killed by her brothers in revenge.

ALPHESTES, in ichthyology, the name of a fish, the cinædus of Linnæus, seeming to approach very much to the turdus or wrasse kind, but having the rays of its back-fin prickly all the way to the tail; whereas the turdi have only the anterior rays of that fin prickly, the rest smooth. It is a small fish, caught about the shores, and among rocks; its back is purple, and its sides and belly yellowish. Its mouth is small, and has thick and fleshy lips.

ALPHETI, in astronomy, another name for the star Lucida Corona.

ALPHEUS, or ALPHEIUS, in ancient geogra-

phy, a large river of the Peleponnesus; which, rising in, and after several windings running through, Arcadia, and by Olympia in Elis, with a south-west course fell into the Sinus Chelonites, about ten miles south of Olympia. It had a common spring with the Eurotas, at the foot of mount Parthenius, near the village Asea. The poets fabled that, out of love to the nymph Arethusa, this river ran under the sea to Sicily, and burst out again at the fountain of that name in Syracuse. Pausanias adds, that the Eleans had a law, which condemned any woman to death that should either appear at the Olympic games, or cross this river during that solemnity. Virgil alludes to this stream in the following lines:

Alphæum fama est huc Elidis amnem
Occultas egisse vias subter mare; qui nunc
Ore, Arethusa, tuo Siculis confunditur undis.

And Lord Byron has a beautiful application of the above fable, as a metaphor, in his Lara.

ALPHEUS, the father of the apostle James and Jude. Mary, his wife, is said to have been the sister of the Virgin, and hence some writers say his sons were called the brethren of our Lord. He is supposed to be the same with Cleophas. Also the name of the father of the Evangelist Matthew.

ALPHITIDON, from *αλφιτον*, powder, i.e. a bone ground to powder. In surgery, a species of fracture, wherein the bone is broken into a great number of small parts, or portions.

ALPHONSIN, in surgery, an instrument for extracting bullets, or other extraneous substances, from the human body. This instrument derives its name from the inventor Alphonsus Ferrius, a physician of Naples; and consists of three branches, which are closed on a ring. When introduced into the wound, the operator draws back the ring towards the handle, upon which the branches opening, the ring is pushed from the haft, by which means the ball is grasped firmly, and extracted from the wound.

ALPHONSINE TABLES, astronomical tables made by Alphonso X. (See ALPHONSO X.) They were drawn up chiefly by the skill and pains of a learned Jew, rabbi Isaac Hazan, and called Alphonsine Tables in honour of this prince, who was at considerable expense concerning them. He fixed the epoch of the tables to the 30th of May, 1252, being the day of his accession to the throne. They were printed for the first time in 1483, by Radtolt, of Venice; (an edition extremely rare;) there are others of 1492, 1521, 1545, &c.

ALPHONSO, or ALPHONSUS, I. king of Arragon and Navarre, succeeded his brother Pedro I. in 1104; and in 1109 became king of Castile by his marriage with Urraca, daughter to Alphonso VI. king of Castile and Leon. He took Saragossa from the Moors; but his queen proving faithless, he divorced her, which involved him in wars with the Castilians. He died in 1124.

This was also the name of several monarchs of Arragon, Leon, and Castile, who variously distinguished themselves in contest with the Moors in the 12th and 13th centuries.

ALPHONSO X. king of Leon and Castile, was surnamed the Wise, and author of the astronomical tables, called Alphonsine. The perusal of Quintus Curtius is said to have afforded him such delight, that it gave a favourable turn to a dangerous illness. He is said also to have read the Bible fourteen times, with several comments on it; and favoured its translation into the Spanish language. He also completed a code of laws, known under the title of Las Partidas, begun by his father, and substituted the vernacular tongue for the Latin in law proceedings. He was elected emperor in opposition to Richard, duke of Cornwall, and was excommunicated by the pope for persisting in his claim to that dignity. Dethroned by his son Sancho: he died of grief, in 1284.

ALPHONSO XI. king of Leon and Castile, succeeded his father Ferdinand IV. in 1312. He defeated and slew Abdulmalic, son of Abul Hassan, king of Fez, in 1339; and at the battle of Tariff, in 1340, obtained a signal victory over the Moors, of whom it is said 200,000 were slain; besides taking Algezira from them: he died in 1350.

ALPHUS, in medicine, a distemper, described by Celsus, under the name of vitiligo. In this disease the skin is rough, and exhibits spots of white; whence it is denominated leuce. Where the spots are black, it is called nigra and melane. It bears the same relation to the leuce, as the scabies to the iepra; the first is superficial and cutaneous, the second sinks deeper into the flesh.

ALPINE MOUSE. See MOUSE and MARMOTE.

ALPINI, or ALPINUS, (Prosper), a celebrated Venetian physician and botanist, born in 1553. He travelled in Egypt to acquire a knowledge of exotic plants, and was the first who explained the fructification and generation of plants by the sexual system. Upon his return to Venice, in 1586, Andrew Doria, prince of Melfi, appointed him his physician; until the republic of Venice, being jealous that so distinguished a subject of theirs, as Alpini, should continue at Genoa, invited him in 1593, to fill the professorship of botany at Padua. He discharged this office with great reputation, till he died in 1616, in the 64th year of his age. His principal works (which have passed through numerous editions), are De Medicina Ægyptiorum; De plantis Ægypti; De Balsamo, a treatise on the famous balm of Gilead; De Præsagienda Vita et Morte Ægrotantium, consisting chiefly of a collection and arrangement of the presages of Hippocrates; De Medicina Methodica, being an attempt to elucidate and restore the ancient doctrine of the Methodistic sect in medicine; De Raphontico disputatio inauguralis; and De Plantis exoticis.

ALPINIA, in botany, a genus of the monogynia order, belonging to the monandria class of plants; and in the natural method ranking under the 8th order, scitaminc. The characters are: CAL. a perianthium above, small, and trifid: COR. monopetalous, unequal, and as if doubled: STAM. one filament, with linear antheræ joining to the margin: PIST. a roundish germen, beneath: the stylus simple, and the stigma obtusely trigonous: PER. is a fleshy ovate trilocular capsule, with three valves. The seeds are ovate, and very numerous; the receptaculum is pulpy and very large. Of this genus, various species, natives of the East and West Indies, have been lately

enumerated by Mr. Roscoe, Dr. Roxburgh, and others, but they have not been very intelligently described. It grows naturally in moist places.

ALPS or ALPES, a long and stupendous ridge of mountains, which lie almost in the very heart of continental Europe, and stretching in a crescent-like form through Provence, Dauphine, Savoy, Switzerland, the Tyrol, Trent, Brixen, Suabia, the Electorate of Saltzburg, Carinthia, Carniola, and the ci-devant republic of Venice, from the Gulf of Genoa to the top of the Adriatic, divides Italy, on the north, from Germany, France, and Switzerland. The name is supposed to be derived either from the Celtic alp, signifying verdant heights, or mountains, (Isidore in Origen, lib. iii. and Servius in Virgil, Æn. lib. iii.); and, amongst the ancient Scythians and Scandinavians, the spirit of a mountain; or from albus, alpus, white with snow. The etymology from Albion, the son of Neptune, who was said to have been killed by Hercules, when disputing the passage of this god across these mountains, is too fabulous, if not for our attention, at least for our belief.

The length of this lofty range is from 600 to 700 miles, and its breadth, variously estimated, in some places exceeds 100, the whole comprising various chains or branches, broken into lofty peaks, and divided from each other by narrow valleys, and dreadful chasms several thousand feet deep. Many of these stupendous masses appear like mountains piled upon mountains, till their summits reach above the clouds, and at that altitude resemble islands emerging from the bosom of the ocean. These are chiefly from 4000 to 12,000 feet in altitude above the level of the sea, and form a series of summits, the highest of which are clothed with perpetual snow. The most rugged parts of this chain are those lying between Savoy and the Vallais, amongst which the celebrated Mont Blanc lifts its lofty head to the enormous altitude of 15,660 feet, and is visible from Dijon and Langres, at the distance of 140 miles. From these immense heights, numerous lakes and rivers derive their origin, down their sides are poured stormy cataracts, and beautiful cascades, whilst fine views, and scenes the most picturesque and delightful, break from various directions upon the eye of the traveller. The lower parts of these mountains are clothed with woods and pastures; the superior regions, to which the shepherds resort with their flocks during summer, produce a great variety of plants and shrubs, and are refreshed with clear and excellent springs, whilst the supreme altitude presents a series of rugged and almost inaccessible rocks. In ascending the Alps, the traveller experiences not only the four seasons in succession, within a short space of each other, but all the intermediate changes. Even summer and winter here lose their animosity, and dwell almost together. Many parts of the Alps, especially the middle regions, are subject to violent storms, the tremendous effects of which on the northern branches are fearfully felt. Within the space of a few hours, these dreadful *acirs*, or hurricanes, often fill the ravines, obliterate the paths and precipices, cover the villages, bury the inhabitants, and deplorable is the state of that traveller who is thus overtaken at a distance from any shelter—his path is no longer visible—the precipice and the plain can no longer be distinguished—if he stands, he is frozen—if he proceeds, he is buried.

Since the time of the Romans, who first penetrated these mountains thoroughly, they have been called by different names in different parts. The principal subdivisions are the following:—the Maritime, the Cottian, the Greek or Grecian, the Pennine, the Rhœtian, distinguished into the High Alps, the Lepontine, and the Rhœtian Proper; the Tyrolese and Tridentine, including those of Suabia, the Noric, the Carnic, and the Julian.

In the course of this immense range, these mountains assume several distinct names and subdivisions, according to their different and relative situations. The Maritime Alps, or Alpes Littoreæ, or Maritimæ, so called from their proximity to the Mediterranean, begin at the eastern extremity of the chain, near Monaco, and terminate near the source of the Po, at Mount Viso, between Dauphine in France, and Piedmont in Italy; thus connecting the Alps with the northern part of the Appennines, and leaving ancient Gaul to the west, and Genoa to the east. Saussure has included the whole range of mountains, from Nice to Genoa, under this subdivision, which he divides into two great branches, one running eastward along the coast, until it joins the Appennines; the other stretching westward through Provence: the usual distribution, however, gives the eastern branch of this range to the northern Appennines. The heights of Camelon and Tenda are the most celebrated and conspicuous of this division, both situated in the county of Nice; and the passes called the Col di Tenda, the boundary of Nice on that side, and the Col d'Argentiere, leading from Barcellonette in Provence, to Coni, in Piedmont, are those best known to travellers. The ancient city of Embrun was formerly the capital of this district, the inhabitants of which enjoyed, under the emperor Nero, the privileges appertaining to the allies of Rome; and trophies are said to have been erected on one of its highest summits, called Tropœa, or Turbia, in honour of the emperor Augustus.

The Cottian Alps, Alps Cottiæ, or Cottanæ, now Mont Genevre, begin at Mount Viso, at the termination of the former, and taking a northern direction to mount Cenis, form the boundary line between this part of Dauphine and Piedmont. The chief town of this district is Susa, and across this range it is supposed, by Holstenius, D'Anville, and others, that Hannibal with his army entered into Italy. This, however, is by no means clear. The manner in which the Carthaginian general levelled some of the most inaccessible heights, splitting the rocks by means of fire, and afterwards pouring on quantities of vinegar, which are said to have softened and crumbled them, rests entirely upon the authority of Livy, l. xxi. c. 27, supported by an extravagant line of Juvenal, Sat. x. v. 15. 'Diducit scopulos, et montem rumpit aceto.' In the present advanced state of chemistry, we know nothing of a calcination of immense masses of rock that could be thus effected. Pliny states,

in book xxii. c. 1. of his Natural History, that vinegar will dissolve calcined substances, and the pearl of Cleopatra may be instanced as a proof of this; but the details of natural history are so imperfectly given by the ancients, and Pliny is himself so full of marvellous relations, that this evidence can weigh but little; and even allowing the fact to be correct, as to the pearl, the dissolution of so small a substance can bear no analogy to softening down the rocks of the Alps. There is, however, still extant an ancient pass on this division of these mountains, which leads from Briançon to Susa, formerly called the Cottia; by which, if Hannibal passed over this portion of the Alps, he must have proceeded.

The Greek Alps, or, according to Pliny and Cornelius Nepos, Alpes Graiæ, begin at the northern part of the range last described, and divide Savoy and the Tarentese territory in a western direction; they also run to the east, between Piedmont and the valley of Aosta, terminating at Great St. Bernard. This division is sometimes called Little St. Bernard, as it contains that mountain, and is the part where Hercules, on his return from Spain, was fabled to have forced his passage against Albion.

The Pennine Alps, or Alpes Penninæ, seem to have derived their name from the Celtic word Pen, signifying head or top, in relation to the comparative heights of these mountains. The etymology which derives the name from Pœni (Carthaginians), as denoting it to have been the place of Hannibal's passage, is inconsistent with the tenor of history, although conjectured in the time of Livy, lib. xxi. This division begins at the north-east of the Alpes Graiæ, and, separating the Vallais from Italy on the south, extends to the sources of the Rhine and the Rhone, at the foot of the Great St. Gothard. There are three roads across these mountains; that by which the emperor Constantius marched his army against the Alemanni; another over Mount Simplon, by which Buonaparte invaded Italy, in 1800, prior to the battle of Marengo. This great road into Italy was highly improved by the ci-devant emperor, and is that usually travelled. It runs along the Savoy side of the lake of Geneva, and connects the ridge of the Jura with the Alps. At St. Maurice it falls in with the road that traverses the Swiss margin of the lake, passes up the Vallais beyond Sion; and then turning to the right ascends the Great Simplon, and conducts the traveller to the lake Maggiore and Milan. The track, at the town of Martigni, is unworthy the name of a road, and is passable only by mules. It branches off to the Furca, the Col de Balme, and the romantic scenes of the vale of Chamouni. This division contains Great St. Bernard, Mont Blanc, and that immense range of precipices extending southward from the Rhone, and northward from the modern Piedmont. Here the Alps assume their greatest breadth, and branch out into those enchanting valleys which form the habitations of the Swiss.

The Rhætian Alps, or Alpes Rhæticæ, are so called from their situation in the ancient Rhætia. Of this range there are three subdivisions: first, the Rhætian Alps proper, which form an immediate junction with the Pennine Alps, and pass between the country of the Grisons and the Tyrol, to the sources of the rivers Piave and Drave, and in their course give rise to the [illegible] the Adige, the Oglio, and the Adda; second, the High Alps, designating the summits of St. Gothard, the Vogelsberg, the Furca, the Grimsel, the Schreckhorn, and the Grimsel, which [illegible] contain. This chain runs from St. Gothard to the lake Maggiore, and divides Milan from Switzerland. In its course, a branch of the [illegible] Rhine springs from the mountain Vogelsberg, and the sources of the Rhone and the Reuss [illegible] be found in the mountain of Furca. This [illegible] division is sometimes called the Helvetian Alps. The third, or Lepontine Alps, take their name from the inhabitants of the surrounding country, extend southward of the Pennine Alps and the High Alps, and stand between the sources of the Rhone and the lake Maggiore, joining the Alps of St. Bernard westerly.

The Tyrolese, or Tridentine Alps, Alpes Tridentinæ, run northward of Trent, and [illegible] the great mountain Brenner; the Alps of Algau in Suabia, are a part or continuation of the Tyrolese Alps, and cannot justly be divided from it; within this range, in the county of Kempten, Rothenfels, stands the Hochvogel, and between the rivers Lech, Iller, Bregentz, and the Aller, are their several sources.

The Noric Alps, or Alpes Noricæ, take their name from the ancient Noricum, and divide the counties of Nice, Saltzburg, and the territory of Venice. They extend eastward of the Rhætian Alps, and terminate at Dolback in the Tyrol.

The Carnic Alps, or Alpes Carnicæ, which have been little explored, extend from the Noric Alps to mount Occa, running between Carinthia and Friuli.

The last distinct portion of these mountains is that known by the different names of Julian, Pannonian, or Venetian Alps; Alpes Julianæ from Julius Cæsar, who formed a plan of [illegible] over them, afterwards completed by the emperor Augustus. The additions of Pannonicæ and Venetæ are derived from the counties of Pannonia and of Venice, through which they run. This division of the Alps continues the chain from Mount Occa to the gulf of Carnaro, in the Venetian gulf, or Adriatic sea, near Istria, running between Carinthia, Carniola, and [illegible] completes the crescent before described.

The Alps, according to Saussure, consist in their higher summits, chiefly of a large-grained granite. On the loftiest peaks, the sun shows a lustre at setting, full three quarters of an hour after the light has disappeared in the Pays de Vaud, and other places in Switzerland. They stand more than 1000 feet above the [illegible] the rising of the sun, the tops of these mountains are illuminated for an equal length of time before his rays reach the surrounding country, when they appear like stars amidst the darkness of the morning. The valleys and precipices, on the sides of these heights, interspersed by those beautiful, but dangerous wonders of nature, the glaciers, or rocky mids of ice, accumulated in these [illegible] avenues in immense quantities, and in [illegible] shapes and varieties. Coxe divides the

the upper and lower glaciers, of which the last are much the more considerable in extent and depth; that of Des Bois is fifteen miles long, and in some places upwards of three broad. Saussure found the average depth of the ice, composing this glacier, from eighty to a hundred feet. They seem, in the larger ravines, as if enormous multitudes of icy hills had rushed from the summits of the surrounding mountains, and crushed each other into the thousand forms that thus fill up the valley. Their surfaces are rough and granulated, the ice of which they are composed being remarkably porous and full of bubbles; they are easily passed, except in a rapid descent, and in the case of snow accumulating over the fissures, which, however, are not many, and always felt for by the guides. The upper glaciers, on the sides and summits of the Alps, are formed of the purest snow, converted into various degrees of hardness, and continually sliding downward to the valleys. The avalanches are prodigious masses of these accumulations, which are suddenly precipitated down the sides of the mountains, and, increasing as they proceed, sometimes overwhelm whole villages at their feet. The valleys themselves, nevertheless, present some of the finest landscapes to the eye, and afford the most luxuriant pasturage; corn, vines, and fruits, diversify the scene, and excellent fish of all kinds are found in the waters. Recesses from the world are formed, by means of these mountains, in the very heart of Europe, which would seem designed to be the cradle of liberty; but the warrior and the statesman have often decided the fate of the civilized world upon their borders. Many parts of the Alps yet remain untrodden by the foot of man; but the most noted passes, besides those already mentioned, are those of Mount Cervin, Furca, Col di Seigne, Great St. Bernard, St. Gothard, Splugen, the Bulls of Rastat, and the Brenner. Tourists, in these districts, have multiplied the descriptions of particular passes, so that we shall not conduct the reader through any of the ordinary routes: Saussure, and the MM. Bourrit, have given us, perhaps, the only scientific accounts of the geological and mineralogical wonders of the scene; while Mr. Archdeacon Coxe, and other English travellers, have, no doubt, found their way to most of our readers.

A few additional extracts from varieties, descriptive of the most prominent features of Alpine scenery, will form the conclusion of the present article. 'The prospects from many parts of this enormous range of mountains,' says a late writer, 'is extremely romantic, especially towards the north-west. One of the most celebrated is the Grande Chartreuse, where is a monastery, founded by St. Bruno, about the year 1084. From Echelles, a little village in the mountains of Savoy, to the top of the Chartreuse, the distance is six miles. Along this course the road runs winding up, for the most part not six feet broad. On one hand is the rock, with woods of pine trees hanging over head; on the other a prodigious precipice almost perpendicular; at the bottom of which rolls a torrent, that, sometimes tumbling among the fragments of stone which have fallen from on high, and sometimes precipitating itself down vast descents with a noise like thunder, rendered yet more tremendous by the echo from the mountains on each side, concurs to form one of the most solemn, the most romantic, and most astonishing scenes in nature. To this description may be added, the strange views made by the craggs and cliffs, and the numerous cascades which throw themselves from the very summit down into the vale. On the top of the mountain is the convent of St. Bruno, the superior of the whole order, which, though not of the first style of architecture, is not altogether without its effect upon the surrounding scenery.'

In the extraordinary narrative of M. Bourrit's journey hither, we meet with the following account of the Prieure, in the valley of Chamouni We had, says he, the magnificent prospect of a chain of mountains, equally inaccessible, and covered with ice; and above the rest that of Mont Blanc, whose top seemed to reach, and even pierce the highest region of clouds. The chain, upon which the mountain looks down like a giant, is composed of masses of rocks, which terminate in pikes or spires, called the Needles, and which are ranged like tents in a camp. Their sides appear lighter and more airy from the ornament of several hollow breaks and furrows fretted in the rock itself, as well as from the different streaks and panes of ice and snow, which, without changing the general character of their form, or the majesty of their appearance, give them a picturesque variety. Lower down, the eye surveys with ravishment the hills of ice, and the several glaciers, extending almost into the plain, whilst this appears like an artificial garden, embellished with the mixture of a variety of colours. We have a picturesque opposition to this chain, which is formed by innumerable mountains at the distance of near 50 leagues, between whose tops we have a glimpse of those several plains which they environ. M. de Saussure, who had visited those mountains about two months before M. Bourrit, felt himself naturally electrified in this place. This extraordinary phenomenon seems not to have been experienced by the latter or his company; but they heard a long continued rumbling noise, like that of thunder, which was rendered more awful by the silence of the place where they stood. This noise proceeded from the subsequent causes, viz. the avalanches of snow, which separated from the tops of the mountains, and rolled down to the bottom; considerable fragments of the rocks which followed them, overturning others in their fall; and massy blocks of ice, which precipitated from the summits. The valley of Montanvert appears to be peculiarly romantic. Here, says M. Bourrit, we beheld a spacious icy plain entirely level; upon this there rose a mountain all of ice, with steps ascending to the top, which seemed the throne of some divinity. It likewise took the form of a grand cascade, whose figure was beyond conception beautiful; and the sun which shone upon it, gave a sparkling brilliance to the whole. The valley on our right hand was ornamented with prodigious glaciers, which, shooting up to an immeasurable height between the mountains, blend their

colours with the skies, which they appear nearly to reach.

ALPS, SUABIAN, a chain of mountains, which stretch along the frontiers of Wirtemberg, in Germany, separating the Danube from the Neckar. They may be considered as a continuation of the Tyrolese Alps, forming part of the Schwarzwald, or Black Forest. They reach from Sultz to the vicinage of Tubingen, and then eastward as far as Ulm.

ALPS, MARITIME, department of, in France, is formed from the ancient county of Nice, and a certain part of High Provence. Nice is its chief town, and, with Puget and Herieres, forms three sub-prefects or arrondissements. It is divided into twenty-two cantons, and contains a population of 131,300 inhabitants. This is a mountainous district: but the valleys produce excellent wine and oil. It is in the eighth military division east.

ALPS, LOWER, department of, in France, is formed out of Provence High, or the north-east part of Provence, and of the valley of Barcelonette. Digne is the chief place. There are five arrondissements, or sub-prefectures, viz. Digne, Barcelonette, Castelane, Sisteron, and Forcalquier. The population is about 149,400, and its extent three hundred and seventy-two French leagues. It has the department of the Upper Alps to the north, to the east the Piedmontese Alps, the department of the Var bounds it on the south, and the mouth of the Rhone and Vaucluse on the west. It is also in the eighth east military division.

ALPS, HIGHER, department of, in France, is formed of the south-east part of Dauphine, and part of Provence. Gap is the chief place. There are three sub-prefectures or arrondissements, viz. Gap, Briançon, and Embrun. It is divided into twenty-three cantons, its extent is two hundred and fifty-one French leagues, and contains a population of 121,500 inhabitants. This department is fertile in corn, wines, and nut-oil, and on its hills sheep and goats abound. It is in the seventeenth east military division.

ALPS, is likewise frequently used as an appellative to denote any mountains of extraordinary height or extensive range. In this sense, Ausonius and others call the Pyrenean mountains Alps; and Gellius the Spanish Alps, Alpini Hispani. Hence also we say, the British Alps, the Asiatic Alps, the American Alps, the Scottish Alps, &c.

ALPTEGHIN, a Turkish slave of Achmet, sultan of the Samanides, who having obtained his freedom by his talents and address, rose gradually to the highest offices of state; and on the death of Achmet, obtained possession of the city of Gazna, where he reigned for 16 years, and at his death, was succeeded by his son-in-law, Sebecteghin, the father of Mahmud, the founder of the great Gaznian dynasty.

ALPUJARRAS, or ALPUXARRAS, mountains of Spain, in the province of Granada, on the coast of the Mediterranean sea. They are about 17 leagues in length, and 11 in breadth, reaching from the city of Velez, almost to Almeria. They are inhabited by the descendants of Moors who have embraced the Christian religion, but preserve their own manner of living and language, though much corrupted. Here is a [illegible] let between Pitros and Portugos, which is [illegible] to dye linen that is dipped in it black in [illegible] stant. The Moriscoes cultivate the soil extremely well, and plant fruit trees; some of which [illegible] to a prodigious height and thickness, and [illegible] the mountains an agreeable aspect.

ALQUIER, also called *cantar*, a liquid measure for oil, used in Portugal. It contains [illegible] cavadas, or canadors. Two alquiers make [illegible] almeede, or almonde. It contains 675 French [illegible] 817 English cubic inches; so that 21 alquiers are nearly = 1 English quarter; or more [illegible] rectly, 50 alquiers = 19 English bushels. [illegible] quier is also a measure for grain at Lisbon.

ALQUIFOU, or ARQUIFOU, in mineralogy, a sort of mineral lead, very heavy, easily [illegible] into powder, though hard to melt. When [illegible] it parts into shining scales, in colour much [illegible] needles of antimony. The potters use it [illegible] their works a green varnish, whence it is [illegible] monly called potter's ore. It is found in [illegible] wall: the potters mix manganese with it [illegible] then the varnish or glazing on their wares [illegible] comes of a blackish colour.

ALRAMECH, or ARAMECH, in astronomy, the Arabic name of a star of the first magnitude, otherwise called ARCTURUS.

AL-RASCHID (Haroun), a caliph of Bagdad. See AARON.

ALRATICA, among the Arabian physicians, is where the vagina is imperforate, or at least [illegible] foramen smaller than ordinary, whether [illegible] rally or by accident.

ALRE, a river of England, rising near Alresford, below which it is called Itching.

ALREADY, *adv.* All ready, wholly ready done, past.

> For if the wolfe come in the waie
> Their gostly staffe is then awaie,
> Whereof thei shuld their flocke defende
> But if the poure shepe offende
> In any thynge, though it be lite,
> Thei ben *all ready* for to smite.
>
> *Gower. Con. A. The P[illegible]*

> Touching our uniformity; that, which hath [illegible] *already* answered, may serve for answer. [illegible]

> You warn'd me still, of loving two;
> Can I love him, *already* loving you?
>
> *Dryden's Indian Emp[illegible]*

> See, the guards from yon far eastern hill
> *Already* move, no longer stay afford;
> High in the air they wave the flaming sword,
> Your signal to depart. *Dryden's State of Innocence*

> Methods for the advancement of piety are [illegible] power of a prince, limited like ours by a strict [illegible] tion of the laws *already* in force. [illegible]

> Methinks, *already* I your tears survey;
> *Already* hear, the horrid things they say,
> *Already* see you, a degraded toast;
> And all your honour in a whisper lost! [illegible]

ALREDUS, or ALUREDUS, of Beverley, a celebrated English historian, who flourished [illegible] the reign of Henry I. It is said that he [illegible] educated at Cambridge, and afterwards [illegible] canon and treasurer of St. John's, at Beverley. He travelled through France and Italy, [illegible] provement, and at Rome became domestic [illegible] lain to cardinal Othoboni. He died in 11[illegible] 1129, leaving behind him the following [illegible] 1. The Annals of Alured of Beverley [illegible]

1726; published by Mr. Hearne, from a manuscript belonging to Thomas Rawlinson, Esq. It contains an abridgment of our history, from Brutus to Henry I. written in elegant Latin, and with great accuracy. 2. Libertates ecclesiæ S. Johannis de Beverlac, &c. a MS. in the Cotton library, which has never been published. It is a collection of records relative to the church at Beverley, translated from the Saxon language.

ALRESFORD, a market town and parish of Hampshire, in Alton North division, 57 miles from London, and 6 miles north-east from Winchester, containing about 1219 inhabitants. The church of Old Alresford is a neat building, to which the churches of New Alresford and Maidstead are chapelries annexed. The parsonage-house is a neat commodious building. Near this place is a pond which covers near 200 acres of ground, but was formerly much larger, as it reached the bishop of Winchester's palace at Bishop's Sutton, a mile and a half distant. By charter from king John, the Itching was made navigable for barges and lighters; but the navigation has long reached no further than Winchester. The only manufactory is that of linseys. New Alresford is governed by a bailiff, and 8 burgesses, and formerly sent a member to parliament. At Tichburn Hall, a gift of 2d. in bread or money is given to every applicant on Lady-day. Market day, Thursday.

ALROA, or ALROE, a Danish island.

ALROE, a small island of Jutland, in the gulf of Horsens, belonging to the bailiwick of Achia. Long. 10°. 30′. E. lat. 55°. 52′.

ALRUKAK, in the materia medica, a word used by Avicenna, and others, for what was called by the Greeks leptos libanotis, and manna thuris, i. e. the fragments of frankincense, broken off from the larger pieces in collecting or packing them.

ALRUM, in the botanical writings of the ancients, a name given to the tree which produces the bdellium. This gum was originally known to be the exudation of a tree growing in Arabia and the East Indies, and well known to Avicenna, and others, and by all of them called by that name.

ALRUNES, a name given by the ancient Germans to small figures of wood, of which they made their lares.

ALSA, in ancient geography, a river of Carniola, now the Ausa; running by Aquileia, with a short course from north to south into the Adriatic; where Constantine, the son of Constantine the Great, fighting against Constans his brother, lost his life.

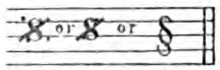
ALSACE, LOWER and UPPER, a ci-devant province of France, now included in the departments of the Lower and Upper Rhine. It is bounded on the east by the Rhine; on the south by Switzerland; on the west by Lorrain; and on the north by the palatinate of the Rhine, or ci-devant department of Tonnere. It was formerly a part of Germany, but was given to France by the treaty of Munster. It is one of the most fruitful and plentiful provinces of Europe, abounding in corn, wine, wood, flax, tobacco, pulse, fruits, &c. Upper Alsace contains silver, copper, and lead mines; and is remarkable for the wine called strok, or straw wine. The mountains which divide it from Lorrain are very high, and generally covered with fir, beech, oak, and horn-beam. There are also iron-works in several parts of Alsace, and a mineral spring at Sultsbach, near Munster, which is in reputation for curing the palsy, &c. Of the two modern divisions of Alsace, (the Upper and Lower Rhine) Strasburgh and Colmarare th capital towns.

ALSADAF, in the materia medica, a nam given by Avicenna and Serapio to the ungu adoratus; as also to the murex, or purple-fish, the shell of which it was supposed to be a part.

ALSAHARATICA, in botany, used by som to signify the parthenium or feverfew.

ALSAHARCUR, in the materia medica, name given by Rhases, and some others of th old writers, to the skink, a small animal of th lizard kind, used in medicine as a cordial, and as a provocative to venery.

AL SEGNO, in music, to the sign, an expression used to avoid writing the same passage twice over, and generally placed at the end of rondeaux, and such vocal compositions as are constructed upon the principle of the grand coup Ternaire: the first part or division of which must always be repeated. The sign to which the return is made is generally marked thus,



ALSEN, a fertile island of Denmark, about 100 miles west of Copenhagen, in the entrance to the Baltic, between Sleswick and Funen, and belonging to the duchy of Sleswick. It is remarkable for two castles, and produces large crops of grain, and aniseeds, a carminative much used in seasoning the food and bread all over the Danish dominions. Alsen is about eighteen miles long and nine broad, or 132 square miles in superficial extent; and contains 15,045 inhabitants. The chief town is Sonderburg.

ALSFELD, a town of Germany, in the grand duchy of Hesse, 18 miles east of Marburg, and 50 north-east of Frankfort. It is an ancient town, and well built; and the inhabitants were the first of this country who embraced the Reformation. Lon. 9°. 5′. E. lat. 50°. 45′. N. Inhabitants 3000.

ALSHASH, a province containing formerly a very beautiful city in Bukharia, supposed to be the same with that called Tashcant, the capital of the eastern part of Turkestan. It was situated on the river Sihûn, now Sir, and had a well watered garden for every house; but was ruined by Jenghiz Khan.

ALSHEDA, a parish of Sweden, in the province of Smaland, containing a gold mine: discovered in 1738.

ALSHEIM, a market town of the grand duchy of Hesse, formerly in the upper bailiwick of Alzey, containing 165 houses, and 1030 inhabitants. It is 10 miles north of Worms.

ALSIMBEL, or SIMBALETH, in the materia medica, a name given by Avicenna and others to the spikenard of India; so called from its

having the appearance of a spike, or ear, or a congeries of many spikes, or ears, as the nardyx Indica, or Indian spikenard.

ALSINA, in botany, a synonyme of the theligonum. See THELIGONUM.

ALSINASTRUM, in botany, the trivial name, and also a synonyme of the elatine. See ELATINE.

ALSINE, or CHICKWEED, a genus of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 22d order, caryophyllei. The characters are: CAL. quinquephyllous; COR. five equal petals, longer than the calyx: STAM. five capillary filaments; the antheræ roundish: PIST. an oval germen, three filiform styli, and obtuse stigmata: PER. an ovate unilocular capsule, with three valves: the seeds are roundish and numerous. Of this genus a great number of species are enumerated by some botanical writers; but none of them possess any remarkable properties, except the A. media, or common chickweed, with white blossoms, which affords a notable instance of what is called the sleep of plants. Every night the leaves approach in pairs, so as to include within their upper surfaces the tender rudiments of the new shoots; and the uppermost pair but one at the end of the stalk are furnished with longer leaf-stalks than the others; so that they can close upon the terminating pair, and protect the end of the branch. The young shoots and leaves, when boiled, are hardly to be distinguished from spring spinach.

ALSINEFORMIS, in botany, the montia fontana, of Linnæus.

ALSINELLA, in botany, the name by which Dillenius calls the plant sagina.

ALSINGSUND, a strait in the Baltic, near Sunderburg, which separates the island of Alsen from the main land of Sleswick. It is about 30 miles in length, but not above three in breadth, in many places.

ALSINOIDES, the bufonia and montia of Linnæus.

ALSIRAT, in the Mahommedan theology, a bridge over the middle of hell, said to be finer than a hair, and sharper than the edge of a sword, over which people are to pass, after their trial, on the day of judgment. Mahomet assures us, that the alsirat, narrow as it is, is beset with briars and thorns; none of which, however, will be any impediment to the good, who shall fly over it like the wind, Mahomet and his followers leading the way; whereas the wicked, by the narrowness of the path, the entangling of the thorns, and the extinction of the light, which shall direct the former to paradise, will miss their footing, and fall into perdition.

ALSIUM, a city of ancient Etruria, occupying the spot on which Pala now stands. Dionysius Halicarnassensis says, that Alsium was built by the Aborigines, long before the Tyrrhenians invaded Italy. In this case it must have been founded not long after the dispersion in the days of Peleg. Its founder is said to have been one Alæsus, or Alisa; whom some conjecture to have been Alisah, or Elisha, the son of Javan, mentioned in scripture.

ALSITZ. See ALISONTIA.

ALS'O, *adv.* } Gothic *als*, all, so or so, the
ALS. } article this or that.

pe cyte he barnde al clene & a chyrche *also*
Of oure leuede pat per inne was. *R. Gloucester*

Sad remembrance now the prince amoves,
With fresh desire his voyage to pursue;
Als Una earn'd her travel to renew. *Faerie Queene.*

In these two, no doubt, are contained the causes of the great deluge; as according to Moses, so *also* according to necessity: for our world affords no other treasures of water. *Burnet's Theory.*

ALSOP (Vincent), a non-conformist minister, a native of Northamptonshire, and educated at St. John's College, Cambridge. He was successively minister of Welby, in his native county, (whence he was ejected in 1662,) and pastor of a dissenting church in Westminster. King James II. shewed him the great favour of pardoning his son when he had been convicted of treason. He died in 1703; and wrote, — 1. Antisozzo, against Dr. Sherlock, 1675. 2. Melius Inquirendum, in an answer to Dr. Goodman's Compassionate Inquiry, 8vo. 1679. 3. The Mischief of Impositions, in answer to Stillingfleet's Mischief of Separation, 1685. 4. Duty and Interest united in Praise and Prayer for Kings. 5. Practical Godliness the ornament of Religion, 1696.

ALSOP (Anthony), a divine and poet, educated at Westminster school, and at Christ Church, Oxford; where he took the degree of M.A. in 1696, and B. D. in 1706. He published Fabularum Æsopicarum Delectus, Oxon, 1698, 8vo., with a poetical dedication to lord viscount Scudamore, and a preface in which he took part against Dr. Bentley in the famous dispute with Mr. Boyle. He passed through the usual offices in his college with considerable reputation, until his merit recommended him to Sir Jonathan Trelawney, bishop of Winchester, who appointed him his chaplain, and soon after gave him a prebend in his cathedral, together with the rectory of Brightwell, Berks. In 1717, a verdict for a breach of promise of marriage being obtained against him for £2000., he retired for some time abroad. His death, which happened June 10th, 1726, was occasioned by his falling into a ditch near his garden door. Besides the Fabularum Æsopicarum Delectus, a book of his poems, entitled Antonii Alsopi, Ædis Christi olim alumni, Odarum Libri duo, and several pieces in Dodsley's collection remain. Bentley calls him Tony Alsop, a late editor of the Æsopean Fables.

ALSOPHILA, in botany, from αλσος, a grove, or forest, and φιλεω, to love; alluding to the favourite station of this beautiful tribe of tree ferns.—Brown Prodr. Nov. Holl. v. 1, 158. This genus is founded on our Cyathea aspera, C. extensa of Swartz, Polypodium lunulatum of Forster, and some other allied species, and can scarcely be distinguished from the first of these.

ALSO-SAJO, a place in Hungary, in the county of Gomah, where great quantities of cinnabar, and some mines of quicksilver, are found.

ALSTEDIUS, (John Henry), a protestant divine, and one of the most indefatigable writers of the seventeenth century. He was professor of philosophy and divinity at Herborn, in the county of Nassau; whence he removed into

Transylvania, to be professor at Alba Julia, and continued there until his death, in 1638. He wrote, 1. An Encyclopædia. 2. Triumphus Bibliorum Sacrorum, seu Encyclopædia Biblica, 12mo. 1620; and united, with his laborious pursuits as an Encyclopædist, some sanguine and peculiar views of prophecy. See his De Mille Annis, in which he anticipated that the millennium would begin in 1694.

ALSTON, (Charles), an eminent physician and botanist, was born in Scotland in 1683, and educated at Glasgow, from whence he went to Leyden, and took his doctor's degree. On his return he settled at Edinburgh, and became lecturer on the materia medica and botany. He died in 1760, having published Tirocinium Botanicum Edinburgense, in which he attacked the sexual system of Linnæus. His lectures on the Materia Medica were published in two vols. 4to. 1770. He wrote also some papers in the Edinburgh Medical Essays.

ALSTONIA, in botany, called also symplocos, a genus of the monogynia order, belonging to the hexandria class of plants; so named after the above botanist. The characters are: CAL. a perianthium beneath, imbricated: COR. monopetalous, and shorter than the calyx; the border expanding, eight or ten parted, with alternate divisions: STAM. numerous short filaments, the exterior ones longer; the antheræ are orbicular and furrowed: PIST. a small ovate germen above; a simple stylus the length of the corolla, filiform and erect; the stigma inverse, egg-headed. There is but one species, viz. A. theæformis, a native of America. Mr. Brown has given this name to another plant, of the class and order pentandria monogynia, of which he describes four species in his *Trans. Werner, Soc.* vol. i.

ALSTON-MORE, or ALSTON MOOR. See ALDSTON MOOR.

ALSTROEMER (Jonas), a patriotic Swedish manufacturer, was born of poor parents at Alingsas, in West Gothland, in 1685. He visited London while in very indigent circumstances; and paid such particular attention to its trade, and the manufactures of Great Britain, that, on his return home, he soon raised his native town to a flourishing condition, and kindled a spirit of emulation which diffused itself all over Sweden. Alstroemer followed up this good work by collecting information respecting manufactures from all parts of Europe; and carried on, at the same time, a most extensive sugar-house at Gottenburgh, and traded to the Indies and the Levant. He is said to have introduced many useful plants, particularly the potatoe, into Sweden. He also improved the woollen trade, by importing sheep from England and Spain, and the Angora goat. Alstroemer, in the decline of life, was deservedly honoured with letters of nobility, the order of the polar star, and the title of counsellor of commerce. The academy of sciences chose him a member, and the national states decreed a public statue to be erected to his honour on the exchange of Stockholm. He died in 1761, leaving a large fortune to his four sons, three of whom were also men of talents and considerable public importance.

ALSTROEMER (Claude), born in 1736, became a pupil of Linnæus. He travelled over a great part of Europe, in the course of which he sent many valuable plants to his preceptor, and, among the rest, the seeds of a fine Peruvian plant, to which Linnæus gave the name of the lily of Alstroemer. One of his papers on the simia mammon is in the memoirs of the academy of Stockholm. He died in 1794.

ALSTROMERIA, in botany, a genus of the monogynia order, belonging to the hexandria class of plants; and, in the natural method, ranking under the eleventh order, sarmentaceæ The characters are: There is no calyx: the corolla is nearly bilabiated; and consists of six petals, the two inferior tubular at the base: the stamina consist of six subulated filaments, declining and unequal; the antheræ oblong: the pistillum has an hexangular germen beneath; the stylus declining, filiform, the length of the stamina; and three oblong bifid stigmata: the pericarpium is a roundish hexangular capsule, with three cells and three valves: the seeds are globular and numerous. There are five species, natives of Italy and Peru.

ALSVIG, one of the Hebrides, near the isle of Sky.

ALT, a river in Lancashire, which runs into the Irish Channel, north of Liverpool.

ALT, or ALTWA, a river in Transylvania, whose banks and sands contain particles of gold.

ALT, from altus, high, Lat., in music, a term applied to the high notes in the scale.

ALTA GRACIA, a city of South America, the capital of the province of Satagaos, in the kingdom of Granada. It was founded in 1540, but has at present a scanty population.—Also a town in the government of Buenos Ayres, and province of Cordova, twenty miles south-south-west of Cordova. This is the name likewise of five settlements, three of which are in Guiana and in the province of Cumana; one in the kingdom of Peru, and government of Tucuman; and the other in the province and government of Venezuela.

ALTAHEST, in chemistry. See ALKAHEST.

ALTAIC CHAIN, OR ALTAIC MOUNTAINS, a range of mountains in Asia, extending, under different names, about 5000 miles in length, between the 70th and 140th degrees of east longitude. The compact of this immense chain consists, for the most part, of granite, porphyry, limestone, marble, and various valuable ores. In some parts of it, in Russia, are several gold and silver mines; and large masses of native iron have been occasionally obtained. This range gives rise to many of the largest rivers of northern Asia, and several lower ridges diverge from it, and diversify the neighbouring districts. Little, however, is known beyond its outlines and general direction. The Bogdo Tola, or Bogdo Alim, the Almighty mountain, is situated in about 94°. E. lon. and 47°. N. lat. on the limit between the Soongarian and Mongolian deserts: thence a chain runs north-west, called the Golden Mountain, being the main Altaian ridge, and passing the sources of the Irtish, extends to the lake of Altyn. Another range called Changai, passes to the south, and a ridge, by the Tartars called Alla Koola, or Alla Tau, or the

Chequered mountain, stretches to the west, and gives rise to the river Hi, a considerable stream running northward. This principal chain forms the boundary line between Russia and Independent Tartary, and proceeding onward from the Irtish to the Amur, or Amour river, branches into the mountains of Kamtschatka and Oudskoi, or Okhotsz, terminating in the sea of Kamtschatka, where it forms the extended chain of the Aleutian Islands, uniting the eastern shores of Asia with North-west America. The Lesser Altain chain separates Soongoria from the government of Kolhyvan; and near the conjunction of these two main divisions are the principal sources of the Yenisei, the Oby, and the Irtish, which empty themselves into the Northern ocean. Though such of these mountains as have been explored present many interesting mineralogical and geological facts, and the whole chain, in point of magnitude and extent, can be rivalled only by the Andes of South America, they have never been very accurately laid down in maps, and are known amongst the semi-barbarous people who inhabit the surrounding country, by so many various names and subdivisions, that a connected description of them is exceedingly difficult to gather. That part of the chain immediately south of the lake Baikal is said to be upwards of 10,000 feet in altitude. The Russian maps of these districts are little credited by Major Rennell; and though they are preferred by Mr. Pinkerton, it is admitted that these mountains are very faintly described in them. The map of Isleniff, a Russian officer, appears to be the best.

The part of this chain best known is the nine Russian portions, which are divided into the Alasey or Alaskai, the Kolhyvan, the Korbolikinsk, the Oubinsk, the Buktarminsk, the Teletsk, the Tsharinsk, the Krasnoyarsk, and the Kunetz. The last two ridges are almost wholly inaccessible, and the tops of many of them are covered with perpetual snow, and sometimes the seven preceding divisions are called the Kolhyvan mountains, as situated principally in the government of that name. The best mines of Siberia are found in these mountains, particularly in the Korbolikinsk division. In the course of forty years of the last century, the only period of which any regular account of the annual produce of these mines appears to have been kept, they produced 830 poods Russian (equal to about thirty-six English pounds each) of fine gold; and 24,460 poods of fine silver. The copper mines yield annually 15,000 poods of metal; the iron mines, running through the larger portion of the range, are too extensive, and in the hands of too many agents, to be distinctly estimated; but they form one of the most important sources of the rising greatness of the Russian empire.

ALTAIR, in astronomy, a star of the first magnitude, in the constellation Aquila.

ALTAMIRA, a small town and county of Gallicia, Spain, fifteen miles west of St. Jago de Campostella.

ALTAMURA, a town of Naples, in the territory of Bari, with the title of a principality, and the seat of a royal governor, at the foot of the Appennine mountains. It contains 16,000 inhabitants, many of whom are Greeks, and is six miles north-east of Gravina. Some have supposed this to be the ancient Petilia.

ALT'AR, *n.* Latin *altare*, [obscure] the rising altar on which the victims were [the ara being a less elevated spot, where] and drink offerings were presented.] [obscure] raised to receive offerings to Jehovah in [obscure] ish theology, and to the gods in the [obscure] mythology. Also a term used by [obscure] tians to designate the place where the [obscure] Supper is dispensed.

Þe kyng wepte with his ine, that sight myht [obscure]
praised,
& siluer grete plente vpon the *altere* laid.
R. Brunne.

Men of Athenys, bi alle thingis I se yhow [obscure] worschiperis, for I passide and segh yhoure mawm and foonde an *auter* in which was writen to [obscure] knowun God; therefore which thing, ye that [obscure] worschipern, this thing I schewe to yhow.
Wiclif, Dedis. ch. [obscure]

Her grace rose; and, with modest paces.
Came to the *altar*; where she kneel'd, and [obscure]
Cast her fair eyes to heav'n, and pray'd de[obscure]
Shakspe

The way coming into our great churches was [obscure] ciently at the west-door, that men might see the [obscure] and all the church before them; the other doors [obscure] but posterns. *Selden's Table T*

Thy liberal heart, thy judging eye,
The flower unheeded shall descry,
And bid it round heaven's *altars* shed
The fragrance of its blushing head.
Gray's Ode for M

Before thy mystic *altar*, heavenly Truth,
I kneel in manhood, as I knelt in youth,
Thus let me kneel, 'till this dull form decay
And life's last shade be brighten'd by thy ray
Then shall my soul, now lost in clouds below,
Soar without bound, without consuming glow.
Sir W. Jo

ALTAR, the Lexicography of which is [obscure] given, properly signifies a table, or a [obscure] place on which any offering was made. It [obscure] called, because altars were set up by the H[obscure] thens in high places, or, at any rate, raised [obscure] the ground. Indeed the opinion has prevail[obscure] that the word altar in its early acceptation [obscure] noted nothing more than the spot on wh[obscure] sacrifices were made. Hesychius and Plut[obscure] nus expressly speak of people who had [obscure] without altars, (or distinct edifices.) Ne[obscure] makes a similar assertion respecting the ancient Persians. The history of these celebrated [obscure] numents connects itself with one of the m[obscure] important enquiries of the human mind, viz. t[obscure] origin of sacrifices, from their connection [obscure] which it is inferred, that the date of their [obscure] appearance is almost coeval with that of t[obscure] world. Gen. c. iv. Some attribute their [obscure] to the Egyptians; others to the Jews; others [obscure] the patriarchs before the flood. Some rem[obscure] them as far back as Adam, whose altar is [obscure] spoken of by Jewish and even Christian wri[obscure] Others are contented to make the patriarch [obscure] the first who consecrated a public altar. [obscure] this as it will, the earliest altars of which [obscure] find an express testimony are those of Noa[obscure] Gen. viii. 20, and of Abraham, Gen. xii. [obscure] In the patriarchal times altars were, no doubt, [obscure] of rude construction, and temporary, [obscure]

, riated to the occasion for which they were immediately designed. The altar which Jacob set up at Bethel was merely the stone on which he rested, Gen. xx. 8.; such was also the altar of Gideon, Judges, vi.; and the first altar which Moses erected was made of earth, by the command of God, Exod. xx. 24. Among the Jews, the principal altars were the altar of incense, the altar of burnt-offerings, and the altar or table of shew-bread. These were built of wood, the first and the last were overlaid with pure gold, and the second with brass, but all richly sculptured by the hands of cunning workmen, and enriched with the choicest beauties of Jewish architecture. In this, the Jews, for the times in which they lived, were not inferior to any people; and though our information on these particulars is comparatively scanty, yet the admirable skill with which their temple was contrived and beautified, imposes a magnificent idea of the embellishment attached to their altars. The form of these erections has been a subject of considerable altercation amongst the learned; and accordingly different opinions have been given. They are represented by Josephus as being square, and having horns at the four corners. His words are *τετραγωνος δ' ιδρυτο, κερατοειδεις προανεχων γωνιας*. We find an allusion to such appendages in many parts of scripture; but whether these horns were made of wood, or were in reality the horns of some animal is not obvious. Whether they were merely ornamental appendages, or answered some practical purposes, has also been questioned. Some writers have imagined, that they served to move, and carry the altar with the greater ease and steadiness. Michaelis doubted whether they were real projections, and averred that nothing more was intended by the horns than the four corners of the edifice. 'Those who have thought otherwise,' says a late writer, 'have not informed us whether they were upright, oblique, or curved.' Spencer, Le Clerc, Witsius, and others, considered them horn-shaped, like the ara pacis of the Romans; various theories have been entertained. They have been thought emblematical of dignity and power, and to refer to the diverging rays of the solar orb when breaking forth in the morning or from behind a cloud, especially as the word translated horn, also signifies a ray of light. There can be no doubt that they were real appendages; and their uses, with respect to the larger altar, are sufficiently obvious. They served to secure the sacrificial victims, see Ps. cxviii. 27; and for fugitives to seize, when fleeing to that monument for protection.

The altar of incense was made of shittim wood, adorned after the manner already described. It was one cubit square, and two cubits high, with an ornament of gold like a carved moulding round the top of it; it was carried about by two bars of the same wood, overlaid with gold, and passing through four golden rings. Its use was for burning incense morning and evening. It was particularly to be sprinkled with the blood of the sacrifices that were offered for the sins of ignorance, committed by particular persons, or by the community in general. The following diagram, will perhaps, sufficiently illustrate its appearance to the understanding of the curious reader, in which are to be observed:—

1. The horns; 2. the crown of pure gold; 3. the rings under the crown; 4. the censer which was placed upon it. See Exod. xxx. 1. &c. This celebrated altar was hidden before the captivity, by the prophet Jeremiah. See 2 Maccab. ii. 5. &c.

The altar of burnt-offering, described Exodus xxvii. and xxviii., was made of shittim wood, overlaid with brass, and had four brass rings, through which were put two bars, by which it was carried on the shoulders of the priests. At each corner was a horn or spire, wrought out of the same wood with the altar, the uses of which have already been surmised. Within the hollow was a grate of brass, supposed to be about five feet square: on this the fire was made, and through it fell the ashes into an inferior receptacle. This part of the apparatus was suspended by rings at the corners, attached, possibly, to chains in the cavity of the altar. The dimensions of this altar were five cubits, or two yards and a half square; and three cubits, or a yard and a half high. It was placed towards the east end of the court, fronting the entrance of the tabernacle, and at such a distance that the smoke of the fire might not disfigure the furniture within the tabernacle. The altar made by Solomon, and mentioned 2 Chron. iv. 1, &c. was much larger than the former. We exhibit the following diagram, as an illustration of this edifice,

in which the reader will observe: 1. the horns, or four spires, at the four corners; 2. the grate of brass, in which the fire was made; 3. the pan which received the ashes; 4. the rings and chains by which it was affixed to the horns before alluded to; and 5. the *kibbesh*, or ascent to the altar, Exod. xx. 26, &c.; 2 Chron. iv. 1, &c. Between the grate and the altar sufficient space was left on every side to prevent the fire from damaging the wood work, and every thing was regulated with the utmost exactness. The fire on this altar was considered as sacred, having first descended upon it from heaven, Lev. ix. 44, and was therefore kept constantly burning, Lev. vi. 13. Hence, probably, the Chaldeans and Persians borrowed their notions of sacred fire,

which was always preserved with great care and attention, and from them this custom is known to have passed to the Greeks and Romans. This altar was demolished by the Babylonians at the conflagration of the temple, but was restored immediately on the return of the Jews from captivity, Ezra iii. 3. It was now a large pile of unhewn stone, 32 cubits square at the bottom, and gradually decreasing to the top, or hearth, which was a square of 24 cubits, and one cubit high, made of solid brass, and hence called the brazen altar. The ascent to the altar was by a gentle rising on the south side, corresponding with the kibbesh in the diagram. This part of the structure was 32 cubits in length, and 16 in breadth, and banded on the upper benching-in next the hearth, or the top of the altar. *Prid. Con.* vol. i. p. 199.

The altar, or table, of shew-bread, was likewise of shittim-wood, overlaid with gold, and exquisitely adorned. Its dimensions were two cubits long, one wide, and one and a half high. It had a golden border, crown, or rim, round it, and upon it were placed two rows, including twelve loaves of bread, with salt and incense, which were changed every Sabbath-day. This table was also furnished with golden dishes, spoons, and bowls. The Jews gave the name of 'altars' to a kind of tables occasionally raised in the country or fields, on which sacrifices were offered; thus we often read, in such a place an altar was built to the Lord.

The altars of the Heathens were at first made of turf; afterwards of stone, marble, wood, and even of horn, as that of Apollo in Delos. Before temples were in use, altars, as already intimated, were erected in groves, in the highways, and on the tops of mountains; and it was customary to engrave upon them the name or attribute of the deity to whom they were consecrated. They were also of different kinds with regard to their qualities, the uses to which they were applied, and the objects to which they were appropriated; being sacred to gods, heroes, virtues, vices, diseases, &c.: we read also of inner and outer, stationary and portable, public and private altars. Again, they differed in their figure, which was round, square, or triangular. All of them were turned towards the east, and generally adorned with sculpture, basso-relievos, and inscriptions, expressing the gods to whom they were appropriated, or representing their distinguishing symbols. For a specimen of pagan altars, see Plate III. Misc. No. 1 represents an altar dedicated to Neptune, and exhibits a trident, and two dolphins, the attributes of this deity, on its sides. No. 2 is a four-square altar; and, as the inscription informs us, dedicated to the nymphs. No. 3 was erected to Bacchus, and exhibits a Bacchanal, with a thyrsis in his hand, with two other sides, it appeared triangular. Each side of No. 4, which was triangular, exhibited a genius, one of whom is seen carrying an oar upon his neck, which seems to indicate that it belonged to Neptune. No. 5, with the inscription, 'Ara Neptuni,' is of a round figure; the god is represented wholly naked, preserving the pallium on his shoulder, holding a trident in his left hand, and in his right a dolphin. Altars differed also in their height as well as in their figure.

According to Servius, in Virg. Ecl. v. 66. Æn. ii. 515, those set apart for the honour of the celestial gods, or gods of the higher class, were placed on some pretty tall pile of building, as the altar of Olympian Jupiter, which was nearly 22 feet high; and for that reason were called altaria, from the words alta and ara, a high elevated altar. Those appointed for the terrestrial gods were laid on the surface of the earth, and called aræ—and, on the contrary, they dug into the earth, and opened a pit for those of the infernal gods, which they called *βοθροι* and *λακκοι*, scrobiculi. But this distinction is not every where observed.

In the great temples of ancient Rome there were commonly three altars: the first placed in the sanctuary, at the foot of the statue of the divinity, upon which incense was burned, and libations offered; the second was before the gate of the temple, and upon it they sacrificed the victims; and the third was a portable altar, upon which were placed the offering and the sacred vessels.

The Greeks had two species of altars: that whereon they sacrificed to the gods was called *βωμος*, and was a real altar, different from the other, whereon they sacrificed to the heroes, which was smaller, and called *εσχαρα*. Pollux makes this distinction of altars in his Onomasticon: but adds, that some poets used the word *εσχαρα* for the altar whereon sacrifice was offered to the gods. (The Septuagint version sometimes also uses *εσχαρα* for a sort of little low altar, which some authors express in Latin by craticula.) The nymphs, instead of altars, had *αντρα*, caves, in which adoration was paid to them.

The superior altars of the Greeks were ranged under three subdivisions: the *εμπυροι*, designed for burnt-sacrifices; *απυροι*, without fire, and *αναιμακτοι*, without blood; for upon the two last, only offerings of cakes, or fruits of the earth, and libations, could be presented to their respective divinities. Venus had an altar at Paphos, which was *αναιμακτος*, but not *απυρος*; and Tacitus says that she was worshipped, precibus solis et igne puro, by prayers and fire alone. Among the primitive Greeks, the consecration of their altars was attended but with little expense; but as they increased in riches, they gradually introduced more magnificent and costly ceremonies into this part of their religious worship. From a passage in the *Ειρηνη* of Aristophanes, and from the Danaides of that poet, we find that the ordinary mode of the consecration of altars was similar to that of images. He speaks of a woman dressed in a robe of various colours, with a vessel filled with pulse upon her head, consecrating the statues of Mercury and the altars of Jove. The usual mode of dedication was performed by placing a gariand of flowers upon them, then anointing them with oil, and afterwards offering up libations of wine and oblations of fruits. There is no doubt but that the unction, with oil, constituted the principal part of the ceremony of consecration; and that this practice was derived from the most remote antiquity. We all know

among the Jews, the altar of Moses was ecrated by the pouring out of oil, by the ess command of God, and that the altar of ib was dedicated by the performance of the e ceremony.

he altars of the ancient heathens, like those ie Jews, were adorned with horns, to which victims were fastened, and to which criminals, fled for refuge, used to cling. The ancients , on solemn occasions, as in forming alliances, confirming treaties of peace, swore upon n and by them. See Adam's Rom. Ant. 40, &c. In the Dionysica of Nonnus, ive is introduced offering up a sacrifice upon ραω παρα βωμῳ. The same ornaments are visible in those which remain in the ruins of ne. Although we have given the most imon forms of the altars of the ancients, er forms were common, and for the most part erent forms appear to have been adopted by erent nations. The square form was that st common among the Greeks; but we find, n ancient medals, that altars of the circular l pyramidical figures were not unfrequent. is probable, that the custom which was ob- ved, of placing the altars on the eastern side their temples, suggested the Christian custom placing the sacramental table on the eastern e of the early churches.

The altar which the apostle Paul found at hens, bearing the inscription of the Αγνωστος ος, eternized by the memorable discourse of ich it became the basis, has created consider- le diversity, and even contrariety of opinion ong biblical critics. The erection of this tar has been ascribed, by some, to Dionysius, e Areopagite; who, unable to account for the lipse at our Lord's death, was yet sensible that was the sympathy of nature with a superior ing. Theophylact attributes it to the appear- ice of an unknown spectre after a battle lost by ie Athenians: others to a complaint of the god an, during the war between the Persians and ie Greeks, who, considering himself neglected, cted accordingly; whence, lest any other deity ould have like cause of displeasure, an altar as erected intended to include all those gods ho were not named in the general description. ucian, in his Philopatris, swears by 'the un- nown god of Athens.' Some have supposed he god of the Jews to be intended, whose name as unknown to them. Jerome supposes, that he inscription on this altar was not, as St. Paul uotes it, 'to the unknown god,' but 'to the ods of Asia and Europe and Africa, unknown nd strange gods;' and that the apostle has not uoted the inscription exactly, but dexterously pplied it to the occasion. Theophylact and Œcumenius are also of opinion, that the inscrip- tion was 'to gods,' in the plural number. But Chrysostom, and Isidore of Pelusium, assert, that the inscription was as St. Paul quotes it. Le Clerc says, that though the inscription was in the plural number, St. Paul was in the right to allege it in the singular. The notions of Dio- genes Laertius, in Epimen. lib. i. seg. 110. p. 70, 71, are as follows: 'about 600 years before Christ, the fame of Epimenides was very great among all the Greeks, and he was supposed to be in favour with the gods. The Athenians be- ing afflicted with a pestilence, they were directed by the Pythian oracle to get their city purified by expiation. They therefore sent Nicias, son of Niceratus, in a ship to Crete, inviting Epime- nides to come to them. He came accordingly, in the forty-sixth Olympiad, purified their city, and delivered them from the pestilence in this manner: taking several sheep, some black, others white, he led them up to the areopagus, and then let them go where they would; and gave orders to those who followed them, where- ever any one of them should lie down, to sacrifice it to the god to whom it belonged; and so the plague ceased. Hence it comes to pass, that to this present time may be found, in the boroughs of the Athenians, anonymous altars, a memorial of the expiation then made.'

Altar of Adam, in antiquity, is pretended by some rabbin and others to have been erected by the first man posterior to the fall; when, being overwhelmed with sorrow, the promise was made him by the ministry of the angel Ha- ziel, of a redeemer. In gratitude he is said to have built an altar, and sacrificed. The reliques of this monument have been mentioned by se- veral writers of later ages.

Altar, in modern times, is used for a square table placed on the eastern side of the church, raised a little above the floor, and set apart for the celebration of the sacrament. Its form is not borrowed either from that of the heathen altars, or even from that of the Jews in the temple; but from the view taken of the eucha- rist as a supper. Its name is the communion table; the denomination, altar, is founded on the supposition that the eucharist is a proper sa- crifice; which, though the standing doctrine of the church of Rome, is utterly denied by most of the reformed churches. Accordingly, bishop Ridley, in the reign of Edward VI. A. D. 1550, issued injunctions for taking down all altars, and requiring the churchwardens of every parish to provide a table, decently covered, and to place it in such a part of the choir or chancel as should be most meet, so that the ministers and communicants should be separated from the rest of the people. The canons of the council of Nice, as well as the fathers St. Chrysostom and St. Augustin, call it the Lord's table; and though they sometimes call it an altar, it is to be understood figuratively. An altar has relation to a sacrifice; so that if we retain the one, we must admit the other. The practice of conse- crating altars with their furniture was introduced and vindicated by archbishop Laud, in the reign of Charles I., but objected to by Prynne, as having no higher original than the Roman missal and pontifical edicts. To the antiquity of altars it was replied, that though the name is often men- tioned in Scripture, yet it is never applied to the Lord's table; but altars and priests are put in opposition to the Lord's table, and ministers of the New Testament, 1 Cor. ix. 13, 14. It was added, that it cannot be pretended, by any law or canon of the church of England, that it is called an altar more than once, stat. 1 Edward

VI. cap. 1., which statute was repealed within three years, and another made in which the word altar is changed into table.

ALTAR of Prothesis, is a name given by the modern Greeks to a smaller preparatory kind of altar, wherein they bless the bread, before it is carried to the large altar where the liturgy is performed. F. Goar maintains that the table of prothesis was anciently in the sacristy or vestry; which he makes appear from some Greek copies, where sacristy is made use of in lieu of prothesis.

ALTAR, in church history, is also used for the oblations or contingent incomes of the church. In ancient days they distinguished between the church and the altar. The tithes, and other settled revenues, were called the church, ecclesia; and other incidental incomes, the altar.

ALTAR, in astronomy. See ARA.

ALTARAGE, in law, altars erected in virtue of donations, before the reformation, within a parochial church, for the purpose of singing of mass for deceased friends.

ALTARIST, ALTARISTA, or ALTARTHAN, properly denotes the vicar of a church who serves the altar, and to whom the alterage, or produce of the altar, is assigned for his maintenance. The altarist is likewise called altararius, and sometimes altar priest. It is also used for chaplain.

ALTAR-THANE, or ALTARIST. See ALTARIST.

ALTASRIF, in literary history, the title of a medicinal book written in Arabic, describing the medical practice in use among the Arabs. It was written by Alsaharavius, and translated into Latin by P. Ricius in 1519.

ALTA TENURA, in law, the high tenure in chief, or by military service.

ALTAVELA, in ichthyology, the name of a flat cartilaginous fish, of the aquila marina kind; but with its wings, as they are called, that is, its thin and flat sides, broad and obtuse towards their lower part. The fishermen, from the resemblance these flat sides have to wings, have an opinion that this fish can fly. The tail is very short, being scarce half the length of the body. Its flesh is solid, and well tasted, and it sells well in the markets. It abounds in the Mediterranean.

ALTAVELLA, in geography, a town of Italy, in the kingdom of Naples, and province of Principato Ultra, seven miles south of Benevento.

ALTAVILLA, a town and county of Naples, in the Principato Citra, eighteen miles south-east of Salerno.

ALTDORF, or ALTORF, a handsome town of Switzerland, chief of the canton of Uri. It is situated below the lake of the four cantons, in a plain, at the foot of a mountain, whose passages are difficult, and serve instead of fortifications. It is celebrated for being the place where William Tell shot the apple from his son's head.—See TELL (William.) The town-house and the arsenal are worth seeing.

ALTE et RASSE, in middle age writers, sovereignty, or a thing done with supreme power.

ALTEA, a sea-port town of Valencia, in Spain, on the coast of the Mediterranean. It was taken in 1706 in favour of the archduke Charles; but lost after the battle of Almanza, in 1707. It is twenty-four miles north-east of Alicant.

ALTENA, or ALTONA. See ALTONA.

ALTENA, a manufacturing town in the Prussian grand duchy of the Lower Rhine, formerly included in the Westphalian county of Mark. It is seated on the Lenne and Nette, and has a Lutheran and Calvinist church, a court of justice, 590 good houses, and about 3300 inhabitants. Thirty miles north-east of Cologne. Also a small district of South Holland, between the Maese and Biesbosch.

ALTENBERG, a lordship and flourishing town of Germany, in the Saxe Gotha portion of the old principality of Altenburg, Upper Saxony. Of that principality, this was the capital. At present it has excellent manufactures of cotton and wool; and a good trade in corn and cattle. Population about 9500. This is also the name of a mining town in the Erzgeberg, or mountain portion of Saxony. Eighteen miles south of Dresden.

ALTENBURG, or OLDENBURG, an ancient town of Germany, in the duchy of Holstein.

ALTENHOFEN, a market town in Carinthia, on the small river Metnitz, with a castle. There are iron-works in the neighbourhood. Four miles north-east of Vei

ALTENKIRCHEN a small town of Germany in the Westerwald, which was the scene of several obstinate conflicts between the French and Austrians, in 1796. Fifteen miles north-north-east of Coblentz. Long. 7°. 29′. E. lat. 50°. 38′ N. Also a market-town of Pomerania, in the land of Wittow, situated near the point of the peninsula.

ALTENMARKT, or ALTENWICHT, a market town in Upper Bavaria, circle of the Iser, district of Obing, on the borders of Saltzburg, twenty-six miles north-west of Saltzburg.

ALTENMARKT, two market towns in the Austrian dominions; one near the Ens, in the county of Bruck, Styria, fourteen miles north-east of Rottenmann; the other in the quarter above the forest of Vienna, Lower Austria, four miles south-west of Baden.

ALTEN-OETINGEN, a market town in Upper Bavaria, with 1400 inhabitants.

ALTENSTADT, a market town and bailiwick in the grand duchy of Hesse.

AL'TER, *v.*
ALT'ERABLE,
AL'TERANT,
AL'TERATE,
ALTERA'TION,
ALTERA'TIVE, *n* & *adj.*

Alter, vel *alterare*, other. To make otherwise or different, to change.

And whether the body be *alterant* or altered, or more a perception precedeth operation; for else all bodies would be alike one to another. *Bacon.*

Why may we not presume, that God doth not call for such change or *alteration*, as the very condition of things themselves doth make necessary? *Hooker.*

Alteration, though it be from worse to better, hath in it inconveniences, and those weighty. *Id.*

Do you note,
How much her grace is *alter'd* on the sudden?

How long her face is drawn? how pale she looks,
And of an earthly cold?
Shakspeare's Henry V. i1

Acts appropriated to the worship of God by his own appointment, must continue so, till himself hath otherwise declared; for who dares *alter* what God hath appointed. *Stillingfleet.*

That *alterable* respects are realities in nature, will never be admitted by a considerate discerner. *Glanville.*

Our condition in this world is mutable and uncertain, *alterable* by a thousand accidents, which we can neither foresee nor prevent. *Rogers.*

Medicines called *alterative*, are such as have no immediate sensible operation, but gradually gain upon the constitution by changing the humours from a state of distemperature to health. They are opposed to evacuants. *Quincy.*

When there is an eruption of humour in any part, it is not cured merely by outward applications, but by such *alterative* medicines as purify the blood. *Government of the Tongue.*

ALTER (Francis Charles), a critic of Germany, was Jesuit and laborious Greek teacher in the school of St. Anne at Vienna, was born at Englesberg in Silesia, in 1769, and died in 1804. He was the author, it is said, of 250 volumes and dissertations, the principal of which, Novum Testamentum ad codicem Vindobonensem Græce expressum, two volumes 8vo, has been critically examined by bishop Marsh, in his preface to Michaelis. Among his other works, are a German Translation of Harwood's Classics, 8vo. Vienna, 1778: Lysias; Ciceronis Quæst. Acad. Tusc.; Lucretius; Homer's Iliad, with various readings from the MSS. in the Imperial Library; and Homer's Odyssey, &c. with various readings from the Palatine library, 8vo. 1785-94.—2. Some of Plato's Dialogues, 8vo. 1784. 3. Thucydides, 8vo. 1785. 4. The Greek Chronicle of George Phranza, or Phranzes, not before printed: Vienna, fol. 1796, &c. 5. Notices, in German, of the Literary History of Georgia.

ALTERANTS, or alterative medicines, such as correct the bad qualities of the blood, and other humours, without occasioning any sensible evacuation.

ALTERATION, in alchemy, denotes the conversion of one body into another by similitude.

ALTERATION OF QUANTITIES, amongst algebraists, denotes what we otherwise call variations, or permutations.

ALTERCATION, *n.* Lat. *Altercatio*, from alter. The alternate expression of difference of opinion between two persons, in which the debate is somewhat acrimoniously conducted.

þe parties wer so felle *altercand* on ilk side,
þat non þe soth couth telle, whedir þes or werre suld tide,
Bot God þat is of myght, and may help whan he wille. *R. Brunne*, p. 314.

By this hot pursuit of lower controversies amongst men professing religion, and agreeing in the principal foundations thereof, they conceive hope, that, about the higher principles themselves, time will cause *altercation* to grow. *Hooker.*

Their whole life was little else than a perpetual rangling and *altercation*; and that, many times, rather for victory and ostentation of wit, than a sober and serious search of truth. *Harewill on Providence.*

ALTERCUM, in botany, a name for the hyoscyamus, or henbane.

ALTERNANTHERA, in botany, so called from the stamens being, as it was thought, alternately furnished with anthers, and without them.—Forsk. Ægypt. Arab. 28. Brown Prodr. Nov. Holl. v. i. 416.—Class and order, Pentandria Monogynia. Natural Order, Holeraceæ, Linnæus. Amaranthi, Jussieu. Its General Characters are: CAL. perianth inferior, of one leaf, in five deep, coloured, pointed, spreading, permanent, and finally hardened, segments: COR. none: STAM. filaments five, capillary, shorter than the calyx, inserted into a membranous ring, round the base of the germen, with intermediate teeth; anthers simple, oval, of one cell, generally wanting one, two, or three of the filaments alternately: PIST. germen ovate, acute; style very short; stigma capitate: PERIC. capsule membranous, inversely kidney-shaped, compressed, of one valve and one cell, inflated, not bursting, enclosed in the cartilaginous calyx: SEED solitary, roundish, pointed. Essential Characters: CAL. in five deep segments, cartilaginous: COR. none: STAM. partly imperfect, inserted into a membranous ring, with intermediate teeth: anthers single-celled: STIG. capitate: capsule kidney-shaped, of one cell, without valves: SEED solitary. The species are: 1. A. sessilis, sessile-flowered alternanthera. 2. A. denticula, or toothed A. 3. A. nodiora, or knotty-flowered. 4. A. angustifolia, or narrow-leaved. 5. A. nana, or dwarf. 6. A. achyrantha, in the Kew garden, where is also, 7. A. polygoinoides, or pericaria leaved A.

ALTERNATE, *v. n.* & *adj.*, ALTERN', ALTER'NALLY, ALTER'NATELY, ALTERNA'TION, ALTERNATIVE, *n.* & *adj.*, ALTER'NATIVELY, ALTERNI'TY. *Alternatus*, from *alter* other. To follow another in turn; to act in succession, after an interval filled up by another; to change regularly; to vary according to a prescribed rule.

That iche of thame by coursis *alternat*
Sa oft gais and returnis that gait. *Douglas*, b. vi. p. 167.

And God made two great lights, great for their use
To man; the greater to have rule by day,
The less by night, *altern*. *Milton.*

The princess Melesinda, bath'd in tears,
And toss'd *alternately* with hopes and fears,
Would learn from you the fortunes of her lord. *Dryden.*

Unhappy man? whom sorrow thus and rage
To different ills *alternately* engage. *Prior.*

The rays of light are, by some cause or other, *alternately* disposed to be reflected or refracted for many vicissitudes. *Newton.*

Friendship consists properly in mutual offices, and a generous strife in *alternate* acts of kindness. *South.*

Hear how Timotheus' various lays surprise,
And bid alternate passions fall and rise!
While, at each change, the son of Lybian Jove
Now burns with glory, and then melts with love. *Pope.*

Alternately transported and alarm'd!
What can preserve my life, or what destroy. *Young.*

Alternate, in heraldry, is used in respect to the situation of the quarters. Thus the first and fourth quarters, and the second and third, are usually of the same nature, and are called alternate quarters.

Alternate Angles, in geometry, are the internal angles made by a line cutting two parallels, and lying on the opposite sides of the cutting line; the one below the first parallel, and the other above the second: thus,

in which *a* and *b*, *c* and *d*, are alternate angles, and respectives, equal to each other.

Alternate Leaves, in botany, when the leaves or branches of plants arise higher on opposite sides alternately.

Alternate Ratio or Proportion, is where the antecedent of one ratio is to its consequent as the antecedent of another to its consequent; the very same ratio, in this case, holding alternately in respect of the antecedents to each other, and the consequents to each other. Thus, if A : B : : C : D; then, alternately, A : C : : B : D.

Alternation in numbers, is used to express the different changes, or alterations of orders, in any number of things proposed. This is also called permutation, &c., and is easily found by a continual multiplication of all the numbers, beginning at unity. Thus, if it be required to know how many changes or alternations can be rung on six bells, multiply the numbers 1, 2, 3, 4, 5, 6, continually into one another; and the last product gives the number of changes.

ALTERNATIVEMENT, in music, to play or sing two airs by turns, several times over.

Altern Base, in trigonometry, a term used in contradistinction to the base. Thus in oblique triangles, the true base is either the sum of the sides, and then the difference of the sides is called the altern base; or the true base is the difference of the sides, and then the sum of the sides is called the altern base.

ALTHÆA, in botany, marsh-mallow, a genus of the polyandria order, belonging to the monadelphia class of plants; and, in the natural method, ranking under the thirty-seventh order, Columniferæ. The characters are: CAL. a double perianthium, the exterior one nine cleft: COR. consists of five petals, coalesced at the base: STAM. numerous filaments inserted into the corolla; the antheræ are kidney shaped: PIST. an orbicular germen; a short cylindrical stylus; and numerous bristly stigmata, the length of the stylus: PER. numerous arillæ: SEEDS solitary, and kidney-shaped. There are three species, viz. 1. A. cannabini, or shrubby marsh-mallow, is a native of Hungary and Istria. 2. A. Hirsuta, or hairy marsh-mallow, a native of Spain and Portugal. 3. A. Vulgaris, or common marsh-mallow, a native of Britain, with a perennial root, and an annual stalk, which perishes every autumn.

Althæa Frutex. See Hibiscus.

Althæa, in medicine. The Althæa [illegible] is the only species used. The [illegible] especially the root, abounds with a [illegible] lage. It has the general virtues of an [illegible] and proves serviceable in a thin [illegible] state of the juices, and where the natural [illegible] of the intestines is abraded. The [illegible] ployed externally for softening and [illegible] hard tumours; chewed, it is said to give [illegible] difficult dentition of children.

Althæa is also applied, in pharmacy, [illegible] officinal syrup, decoction, and ointment [illegible] pared from the althæa vulgaris. It was [illegible] ingredient in the compound powder of [illegible] tragacanth, and the oil and plaster of [illegible]

Althæa, in mythology, the daughter of [illegible] tius, wife of Œneus, king of Calydon, [illegible] mother of Meleager.

ALTHEIM, a market town of Wirtem[illegible] in the district of the Danube; also a [illegible] town of Austria, in the bailiwick of Br[illegible] consisting of 130 large wooden houses.

ALTHORP Port, is in E. long. [illegible] and N. lat. 88°. 11′., on the north-west [illegible] King George the Third's archipelago, [illegible] Point Lucan and Point Lavinia. Several [illegible] and rocky islets are at its entrance; but [illegible] side of them there is a spacious navigable [illegible] nel. The surrounding country is comp[illegible] rocky eminences, covered with forests, [illegible] in general of pine trees.

ALTHOUGH′, *conj.* All; *though*: [illegible] the imperative Ðaþ or Ðaþiȝ of the An[illegible] verb Ðaþian, to allow, permit, grant, [illegible] Tooke. Albeit, allowed, permitted, admitted.

> Take any brid and put it in a cage,
> And do all thin contente and thy corage,
> To foster it tendrely with mete and drinke
> Of all deintes that thou canst bethinke,
> And kepe it all so clenely as thou may
> *Althouyh* the cage of gold be never so gay,
> Yet had this brid by twenty thousand fold
> Lever in a forest that is wide and cold,
> Gon eten worms and swiche wretchedness:
> For ever this brid will don his businesse
> To escape out of this cage whan that he may
> His libertee the bird desireth ay.
>
> *Chaucer Manciple's Tale.*

We all know, that many things are believed, [illegible] *though* they be intricate, obscure, and dark; [illegible] they exceed the reach and capacity of our wits; [illegible] *although* in this world they be no way possible [illegible] understood. *Hooker.*

> Me the gold of France did not seduce.
> *Although* I did admit it as a motive
> The sooner to effect what I intended.
>
> *Shakspeare.*

The stress must be laid upon a majority; [illegible] which the laws would be of little weight, [illegible] they be good additional securities. [illegible]

ALTICA, in entomology, a division of [illegible] genus cantharis, according to Fabricius, [illegible] sisting of the insects of that tribe, which [illegible] an oblong shape, and have the lip bifid.

ALTICOZZI (Loreneo), a Jesuit of Cor[illegible] who died at Rome, 1777, was the [illegible] several polemical treatises, especially [illegible] reply to Beausobre on Manicheeism; but [illegible] principal work is the Sum of St. Augustine [illegible]

volumes, containing an able account of
ıe ond progress of the Pelagian heresy.
ΓIMAR, in mineralogy, burnt copper.
ΓIN, ALTAY, or TELETZK, a lake in Si-
from whence issues the river Ob, or Oby.
e Kalmucks it is called Altinor. It is said
ıear ninety miles long and fifty broad, with
:y bottom. The north part of it is some-
frozen so hard as to be passable on foot,
ıe southern part is never covered with ice.
ı the government of Kolhyvane.
ΓIN, in commerce, a coin both of silver and
:r in Russia, worth three copecs, one
'ed of which make a ruble, or about four
ıgs and sixpence sterling. The silver altins
Peter I. had on one side the eagle, and
e other, with the date of the year, the word
ik. They have been latterly disused.
LTINCAR, or ALTINEAR, among mineralists,
cies of factitious salt, used in the fusion and
ication of metals. It is a sort of flux powder.
rs ways of preparing it are given by Li-
ıs.
LTING (Henry), professor of divinity at
lelberg and Groningen, was born at Emden
583, and chosen in 1605 preceptor to the
e young counts of Nassau, Solms, and Izen-
. After various difficulties he settled at
ningen, where he continued till his death,
ust 25, 1644. His works are, 1. Notæ in
adem Problematum Joannis Behm de Glo-
ɔ Dei et Beatorum Cœlo, Heidelberg, 1618.
Loci Communes, 3 vols. Amst. 1646. 3.
:gesis Augustanæ Confessionis, Amst. 1647.
Methodus Theologiæ, 4to. Amst. 1654. 5.
:toria Ecclesiastica Palatinæ, 4to. Amst. 1644.
Explicatio Catacheseos Palatinæ, 4to. Amst.
16.
ALTING (James,) son of the former, was born
Heidelberg in 1618, and travelled into Eng-
d in 1660, where he was ordained by the
rned Dr. Prideaux, bishop of Worcester. He
s afterwards professor at Groningen, and died
gust 20, 1679. He wrote, 1. Dissertations on
ential antiquities. 2. Commentaries on
ny Books of the Bible. 3. A Syrio-Chaldaic
ammar. 4. A treatise on Hebrew Punctuation;
king together 5. vols. fol. Amst. 1687. There
:re other learned members of this family, whom
r limits will not allow us to notice.
ALTI'NGAT, in mineralogy, rust of copper.
ALTISONANT, *adj.* Lat. *altus*, high; *sono*, to
und. High-sounding.

For it stood greatly with reason, seeing his lord
d master changed his estate and vocation, that he
ould alter likewise his denomination, and get a new
ıe, that were famous and *altisonant* as becomed the
w order and exercises which he now professed.
Shelton's Trans. Don Quixote, Ed. 1652.

ALTISSIMO, in music, or altiss, an Italian
pithet for notes above F in alt.
ALTISTA, in music, an Italian name for the
ocal performer who takes the alto primo part.
ALTITH, in botany, a name given to the
lant of which the asafœtida of the shops is the
um.
ALTITUDE, *n.* *Altitudo*, Lat. Height.

Ten masts attach'd make not the *altitude*,
Which thou hast perpendicularly fall'n. *Shakesp.*

She shines above, we know, but in what place,
How near the throne, and heav'n's imperial face,
By our weak opticks is but vainly guess'd;
Distance and *altitude* conceal the rest. *Dryd.*

ALTITUDE, in geometry, is the third dimension of a body considered with respect to its elevation above the ground; and is otherwise called its height or depth: the former when measured from bottom to top, the latter when measured from top to bottom. The altitude of a figure is the distance of its vertex from the base, or the length of a perpendicular let fall from the former to the latter, as B. A. in plate I. fig. 1. MISCELLANEOUS.

The altitude of a terrestrial object is the height of its vertex above some horizontal plane assumed as a base in physical geography. The altitudes of mountains are measured from the general level of the ocean; that is, the altitude of a mountain is the difference between the mean terrestrial radius and the distance of the vertex of the mountain, from the centre of the earth. Altitudes are distinguished into accessible and inaccessible. The accessible altitude of an object is that to whose base there is access to measure the nearest distance to it on the ground. The inaccessible altitude of an object is that to whose base there is not free access, by which a distance can be measured to it, by reason of some impediment, as water, and the like. If an altitude cannot be measured by stretching a string from top to bottom, which is the direct and most accurate way, some other expedient is resorted to, by measuring some other line or distance, which may serve as a basis, in conjunction with some angles, or other proportional lines, to compute, geometrically, the altitude of the object sought. There are various ways of measuring altitudes, or depths, by means of different instruments, and by shadows, or reflected images, on optical principles, &c. The instruments mostly employed in measuring altitudes, are the quadrant, theodolite, geometrical square, line of shadows, &c. There are also various ways of computing the altitude in numbers, from the measurements taken as above, by geometrical construction, trigonometrical calculation, or by simple numerical computation, from the property of parallel lines, &c.

We exhibit the following problems, as the most familiar illustrations of the above theoretical remarks.

PROBLEM I.

To measure the altitudes of objects by means of their shadows.

This is one of the most ancient methods of measuring altitudes, of which we have any record. It is said to have been first employed by Thales, in measuring the heights of the pyramids in Egypt: with this view he erected a staff, and at a certain time measured the length of its shadow; at the same time the length of the shadow of the pyramid was also ascertained: then knowing the length of the staff, he made the height of the pyramid to bear the same proportion to the length of the staff, as the shadow of the former to the shadow of the latter. This method may be more explicitly illustrated: At any time when the sun shines, erect a staff *a b*, fig. 2, perpendicularly at *a*, and measure the

length of its shadow; at the same time cause the length of the shadow of the proposed object, AB fig. 2, to be also taken. Then, by similar triangles, as

$$ca : ab :: CA : \frac{ab \times CA}{ca} = AB$$

the altitude required.

If the altitude be inaccessible, as in fig. 3, but still such that the difference of the lengths of its shadow, taken at two different times, can be ascertained, the altitude may be found nearly the same as in the last example.

Make $ab = a$, $ac = b$, fig. 2, and the unknown length of the shadow of AB, viz. $AC = x$; let the second shadow of the rod, $ac' = b'$, the second shadow of the object, $AC' = x \pm d$, and the height AB of the object $= y$: then, by the preceding proportion,

1st operation, $b : a :: x : y$,
2d operation, $b' : a :: x \pm d : y$;

whence, by subtraction,

$$b \backsim b' : a :: d : y;$$

that is,

$$AB = y = \frac{a\,d}{b \backsim b'},$$

the altitude required.

Problem II.

To measure altitudes by means of staves.

Let AB (fig. 5. plate I. Miscellaneous) represent an object, of which the altitude is required. Being provided with two rods, or staves, of different lengths, plant the longest of them, as CF, at a certain measured distance from the base of the object; then, at a further distance, plant the second or shortest staff ED, in such a manner that the tops of the two, E and F, may be in a line with the top of the tower B.

This being done, measure the distance ID, as also the length ED, and we shall have, by similar triangles, as

$$ID : ED :: IA : AB;$$

that is, by multiplying the second and third terms together, and dividing by the first, we shall have the altitude of the tower AB, or

$$AB = \frac{ED \times IA}{ID}.$$

For example, suppose $IA = 100$ feet, $ID = 8$ feet, and $ED = 4$ feet, then

$$AB = \frac{4 \times 100}{8} = 50 \text{ feet},$$

the altitude of the tower.

In some cases where the base of the object is inaccessible, two operations similar to the one above-mentioned become requisite. For familiarizing this mode of calculation, see fig. 5, plate I. Miscellaneous.

Let $ID = a$, $ED = d$, also the unknown distance $IA = x$, and the required altitude of the object $= y$; then in the second operation, in which both the staves must be replanted, make the second distance $ID = a'$, and the second unknown distance $I'A = x \pm c$, c being the distance between the two stations of the shorter staff ED, E'D'; the lengths of the staves still remaining the same. Now, from the preceding proportion we shall have (by substituting for ID, ED, IA, and AB, the above letters),

1st operation, $a : d :: x : y$;

2d operation, $a' : d :: x \pm c : y$;

whence, by subtraction,

$$(a' \backsim a) : d :: c : y;$$

consequently,

$$y = AB = \frac{d\,c}{a' \backsim a}.$$

Problem III.

To measure an altitude by means of a geometrical square.

The geometrical square is nothing more than a square board or frame, having one of its sides divided into equal parts; (figure of the instrument, fig. 6, plate I. Miscellaneous), a plumb-line being then suspended at one of its angles, falls perpendicularly, and marks off a certain number of those divisions, from which the height of the object may be determined, as follows:—Having fixed the instrument at any place, C. as fig. 7. plate I. Miscellaneous, turn the square about the centre of motion if it be mounted on a stand, or otherwise adjust it by holding it in your hands, till the top of the object, B, is perceived in the direction of the sights, or of the side of the square, and note the number of divisions, F f, cut off by the plumb-line; then having measured the distance, CA, we have, by similar triangles,

$$EF : Ff :: CA : BH,$$

that is

$$BH = \frac{CA \times Ff}{EF},$$

and, consequently,

$$AB = \frac{CA \times Ff}{EF} + DC,$$

the altitude sought.

In the case of an inaccessible object, two observations must be made similar to that above; in which the only variable lines will be F f, CA. Let, therefore, the side of the square $= s$, and the variable part $Ff = a$, in the first observation, and a' in the second; also put the unknown distance $= x$, in the first case, and $x \pm c$ in the second; so that c will be the distance of the observer's two stations, and make the required height of the object $= y$. Then, on the same principles as those above,

1st operation, $s : a :: x : y$;
2d operation, $s : a' :: x \pm c : y$;

whence by equality,

$$a = a' :: x \pm c : x,$$

and

$$a \backsim a' :: a' :: c : x,$$

therefore,

$$x = \frac{a'c}{a \backsim a'};$$

and by the first equation,

$$y = \frac{a\,x}{s} \text{ or } y = \frac{a\,a'\,c}{s\,(a \backsim a')}$$

the altitude required.

Problem IV.

To measure the altitude of objects by means of optical reflection.

Place a mirror, or other reflecting surface, horizontally in the plane of the figure's base, as in fig. 1, plate II. Miscellaneous, (in which case we suppose the object to be accessible,) and measure the distance CA. Now, retire back in the direction AC to D, till the eye observes the top of the object exactly in the centre of the mir-

ror, which, for the greater degree of accuracy, may be marked by a line across it. Then, having measured the distance DC, and ascertained the height of the eye of the observer, it will be, from the known laws of reflection, viz. the equality of the angles of incidence and reflection, as

$$DC : DE :: CA : \frac{DE \times CA}{DC} = AB,$$

the altitude of the object required.

When the object is inaccessible and CA cannot be measured, two such operations as that above must be employed, as in fig. 2, plate II. Miscellaneous. Thus, let $ED = a$, $DC = d$, and the unknown distance $CA = x$; also, let d' denote the analogous distance D′ C′ in the second operation, and $x \pm c$ the second distance C′ A, or c = the distance between the two stations of the mirror; and let the required height of the object $= y$; then, substituting the above letters in the preceding proportion, we shall have,

1st operation, $d : a :: x : y$;

2d operation, $d' : a :: x \pm c : y$;

whence, by subtraction,

$$d \sim d' : a :: c : y;$$

and, consequently,

$$y = AB = \frac{a c'}{d \sim d'}$$

the altitude sought.

All these problems, for inaccessible objects, will give the distance of the objects as well as their altitude. Thus,

Prob. I. The distance

$$CA = x = \frac{by}{a} = \frac{bad}{a (b \sim b')}$$

Prob. II. The distance

$$EG = x = \frac{ay}{d} = \frac{adc}{d (a' \sim a)}.$$

Prob. III. The distance $CA = x = \frac{a'c}{(a \sim a')}$.

Prob. IV. The distance

$$CA = x = \frac{dy}{a} = \frac{acd}{a (d \sim d')}.$$

Other methods of taking altitudes may be seen in Dr. Hutton's Mensuration, Bonnycastle's Trigonometry, &c.

The method of taking considerable terrestrial altitudes, of which those of mountains are the greatest, by means of the barometer, is very easy and expeditious. It is done by observing, on the top of the mountain, how much the mercury has fallen below what it was at the foot of the mountain. See Barometer.

Altitude, in astronomy, is the arch of a vertical circle, measuring the height of the sun, moon, star, or other celestial object, above the horizon.

This altitude may be either true or apparent. The apparent altitude is that which appears by sensible observations. The true altitude is that which results by correcting the apparent, on account of refraction and parallax.

The quantity of the refraction is different at different altitudes; and the quantity of the parallax is different according to the distance of the different luminaries: in the fixed stars this is too small to be observed; in the sun it is only about 8½ seconds; but in the moon, at a mean proportion, it is about 58 minutes.

The altitude of a celestial object may be accurately determined, by measuring the arc of an oblique great circle intercepted between the star and the horizon, and the inclination of the same great circle to the horizon. This may be put in practice by means of the equatorial, thus: let the sine of the estimated altitude of the object be s, elevate the equatorial circle above the horizon to an angle, the sine of which $= \sqrt{s}$, rad. 1. The declination circle being set to 0, direct the line of collimation to the star, by the equatorial and azimuth circles moved in their own planes; observe the arc of the equatorial circle intercepted between the index and VI; if the sine of this arc $= p$, the sine of the observed altitude will be equal to $p\sqrt{s}$, radius being 1. This indirect method is, in general, less exposed to errors than the direct method in about the proportion of 1 to 7. See Atwood's Lectures, p. 198, 227.

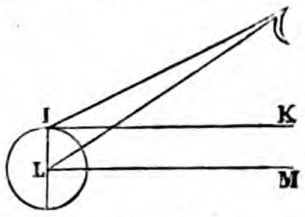
The Meridian Altitude of the Sun, or any Celestial Object, is an arch of the meridian intercepted between the horizon and the centre of the object upon the meridian. The altitude of a celestial body is greatest when it comes to the meridian of any place (the poles of the earth excepted, for there the altitude of a fixed body is subject to no variation); and the altitude of any star which sets not, is least, and the depression of any star which does set is greatest, when in the opposite part of the meridian.

Altitude of the Pole is an arch of the meridian intercepted between the horizon and the pole: it is equal to the latitude of the place.

Altitude of the Equinoctial is the elevation of that circle above the horizon, and is always equal to the complement of the latitude.

Refraction of Altitude is an arch of a vertical circle, whereby the altitude of a heavenly body is increased by refraction.

Parallax of Altitude, is an arch of a vertical circle, by which the true altitude, observed at the centre of the earth, exceeds that which is observed on the surface; or the difference between the ☾ LM and ☾ I K of altitude there; and it is equal to the angle I ☾ L, formed at the moon, or other body, and subtended by the radius I L of the earth.



The Altitude of the mercury, in the barometer, marked by degrees on the face of that instrument, is the chief object of its construction. The mean altitude of the mercury at London for every day in several years, is about 29.87 inches.

Altitude, in astrology, denotes the second of the five essential dignities, which the planets acquire in virtue of the signs they are found in. In this sense, altitude is otherwise called exaltation.

Altitude Instrument, or equal altitude instrument, is that used to observe a celestial object when it has the same altitude on the east and west sides of the meridian. See Astronomy

ALTITUDE, MERIDIAN. The meridian being a vertical circle; a meridian altitude, that is, the altitude of a point in the meridian, is an arch o the meridian intercepted between it and the horizon. See ASTRONOMY.

ALTITUDE OF MOTION, the measure of any motion, reckoned according to the line of direction.

ALTITUDE OF THE EYE, in perspective, is a right line let fall from the eye, perpendicular to the geometrical plane

ALTIVAIG, an island on the coast of the parish of Kilmuir, in the isle of Sky, with a good harbour.

ALTKIRCH, or ALTKIRK, a town and castle of France, in the department of the Upper Rhine, the chief town of an arrondissement on the river Ille, 6 miles south-west of Michausen.

ALTMANN (John George), a Swiss historian and divine, was born in 1697, and died in 1758, curate of Inns, and professor of moral philosophy and Greek at Berne. He wrote, 1. Tempe Helvetica, 6 vols. 8vo. 1735-43. 2. Versucheiner Historisch-und Physischen Beschreibung der Helvetischen Eisberg, 8vo. Zurich, 1751. 3. Meletemata Philologica Critica, quibus Difficilioribus N. Test. Locis ex Antiquitate Lux affunditur, 3 vols. 4to. 1753. 4. Principia Ethica ex Monitis Legis Naturæ et Præceptis Religionis Christianæ deducta, 2 vols. 8vo. Tigur. 1754.

ALTMANNSTEIN, a market-town of Bavaria, in the circle of the Regen, fourteen miles from Ingolstadt.

ALTMARK, a division of the Mark of Brandenburg, bounded on the east by the Elbe, Magdeburg, and the Triegnitz; on the south by Magdeburgh, and on the west and north by Brunswick-Lunenburg. It contains, on an extent of 1670 square miles, thirteen towns, six royal bailiwicks, twenty-seven manors, 494 villages, 16,938 houses, and 98,305 inhabitants.

ALTMULL, a river of Germany, which rises in Franconia, runs south-east by Anspach, then turns east by Pappenheim and Aichest, and at last falls into the Danube, at Kelheim, 12 miles above Ratisbon.

ALTO, high, in music, as alto viola, the tenor violin, in opposition to the bass viol, to which instrument or violoncello, the tenor strings are tuned octaves as C^{c}. G^{g}. D^{d}. A^{a}. The following is the complete scale on the tenor.

ALTO et BASSO, or in ALTO, and in BASSO, in law, signifies the absolute reference of all differences, small and great, high and low, to some arbitrators or indifferent persons. The form of submission is in Latin, pateat universis, &c. signifying 'Know all men by these presents, that A B. of C. and D E. of F. have placed themselves in Alto et Basso under the arbitration of two, three, or more men; viz. respecting a certain complaint now depending in court between them.'

ALTO CONCERTANTE, the tenor of the little chorus.

ALTO TENORE, in music, the upper or counter-tenor part in music of several parts. Alto cliff, the cliff placed on the third line of the stave.—Alto concertante, the tenor of the little chorus which sings throughout.—Alto primo, the first or upper alto, in distinction from the—Alto secondo, or lower alto.—Alto ripieno, the tenor of the great chorus which performs in the full parts.—Alto viola, the small tenor of the violin.

ALTO RELIEVO, in sculpture, a representation of figures and other objects against a flat surface or back ground, and differs from basso relievo only in the work being much more relieved and brought forward.

ALTOBELE, a lofty island of a sugar-loaf shape, near the north of Hispaniola, long. 71°. 18'. W. lat. 17°. 38'. N.

ALTOGETH'ER, *adv.* All; to; gather. See GATHER. All collected, united, conjoined. Hence, wholly, unitedly, completely.

It is in vain to speak of planting laws, and ploting policy, till the people be *altogether* subdued.
Spenser's State of Ireland.

We find not in the world any people that hath lived *altogether* without religion. *Hooker.*

If death and danger are things that really cannot be endured, no man could ever be obliged to suffer for his conscience, or to die for his religion; it being *altogether* as absurd to imagine a man obliged to suffer, as to do impossibilities. *South.*

I do not *altogether* disapprove of the manner of interweaving texts of scripture through the style of your sermon. *Swift.*

ALTO'MUNSTER, a market town in the district of Aichart Bavaria, 20 miles north-west of Munich.

ALTON, a parish and market town in the hundred of that name, Hants, ten miles south-west from Alresford, and from London forty-seven miles west-south-west, containing 2500 inhabitants. The church, though small, is neat; and the town is composed of three streets, standing on the river Wye. Manufactures of serges and of druggets are carried on here to a great extent; and white yarn and worsted articles of superior descriptions are also manufactured here. The town is almost surrounded by hop plantations. It contains a presbyterian and a quaker's meeting, and a famous free-school. Market day, Saturday.

ALTONA, or ALTENA, a large city, two miles west of Hamburgh, on the Elbe, in the lordship of Pinneberg, and belonging to the crown of Denmark. It was originally a village, but being united, with the rest of Pinneberg, in 1640, to the kingdom of Denmark, it so increased in size as to receive, in 1664, the rights and privileges of a city. The present number of houses is about 3120, and the inhabitants at least 30,000, partly Lutheran, partly Calvinist, and partly Catholic. Multitudes of Jews are also to be met with, who pay yearly for their protection the sum of 2000 ducats. The commerce in all branches is considerable. The number of vessels belonging to the harbour is upwards of 100; and the most common destinations, exclusive of the ports in the Baltic and North seas, are the Mediterranean, and the various fisheries for herring,

cod, whales, and seals. Ship-building is an important employment here, and there are also manufactures of velvet, silk, stuffs, calico, stockings, leather, gloves, tobacco, vinegar, starch, wax, and looking-glasses, with sugar refineries and distilleries. The principal public establishments are: an academy founded by Christian VII. a library, a house of correction, and an orphan-house. In 1713 Altona was, with the exception of 100 houses, burned to the ground by the Swedish general Steinbock. It is now beautifully rebuilt.

ALTORF, in Switzerland. See ALTDORF.

ALTORF, a town of Germany, in the circle of the Rezat, Bavaria. It contains 23 public buildings, 223 dwelling houses, and (in 1803) 2070 inhabitants, of whom 220 belonged to the now-suppressed university. The culture of hops is extensively pursued by the inhabitants of this town and neighbourhood; and brewing is likewise an important branch of their industry. 12 miles east-south-east of Nuremberg, 34 east-north-east of Anspach, Lon. 11°. 20′. E. lat. 49°. 23′. N.

ALTORF, a market town and upper bailiwick of Suabia, in the kingdom of Wirtemberg, district of the lake of Constance. It contains 100 inhabitants. 5 miles north-east of Wirtemberg.

ALTORF, a market town of Hungary, in the county of Zyps, 18 miles north of Leutch.

ALTRANSTADT, a town in Saxony, famous for the treaty between Charles XII. king of Sweden and Augustus elector of Saxony, in 1706, wherein the latter resigned the kingdom of Poland.

ALTRAUCH, a market town of Moravia, in the circle of Iglau, south of the town of Iglau.

ALTRINGHAM, or ALTRINCHAM, a market town of Chester, on the canal from Runcorn to Manchester. It has several manufactories of yarn, worsted, and cotton, an annual fair and a weekly market. Population 2032. Distant from Knutsford 7 miles, and 179 from London.

ALTUN KUPRI, or ALTOUN KOPRI, the Golden Bridge, or many bridges, a town of Asiatic Turkey, in the pachalic of Bagdad, situated on the north bank of the Little Zab. A large Turkish garrison is always kept here. Population 2000. Distant about 210 miles from Bagdad, ninety south-east of Mosul. Long. 43°. 20′. E. lat. 35°. 45′. N.

ALTZEY, a town and upper bailiwick in the grand duchy of Hesse-Darmstadt, Germany, lying on the Selsach, and formerly belonging to the palatinate of the Rhine. It contains about 3051 inhabitants, and is twenty-three miles north-west of Worms.

ALVA (Don Ferdinando Alvares de Toledo, duke of Alva), was born in 1508, of an illustrious Spanish family, and made a general by Charles V. at the early age of thirty. He received his military education under his grandfather, Frederic of Toledo, and was considered as an officer of great promise. In 1542 he defended Perpignan against the arms of France; and four years afterwards was appointed generalissimo of the imperial army. At the siege of Metz, in 1552, he was entrusted with the chief command under the emperor, and was not long after appointed the emperor's vicar-general in Italy; but instead of driving the French from Piedmont, he was obliged to conclude the campaign with the surrender of part of it; and in the following year, by the resignation of Charles in favour of his son, was transferred to a new master. His military talents now appeared, united with an unrelenting temper, and as much ferocious cruelty and oppression as ever stained the page of history. After the general peace established in Europe in 1559, the king of Spain found leisure to attempt a more complete reduction of his revolted provinces of the Netherlands, and determined to employ Alva to compel future submission, and to punish past revolt. He entered Brussels in August 1567, and his arrival spread consternation and dismay over all the provinces. The Prince of Orange, with many thousands of less exalted character, left the country, and happy would it have been for many more had they followed their example. Counts Egmont and Horn, two of the most distinguished patriots, were immediately imprisoned, tried, and executed. In a short time the duchess of Parma, the regent, obtained leave to quit her government, and Alva was thus left at liberty to act without responsibility or control. He had not only allotted to him the command of the army, but the presidency of the council of state, of justice, and of the finances. To the protestants he allowed a month for leaving the country; but the blood-hounds of the inquisition were secretly set upon them, and ordered to seize their prey. A council of twelve, called the council of tumults, of which Alva constituted himself president, assisted the court of inquisition. From his troops and his councils the people fled in consternation, and 20,000 of them were in a short time dispersed over France, England, and Germany. In a few months nearly 2000 persons had suffered by the hands of the executioner. The details of the proceedings by which these unfortunate victims of persecution were detected and secured; the atrocious injustice which met them when dragged before the tribunal of vengeance; and the tortures and agonies which ingenious cruelty invented for their execution, were never exceeded, if equalled, by any other efforts of the holy office. To have once frequented a protestant meeting was a sufficient proof of guilt, which could not be atoned for by any subsequent abjuration of error; and the slightest punishment inflicted was hanging or drowning. The members of the bloody council itself at last began to be shocked at their own work, and several of them sought their dismission from office. Out of the twelve there seldom assembled more than three or four at a time of more hardened hearts or more flaming zeal. The citizens of Antwerp ventured to petition Alva to abate the rigour of persecution; but their request was received with scorn by the haughty bigot. Some of the catholic nobility presented remonstrances to the king against the cruelty of their governor; but he was equally cruel and bigoted. Even the exhortations of the head of the church to moderation were disregarded, and the inquisition continued the work of blood with insatiable fury. The people were finally driven

to seek relief in open rebellion to an authority which they would otherwise have respected, and found a leader happily in the prince of Orange. He had been summoned to appear before Alva when he entered the Netherlands; but by his prudent suspicion of the designs of that perfidious chief saved himself from the fate of some of his more unsuspecting companions. He now prepared to oppose him in the field, and published a manifesto, in which he declared the change that had taken place in his religious sentiments, and called upon the protestants to join him in the overthrow of superstition and tyranny. He was, however, unsuccessful in his first attempts, and obliged to disband his army. Many of the persecuted, in the mean time, came to England, where they enjoyed the freedom of religious worship, and the benefits of political protection, while they enriched their new country with the introduction of various manufactures formerly unknown to its inhabitants. The success of Alva over the prince of Orange, and the congratulations of the Pope for his efforts to suppress heresy, now inspired him with increased arrogance, and led to those absurdities of wanton despotism which produced the subsequent difficulties of his administration, and eventually established the republic of Holland. Heedless of the people, who had hitherto been taxed by their native princes, he determined to levy contributions by his own authority, and to increase the impositions to such an extent as not only to provide for his present exigencies but lay up a fund for the future. His religious persecutions affected only a part of the states. This arbitrary proceeding threatened the whole, and united them all in opposition to his authority. They assembled and remonstrated. The prince of Orange, seeing the general discontent, again prepared for invasion; and those who had been driven into exile by persecution, fitted out armed ships, and visited the coasts of their country as enemies and pirates. They made prizes of all the Spanish ships they met with on the English or Flemish coasts. The revolt in North Holland became general. A meeting of the states, held at Dort, determined to acknowledge the prince of Orange as their governor and commander of their forces by sea and land. At last the Spanish troops mutinied, and the fleet of the governor was defeated by the rebel Zealanders. Upon this Alva solicited leave to retire; and Philip, seeing the little hopes of reducing the rebels under such an unpopular chief, granted his request. He left the Netherlands accordingly in 1573, and retired to his estates until Philip again commanded the assistance of his sword to reduce the kingdom of Portugal. At the advanced age of seventyhe accomplished this service, and did not long survive it. He died in 1582, leaving few equals in this career of infamy in modern times. See *Robertson's Charles* V. *Watson's Philip* II. &c.

ALVA, a town and parish in Stirlingshire, on the river Deveron, four miles north of Alloa; containing 200 houses and 1150 inhabitants. It has been long distinguished for the variety of minerals with which it abounds. Some time since, a valuable vein of silver-ore was wrought here; and considerable quantities of [illegible] leable silver have been dug. Cobalt, [illegible] lead, copper, and iron, have also been [illegible] at the foot of the hills. Extensive [illegible] are now working. The town is [illegible] north-east of Stirling, at the foot of [illegible] hills. The manufacture of [illegible] blankets has been carried on here for [illegible] a century.

ALVA DE TORMES, a considerable [illegible] in Spain, in the province of Leon [illegible] strong castle formerly belonging to the [illegible] duke of Alva. It is seated on the north [illegible] the river Tormes, twelve miles south-east [illegible] lamanca, and was frequently occupied [illegible] British in the peninsular war of 1812.

ALVAR, a district of the province of [illegible] Hindostan, on the south-west of Delhi, [illegible] between the twenty-seventh and twenty-[illegible] degrees of latitude. It has been called [illegible] by the Mahommedan historians. In the [illegible] Acberry it is said to be capable of furnishing 6514 cavalry, and 42,020 infantry to the [illegible] This district is in a remarkably uncultivated state. In modern times it has yielded a numerous race of native soldiers, who were occasionally subsidized by the various warlike chiefs of the last century, for the purpose of spreading greater devastation in their marches. Its capacities for agriculture, however, are not [illegible] has the west side of the Jumna for its eastern boundary, to an extent of about ninety miles, and stretches westward about 130 miles from that river. At present it is subject to the Macherry Rajah, who has fixed his capital at the city of this name, and with whom a treaty of alliance and friendship was concluded by the British in 1803.

ALVAR, a city of Hindostan, in the province of Agra, the capital of the district of Alvar, under the government of the Macherry Rajah. It is strongly fortified, and stands about [illegible] seven miles south-south-west of Delhi, [illegible] eighty-four north-west of Agra, in N. lat. 27° 41′. and E. long. 76°. 40′.

ALVARES, a town of Portuguese Estremadura. Inhabitants 1500.

ALVARID, or ALVARIUS, a judge among the Spanish Moors.

ALVARADO, an abundant river and town of Mexico, in the intendancy of Vera Cruz. The former has its rise in the lofty ridges of the Terra Land, forty miles south-west of Guaxaca, joined by several other streams, which swell it to a large size, and near the town runs into the Gulf of Mexico, about twelve leagues south-south-west of Vera Cruz. Long. 96°. 54′. W. lat. 18° [illegible]

ALVARISTS, in ecclesiastical history, a branch of the Thomists, so called from their leader Alvarez, who maintained the efficacy of divine grace, in distinction from the Molinists who maintained its sufficiency.

ALUCITÆ, in entomology, a subdivision of insects belonging to the genus of phalæna, and of the lepidoptera order, in the Linnæan system, comprehending eight species.

ALUCO, or sacred owl, in ornithology, a genus of the owl, or strix, with rusty [illegible] irides, and the primary wing-quills serrated

the edges. It is the la hulotte of Buffon, the ulula of Briss. Gesn. and Aldr. the black owl of Albin, and the brown owl of Pennant and Lewin. Its cry, a kind of howl, resembling that of wolves, furnished its name ulula, and the German huhu, or hoo-hoo. It is said to be considered as sacred by the Calmucks, for having contributed to preserve the life of their great monarch, Jenghis Khan.

ALUDELS, in chemistry, earthen tubes or vessels used in sublimations. They are without a bottom, and are fitted into one another as occasion may require. At the bottom of the furnace there is a pot holding the matter that is to be sublimed; and at the top there is a head to receive the flowers that sublime up.

ALVEARE, in conchology, a species of trochus with a plicated nodulose shell, striated transversely, and adorned with bands of concatenated points, funnel-shaped umbilicus, and crenulated columella. Found in India; the shell is coloured with a mixture of green and white, pearly within.

ALVEARIUM, an alveary, or bee-hive, from alveus, a cavity; in allusion to the alveoli, or cells in bee-hives. Some of the ancients use also the word alvearium for a bee-house, more usually called apiary.

Alvearium, in anatomy, the bottom of the concha, or hollow of the auricle, or outer ear.—The alvearium auriculæ is a cavity, terminating at the meatus auditorius, wherein that bitter yellowish excrement is collected, called cerumen, or ear-wax.

Alvearium, in literature, is used figuratively for a collection.

ALVEOLARIS Processus, in anatomy, another name for the maxillaria superiora ossa.

ALVEOLI, among naturalists, those waxen cells in the combs of bees, wherein their honey is deposited.

Alveoli, in anatomy, those little sockets in the jaws, wherein the teeth are set. The alveoli are lined with a membrane of exquisite sense, which is wrapt about the roots of each tooth; from whence, and from the nerve, proceeds that pain called odontalgy, or tooth-ach. Of these alveoli there are usually sixteen in each jaw. Some writers speak of teeth growing without alveoli. Holler gives an instance of a person, whose teeth were of a piece with his jaws, without any insertion into alveoli.

ALVEOLUS, in natural history, a sea fossil of a conic figure, composed of a number of cells, like bee-hives, joined into each other, with a pipe of communication.

ALUESEN, in botany, the pucedanum, or hog's-fennel.

ALVEUS, a channel, Lat., in anatomy, the tumid lacteal branches arising from the receptaculum chyli, under the diaphragm.

Alveus, in antiquity, a small vessel, or boat, made out of the trunk of a single tree, by boring or cutting it hollow. Such was that wherein Romulus and Remus are said to have been exposed.

ALVIDUCA, from alvus, the belly, and ducere, to draw; a term used for purgative medicines.

ALUM; alumen, Lat. A kind of mineral salt, of an acid taste, leaving in the mouth a sense of sweetness, accompanied with a considerable degree of astringency. We give the following definition from a valuable and standard author:—'A massive mineral, of a blackish-brown colour, a dull lustre, an earthy and somewhat slaty fracture, sectile, and rather soft. By Klaproth's analysis it contains, charcoal 19.65, silica 40, alumina 16, oxide of iron 6.4, sulphur 2.84, sulphates of lime and potash each 1.5, sulphate of iron 1.8, magnesia and muriate of potash 0.5, and water 10.75. Under the form of Alum-slate, it assumes two varieties; 1. Common. This mineral occurs both massive and in insulated balls of greyish-black colour, dull lustre, straight slaty fracture, tabular fragments, streak coloured like itself. Though soft it is not very brittle. Effloresces, acquiring the taste of alum. 2. Glossy Alum-slate, which is a massive mineral of a bluish-black colour. The rents display a variety of lively purple tints. It has a semi-metallic lustre in the fracture, which is straight, slaty, or undulating. There is a soft variety of it approaching in appearance to slate clay. By exposure to air its thickness is prodigiously augmented by the formation of a saline efflorescence, which separates its thinnest plates. These afterwards exfoliate in brittle sections, causing entire disintegration.' The ancient naturalists allow of two sorts of alum, natural and factitious. The natural is found in the island of Milo, being a kind of whitish stone, very light, friable, and porous, and streaked with filaments resembling silver. England, Italy and Flanders, are the countries where alum is principally produced; and the English roche-alum is made from a bluish mineral stone, in the hills of Yorkshire and Lancashire.—Saccharine alum is a composition of common alum with rose water and whites of eggs, boiled together to the consistence of a paste, and thus moulded at pleasure. As it cools, it grows hard as a stone.—Burnt alum, is alum calcined over the fire.—Plumose or plume alum is a sort of saline mineral stone, of various colours, most commonly white, bordering on green; it rises in threads or fibres, resembling those of a feather; whence its name from pluma, a feather. *Chambers.*—By long beating the white of an egg with a lump of alum, you may bring it, for the most part into white curds. *Boyle.*

Most of the alum to be met with is artificially prepared, though sometimes it is produced naturally. This native alum is mixed with heterogeneous matters, or effloresces in various forms upon the ores during calcination. It rarely occurs in a crystallized state, though it is said to be thus met with in Egypt, Sardinia, Spain, Bohemia, and other places. It is also found in the waters impregnated with fixed air, but very seldom in fountains or hot medicated waters. There are several kinds of alum to be met with; but these differ from one another only in being mixed with some salts which are not of the aluminous kind. The Roman alum has been considered as preferable to any other. It is usually met with in small chrystals, and has a reddish colour, most probably owing to a small quantity of calx of iron, which, however, does not in the least impair its qualities. The other kinds of alum con-

tain a portion either of vitriolated tartar or sal ammoniac, according to the nature of the alkali used in its preparation. Sir Torbean Bergman informs us, that the vegetable alkali, if pure, does not hurt the alum, though it be added in the preparation; but that the volatile alkali, by adulterating it with a portion of vitriolic sal ammoniac, renders it unfit for some purposes. The alum made by adding a portion of clay to the liquor, at the beginning of the boiling, he considers as equal if not superior to Roman alum. He informs us also, that a kind of alum some time ago began to be manufactured at Brunswick, which was equal in quality to the Roman alum.

Alum mines are said to have been first found in Italy, in 1460; and in the 16th century the art of alum making was begun in Germany and Spain, and a little before its conclusion works were established at Whitby in England, by Sir Thomas Chaloner, who had the honour of being excommunicated, by the reigning Pope, on that very account. King James I. by advice of his ministry, assumed the monopoly of it himself, and therefore prohibited the importation of foreign alum; and in 1625 the importation of it was further prohibited by the proclamation of Charles I. 'The greater part of this salt is factitious, being extracted from various minerals, called alum ores, such as, 1. Sulphurated clay. This constitutes the purest of all aluminous ores, namely, that of la Tolfa, near Civita Vecchia, in Italy. It is white, compact, and as hard as indurated clay, whence it is called petra aluminaris. It is tasteless and mealy; one hundred parts of this ore contain above forty of sulphur and fifty of clay, a small quantity of potash, and a little iron. Bergman says it contains forty-three of sulphur in one hundred, thirty-five of clay, and twenty-two of silicious earth. This ore is first torrefied to acidify the sulphur, which then acts on the clay, and forms the alum. 2. The pyritaceous clay, which is found at Schwemsal in Saxony, at the depth of ten or twelve feet. It is a black and hard, but brittle substance, consisting of clay, pyrites, and bitumen. It is exposed to the air for two years; by which means the pyrites are decomposed, and the alum is formed. The alum ores of Hesse and Liege are of this kind; but they are first torrefied, which is said to be a disadvantageous method. 3. The schistus aluminaris contains a variable proportion of petroleum and pyrites intimately mixed with it. When the last are in a very large quantity this ore is rejected as containing too much iron. Professor Bergman very properly suggested that, by adding a proportion of clay, this ore may turn out advantageously for producing alum. But if the petrol be considerable it must be torrefied. The mines of Becket in Normandy, and those of Whitby in Yorkshire, are of this species. 4. Volcanic aluminous ore. Such is that of Solfaterra near Naples. It is in the form of a white saline earth, after it has effloresced in the air; or else it is in a stony form. 5. Bituminous alum ore is called shale, and is in the form of a schistus, impregnated with so much oily matter, or bitumen, as to be inflammable. It is found in Sweden, and also in the coal mines at Whitehaven, and elsewhere.'

Alum is often manufactured from saline earthy ores. The only place where this kind of ore is formed, in sufficient abundance to be worth working, is the Salfatara, a few miles from Naples, called by the ancients, 'Forum Vulcani, Campi Leucogei.' The white clayey soil of this plain being constantly penetrated by sulphureous vapours, and the exhalations during the night being for the most part mixed with the dew, are returned with it to the surface, and thus cause it to be covered with a light saline efflorescence: this, together with the earth to which it adheres, is daily collected and distributed into leaden caldrons, so as to nearly fill them two-thirds full; water is then poured upon it till it stands about 3 or 4 inches above the surface of the clay, and this in a few hours, by the assistance of the natural heat of the ground, in which the caldrons are set almost up to the brim, extracts the alum from the clay, forms it in rough crystals on the surface of the water, nearly in the mode that copper is obtained. These crystals are then taken out and worked in the first water; after which, fresh water is put into other boilers, and the crystals are dissolved for the purpose of purifying; the solution is then filtered into wooden coolers, and in a day or two affords a large quantity of pure colourless crystals. The author already alluded to describes alumina as one of the primitive earths, which, as constituting the plastic principle of all clays, loams, and boles, was called argil, or the argillaceous earth; but now, as being obtained in greatest purity from alum, is styled alumina. It was deemed elementary matter, till Sir H. Davy's celebrated electro-chemical researches led to the belief of its being, like barytes and lime, a metallic oxide.' This author further relates, 'The purest native alumina is found in the oriental gems, the sapphire and ruby. They consist of nothing but this earth, and a small portion of colouring matter. The native porcelain clays or kaolins, however white and soft, can never be regarded as pure alumina. They usually contain fully half their weight of silica, and frequently other earths. To obtain pure alumina we dissolve alum in twenty times its weight of water, and add to it a little of the solution of carbonate of soda, to throw down any iron which may be present. We then drop the supernatant liquid into a quantity of the water of ammonia, taking care not to add so much of the aluminous solution as will saturate the ammonia. The volatile alkali unites with the sulphuric acid of the alum, and the earthy basis of the latter is separated in a white spongy precipitate. This must be thrown on a filter, washed, or edulcorated, as the old chemists expressed it, by repeated affusions of water, and then dried. Or if an alum made with ammonia instead of potash, as is the case with some French alums, can be got, simple ignition dissipates its acid and alkaline constituents, leaving pure alumina.

Alumina prepared by the first process is white, pulverulent, soft to the touch, adheres to the tongue, forms a smooth paste without grittiness in the mouth, insipid, inodorous, produces no change in vegetable colours, insoluble in water, but mixes with it readily in every proportion,

and retains a small quantity with considerable force; is infusible in the strongest heat of a furnace, experiencing merely a condensation of volume and consequent hardness, but is in small quantities melted by the oxyhydrogen blowpipe. Its specific gravity is 2.000, in the state of powder, but by ignition it is augmented.

Every analogy leads to the belief that alumina contains a peculiar metal, which may be called aluminum. The first evidences obtained of this position are presented in Sir H. Davy's researches. Iron negatively electrified by a very high power, being fused in contact with pure alumina, formed a globule whiter than pure iron, which effervesced slowly in water, becoming covered with a white powder. The solution of this in muriatic acid, decomposed by an alkali, afforded alumina and oxide of iron. By passing potassium in vapour through alumina heated to whiteness, the greatest part of the potassium became converted into potash, which formed a coherent mass with that part of the alumina not decompounded; and in this mass there were numerous grey particles, having the metallic lustre, which became white when heated in the air, and which slowly effervesced in water.—In a similar experiment made by the same illustrious chemist, a strong red heat only being applied to the alumina, a mass was obtained, which took fire spontaneously by exposure to air, and which effervesced violently in water. This mass was probably an alloy of aluminum and potassium. The conversion of potassium into its deutoxide, dry potash, by alumina proves the presence of oxygen in the latter. When regarded as an oxide, Sir H. Davy estimates its oxygen and basis to be to one another as 15 to 33; or as 10 to 22. The prime equivalent of alumina would thus appear to be $1.0 \times 2.2 = 3.2$.

But Berzelius's analysis of sulphate of alumina seems to indicate 2.136 as the quantity of the earth which combines with 5 of the acid. Hence aluminum will come to be represented by $2.136 - 1 = 1.136$. But we shall presently shew that his analysis, both of alum and sulphate of alumina, may be reconciled to Sir H. Davy's equivalent prime $= 3.2$. That of aluminum will become of course 2.2.

Alumina which has lost its plasticity by ignition, recovers it by being dissolved in an acid or alkaline menstruum, and then precipitated. In this state it is called a hydrate, for when dried in a steam heat it retains much water; and therefore resembles in composition wavellite, a beautiful mineral, consisting almost entirely of alumina, with about twenty-eight per cent. of water. Alumina is widely diffused in nature. It is a constituent of every soil, and of almost every rock. It is the basis of porcelain, pottery, bricks, and crucibles. Its affinity for vegetable colouring matter is made use of in the preparation of lakes, and in the arts of dyeing and calico printing. Native combinations of alumina constitute the fuller's earth, ochres, boles, pipeclays, &c.

Alum is manufactured from alum stone, in considerable quantities; the alum known in commerce under the name of Roman Levant or Smyrna alum, is made at La Tolfa, not far from Civita Vecchia, in the Roman state. The ore forms veins of considerable hardness, which are taken from the rock by blasting. The pieces are carried to the calcining oven, which is merely a hole dug in a rising ground 4 or 5 feet in diameter, and from 5 to 6 in depth, with a side gallery communicating with the open air and the bottom of the furnace; the bottom being covered with pieces of wood, on which the ore is laid so as to form a hollow vault, between the openings of which room is left for the smoke. The fire being kindled, and the flame appearing between the pieces of ore, a workman attends to keep it at a regular heat. In about four hours the smoke decreases, and the fire begins to burn brightly, which it is suffered to continue till a strong smell of burning sulphur arises. The ore is then sufficiently roasted, the fire is put out, and the stones left to cool. If this process has been properly conducted, the ore obtains the sweet astringent taste of alum. The second process is nearly similar to the first mode pursued to obtain sulphate of iron (green vitriol): it begins by piling the calcined stones in long beds on a sloping floor, the lower side of which is terminated with a ditch of water, having a clayey bottom: from this ditch the beds are frequently sprinkled, and the water drains from them again into the reservoir. In about fourteen days the stones begin to crack and break down, and are in about forty days overspread with a reddish efflorescence and reduced to a kind of paste: (perhaps this might be much more speedily effected by breaking down the ore in large mortars, crushing it by mill-stones or by a pavior's beater, &c.) A leaden boiler is now half filled with water, and, when heated, fresh portions of the prepared ore are continually stirred in till a solution of sufficient strength is procured; the liquor, though yet turbid, is drawn off into another boiler, where it is gently evaporated, and clarifies itself by depositing its earth. Having arrived at the point of crystallization it is transferred by means of a pipe into a square wooden vessel, eight feet high by five feet wide, so constructed as to be readily taken to pieces; after remaining in it a few days, the mother water is poured out to be boiled again with fresh alum ore in the first cauldron. The crystals when dried are then ready for sale. By the burning in the first part of this process the stones are not only rendered porous, as is the case with the lime-stone in burning, but all the inflammable matter is driven away, as in the smelting of lead ore: the sweet aluminous taste is at the same time excited. The subsequent crackling and breaking down, whilst on the inclined plane in the second process, is probably caused by their absorption of moisture.

The alum manufactured from pyritous ores, which, with the foregoing, are the only alums made in Europe, is prepared from aluminous slate or earth; and, as they possess that salt in a very small degree, a more extensive process is necessary for its extraction. This is begun by exposing it to the action of the atmosphere, which reduces it almost into the state of sulphate of iron. As in England and Sweden this article is obtained from a stony substance, a previous

roasting is necessary, which is performed in this manner. A floor is formed of clay beat tight, on which faggots or coals are placed, and set fire to. Upon this the workmen throw, by degrees, small pieces of ore unburnt, till a stratum is formed about six inches thick. These soon take fire by their own bitumen, and are then covered with a stratum of ore, already burnt and lixiviated, of the same thickness; to this succeeds a layer of unburnt ore, and thus they proceed until they form about ten strata. The same care to preserve an equal degree of heat is here to be observed as in the mode practised at La Tolfa, till the bitumen being all consumed the fire ceases of itself. If the ore is now examined it will be found to be of a reddish colour, from the same reasons that in placing the sulphate of iron in a red heat, it obtains and continues that colour, and is then called colcothar. In some Swedish manufactories it is accordingly lixiviated without further preparation. In the alum works of the English and Germans, the roasted ore is lightly watered, but without the precaution used at La Tolfa, of again receiving the liquor. It is likewise exposed for a greater or less time to the action of the atmosphere, by which the sulphur of the pyrites is more completely oxygenated, and consequently a greater proportion of alum obtained. At Flone, in the department of Ourte in France, the excellent practice is observed of lightly roasting the ore after spontaneous efflorescence. The acid being thus excited and united in part to the alumine, the process of lixiviation begins. To effect this more completely the ore is thrown into large reservoirs, either of stone or wood, which have false bottoms, to serve the purpose of filters. Water is then poured on and allowed to remain about 24 hours, in which time the greatest part of the salts are dissolved. Each of these reservoirs are furnished with a pipe, and a cork placed within a few inches of the bottom, (attached in the same manner as they are to the glue-makers' boilers) by this the liquor is run off, after which fresh water is poured on again. This second water is used again for the first lixiviating liquor of another parcel of ore. Both these lixiviations are performed with cold water; but it appears that great improvement, by a saving of time, might be made by boiling it. Should even the fuel increase the expense, yet the frequency of renewal, as in the distillation of whisky, might compensate that. It is now boiled down in leaden boilers with the mother water of a preceding boiling; and the waste of steam is supplied either by adding mother water or fresh liquor. The evaporation lasts from twenty-four to forty-eight hours. In Saxony, where it is concentrated very highly, it is boiled eight days. At the end of these respective periods the strength of the liquor is tried by a leaden hydrometer, or with still greater exactness by filling a bottle of known size and weight with the liquor and then weighing them. When it is sufficiently strong an alkaline solution is added, and the first crystallization is brought about. In the Saxon manufactories, as soon as the evaporation is finished, the contents of a boiler are let out into a reservoir, where they are strongly agitated for half an hour; in which time a certain proportion of soap-make[illegible] and sour urine is added, and the liqu[illegible] let into another vat the crystals of [illegible] immediately to be deposited. At the [illegible] few days the mother water is ladled out, [illegible] crystals collected and washed.—In the [illegible] works, after examining by the hydrometer, [illegible] ficiently evaporated the fire is taken [illegible] a stream of impure alkaline lixivium, [illegible] and soap-makers' ashes, poured into the [illegible] at the same time the cork at the bottom is [illegible] and the liquor run off into a reservoir, by [illegible] means a speedy and complete mixture is [illegible] It remains in this reservoir three hours, [illegible] alkali makes it deposite an earthy and [illegible] nous sediment, which is the action of [illegible] it. It is then transferred to another vessel, [illegible] again proved, when a greater or less quan[illegible] putrid urine is added, according as it is [illegible] the standard; it is briskly stirred for [illegible] quarter of an hour, and then left to rest: [illegible] course of five days the crystals are depos[illegible] —The rough alum is then washed, to [illegible] from the green vitriol, which is deposited [illegible] it. It is boiled again, and when boiling [illegible] locks' blood, or other such substance, is [illegible] in to clear it: when this is effected, the [illegible] run into casks, where the crystals are dep[illegible] in large masses. After ten or twelve days [illegible] mother water is poured out, and the salt [illegible] drying, is ready for sale. The stone itself is [illegible] in great quantities in some parts of the [illegible] thians, and in the neighbourhood of the [illegible] Works near Paisley; it abounds also in the [illegible] of Sky, as has been proved from a late [illegible]

The most extensive alum manufactory in [illegible] Britain is at Hurlett, near Paisley. The [illegible] Whitby; of the state and processes of which [illegible] instructive account was published by Mr. W[illegible] in Nicholson's Journal. The stratum of [illegible] minous schistus is said to be twenty-nine [illegible] in width, covered by strata of alluvial soil, [illegible] stone, ironstone, shell, clay, &c. The alum [illegible] is generally disposed in horizontal lamina[illegible] upper part of the rock is so abundant in [illegible] that a cubic yard taken from the top of [illegible] stratum is of five times more value than [illegible] same bulk 100 feet below.

If a quantity of the schistus be laid in a [illegible] and moistened with sea-water, it will [illegible] neously take fire, and continue to burn [illegible] inflammable matter be consumed. The [illegible] however, is commonly broken into small [illegible] and laid on a horizontal bed of fuel, com[illegible] of brushwood and such like materials. [illegible] about four feet in height of the rock is [illegible] fire is set to the bottom, and fresh rock [illegible] tinually augmented upon the pile, until [illegible] calcined heap be raised to the height of [illegible] or one hundred feet. Its horizontal area [illegible] at the same time, progressively extended, [illegible] forms a great bed nearly 200 feet square, [illegible] about 100,000 yards of solid measurement. [illegible] rapidity of the combustion is allayed by plastering up the crevices with moistened schist.

The calcined mineral is digested in water, [illegible] pits of about sixty cubic yards. The [illegible] drawn off into cisterns, and afterwards [illegible] again upon fresh calcined minerals; this [illegible]

peated until the specific gravity becomes 1.15. The half-exhausted schist is then covered with water to take up the whole soluble matter, and the strong liquor drawn off into settling cisterns, where the sulphate of lime, iron, and earth are deposited; and where the liquid is boiled its purification is accelerated. It is then run into leaden pans ten feet long, four feet nine inches wide, two feet two inches deep at the one end, and two feet eight inches at the other. Here the liquor is concentrated at a boiling heat. Every morning the pans are emptied into a settling cistern, and a solution of muriate of potash, either pure from the manufacturer, or crude and compound from the soap-boiler, is superadded. The quantity of muriate necessary is regulated for the workmen by the hydrometer. By this addition the pan-liquor, which had acquired a specific gravity of 1.4 or 1.5, is reduced to 1.35, and, after being allowed to settle for two hours, is run off into the coolers to be crystallized. At a greater specific gravity than 1.35, the liquor, instead of crystallizing, would, on cooling, present us with a solid magma, resembling grease. Urine is added occasionally to bring it to the proper density.

After standing four days, the mother-waters are drained off, to be pumped into the pans on the succeeding day, and the crystals of alum washed in a tub and drained. They are then put into a lead pan, with as much water as will make a saturated solution at the boiling point. When the solution is run off into casks, which at the end of ten or sixteen days are unhooped and taken asunder, the alum is found exteriorly in a solid cake; but in the interior cavity in large pyramidal crystals, consisting of octahedrons successively inserted into one another. This last process is called roching.

Alum is extremely useful in the art of dyeing; as by means of it a great number of colours are fixed and rendered permanent upon cloth, which otherwise would either not adhere in any degree, or only for a very short time. In what manner this is accomplished we are ignorant. See the conjectures and theories on this subject under DYEING. It constitutes the basis of crayons, which generally consist of the earth of alum finely powdered and tinged for the purpose. In the preparation of Prussian blue, it prevents the basis of martial vitriol, which is soluble in acids, from being precipitated by the superfluous alkali employed in the preparation of that pigment; that is, the alkali which is not saturated by the colouring matter. As this basis adheres more strongly than the clay to the vitriolic acid, and would form a green by the mixture of its yellowness, the white earth of alum likewise, according to its quantity, dilutes the darker colours, even black itself, and produces an infinite number of shades.

ALUM, in medicine, is of considerable use as an astringent and tonic. It is reckoned particularly serviceable for restraining hæmorrhages, and immoderate secretions from the blood; but less proper in intestinal fluxes. In violent hæmorrhages it may be given in doses of fifteen or twenty grains, and repeated every hour or half hour till the bleeding abates: in other cases, smaller doses are more adviseable, large ones being apt to nauseate the stomach, and occasion violent constipation of the bowels. It is used also externally, in astringent and repellen lotions and collyria. Burnt alum taken internally has been highly extolled in cases of cholic. In such instances, when taken to the extent of a scruple for a dose, it has been said gently to move the belly, and give very great relief from the severe pain. Its officinal preparations are, for external use, pulvis stypticus, and aqua styptica; for internal applications, the aqua aluminis, and coagulum aluminis and alumen ustum; which last is no other than the alum dried by fire, or freed from the watery moisture, which, like other salts, it always retains in its crystalline form. By this loss of its water it becomes sharper, so as to act as a slight escharotic; and it is chiefly with this intention that it is employed in medicine, being very rarely taken internally.

Alum is used in large quantities in various manufactories. When added to tallow, it renders it harder. Printers' cushions, and the blocks used in the calico manufactory, are rubbed with burned alum to remove any greasiness, which might prevent the ink or colour from sticking. Wood sufficiently soaked in a solution of alum does not easily take fire, and the same is true of paper impregnated with it; which for that reason is very properly employed in preserving gunpowder, as it also excludes the moisture of the air. Paper impregnated with alum is used in whitening silver, and silvering brass without heat. Alum is also of use in tanning, which it assists in restoring the cohesion of the skins almost entirely destroyed by lime. Vintners fine down their wines, &c. with alum; fishers use it to dry cod-fish with; and bakers have mixed it with the flour to make their bread compact and white; to this last use of it great objections have been made, but unjustly, for it is entirely innocent. Alum mixed in milk helps the separation of butter; and if added in a very small quantity to turbid water, renders it perfectly limpid, without any bad taste or quality; while the sulphuric acid imparts to it a sensible acidity, and does not precipitate so soon, or so well, the opaque earthy mixtures.

Brunswick alum was made to imitate the rock alum. Now as this last is often used in medicine, and frequently the first, which contains arsenic, is mistaken for it, an easy method, therefore of detecting the counterfeit may be useful to society: the external appearance differs but little; the taste of the Brunswick is less styptic; it is not so soluble in water, and when heated to redness, loses only 39.5 per cent. of its first weight, whilst the rock loses one half. When this last is exposed to the blow-pipe, it becomes opaque, swells, foams, and is converted to a white spongy mass. The Brunswick swells less, foams very little, but melts, and becomes of a greenish colour, exhaling an arsenical vapour. The rock alum being precipated by potash or soda, and mixed with borax, fuses before the blow-pipe into a white or yellowish white: the Brunswick gives a violet coloured globule; and, in fact, it is nothing but common alum with a small proportion of arsenic and cobalt.

ALUMGURNAGHUR, the Mahommedan name of Beyhar, a city of Bengal, and of a for-

tress which stood formerly on the banks of the Megna.

ALUMINITE is a mineral of a snow-white colour, dull, opaque, and having a fine earthy fracture, found chiefly in the alluvial strata round Halle, in Saxony. It has a glistening streak; found in kidney-shaped pieces, which are soft to the touch, and adhere slightly to the tongue. Specific Gravity, 1.67.

It consists of sulphuric acid . .	19.25
Alumina, . .	32.50
Water . . .	47.00
Silica, lime, and oxide of iron .	1.25
	100.00

ALUMTA, in botany, a name given by the old Latin writers to the lutum and corniola, by the Greeks called cymene. It was the same with our genistella tinctoria, or dyers' weed, and was used by the ladies to tinge their hair yellow, the colour that was then esteemed beautiful.

ALUNGU, in natural history, the name given by the Malabarians to a species of the manis of Linnæus, and belonging to the family of ant-eaters, which have no teeth, but a long round tongue with which they take the ants.

ALUNKAN, or ARROUKAGE, in geography, a town of Prussia, in the province of Zabulistan, 100 miles south of Candahar.

ALUNTIUM, ALONTIUM, in ancient geography, a town in the north of Sicily, situated on a steep eminence at the mouth of the Clydas; said to be as old as the war of Troy. It is now in ruins; from which arose the hamlet St. Filadelfo, in the Val di Demona.

ALVOR, in geography, a small place with an earldom in the province of Algarve, between Villa Nova de Portimao and Lagos.

ALVOREDO, an island of South America, on the coast of Paraguay, three leagues south of St. Catharine's island. S. lat. 27°. 43'. W. long. 49°. 16'.

ALVORNINHA, or ALBURNINHA, a small town of Portugal, in Estremadura, containing about 1500 inhabitants.

ALURNUS, in entomology, a genus of insects of the order coleoptera, with filiform antennæ, six very short palpi or feelers, and horny arched maxilla or jaw. There are three species, viz. 1. A. grossus, black, with crimson thorax and yellow elytræ, found in South America and India. 2. A. femoratus, of a green-reddish colour, with the hinder thighs and legs dentated, the tenebrio femoratus of Drury, and the tenebrio viridis of Sultzer, found in India, with the antennæ half the length of the body, and the last joints black. 3. A. dentipes, black, with the hinder thighs and legs dentated, and found at the Cape of Good Hope

ALUSAR, in chemistry, manna.

ALUSH. See ALLUSH.

ALUSHMA CARAMANICA, in botany, a plant growing in Caramania, and a preparation of that plant or pigment made from it. It occurs often in the writings of Avicenna and Serapion.

ALUTA, in medicine, soft, thin, leather, used for plasters.

ALVUS, in anatomy, a term used for the belly in general, but very frequently applied to the bowels.

ALVUS ADSTRICTA, a costive state of the belly.

ALVUS LIQUIDA, a laxative state of the viscera.

AL'WAYS, *adv.* All ways, or al-way. Alla wæga.—Ital. *tutta vai.* Constantly, perpetually; under all circumstances or conditions.

That, which sometimes is expedient, doth not *always* so continue. *Hooker.*

Man never is, but *always* to be blest. *Pope.*

For every trifle scorn to take offence,
That *always* shows great pride, or little sense;
Good nature and good sense should ever join.
To err is human, to forgive divine. *Id.*

He is *always* great, when some great occasion is presented to him. *Dryden.*

ALYGHEN. See ALLIGHEN.

ALYPIAS, or ALYPON, in the materia medica, a species of turbith, prescribed by some physicians for the purging of bile, grows in several parts of France, particularly in Provence and Languedoc. It is a kind of senna.

ALYPIUS, a platonic philosopher of Alexandria, in the fifth century, remarkably small in stature, but of a strong mind, and one of the best dialecticians of his time.

ALYPIUS, an architect and geographer of Antioch, employed by Julian, in his attempt to rebuild the temple of Jerusalem. At the close of life he was charged with magical practices, and banished. His geographical description of the world was printed at Geneva in 1628.

ALYPIUS, bishop of Tagasta, in Africa, the friend of St. Augustine, was baptized with him at Milan in 388. He opposed the Donatists and Pelagians with great zeal, and died in 430.

ALYPUM, in botany, a name given by some authors to a species of spurge, the tithymalus amygdaloides angustifolius, or narrow-leaved almond spurge of Tournefort. Alypum is likewise a name given by some authors to a species of dog's-bane, the purple flowered sea apocynum of Venice, with willow-like leaves. Alypum is applied also to the globularia of Linnæus.

ALYPUM, in medicine *αλυπον*, a word used by Galen, for a minorative, or opening medicine.

ALYSSUM, ALLYSON, or ALLYSOIDES, madwort; from *αλυσσω*, to be mad; because it was believed to have the property of curing madness. A genus of the siliculosa, belonging to the tetradynamia class of plants; and in the natural method ranking under the 39th order, siliquosa. CHAR. are: calyx, an oblong four-leaved perianthium: COR. four cruciform petals; with claws the length of the calyx, the petals shorter: STAM. consists of six filaments the length of the calyx, two of them rather shorter and denticulated: ANTH. are erect and expanding: PIST. an ovate germen: STY. simple, and the length of stamina: STIG. obtuse: PER. a sub-globular emarginated silicle, furnished with a bilocular stylus, having an elliptic partition: the seeds few, orbicular, and fixed to filiform receptacles. Of this genus, Linnæus enumerates 19 species; but none of them are remarkable except the following:—A. halimfiolium, or madwort, with whole spear-shaped leaves. It is not now used in medicine.

ALYTARCHIA, a priest of Antioch in Syria, who, in the games instituted in honour of

gods, presided over the officers who carried rods to clear away the crowd and keep order. In the Olympic games, the alytarchs had the same command, and obliged every person to preserve order and decency.

ALYTH, a parish in Perthshire, on the north side of Strathmore; about twelve miles long, and three broad, (at an average); stretching from south to north towards the Grampians. It is watered by the Isla, the Ericht, and the Alyth; and the low ground of it is extremely fertile, producing excellent crops of barley, oats, and wheat; with grass, turnips, potatoes, &c. Also Alyth, a rivulet of Perthshire, which rises in the upper part of the parish.

ALYTH, a village in Perthshire, which was erected into a burgh or barony by king James III. and contained 2000 inhabitants. The principal manufactures are yarn and brown linens.

ALZACHI, in the Materia Medica, the name given, by the Arabian physicians, to that kind of gourd called citrul, and by the Italians anguria. It is an oblong, and usually crooked gourd, containing in its cavity a considerable quantity of water. Its seeds are oblong, flatted and covered with a hard skin.

ALZAGIAT, or AEZEGE, a name given by the Arabian writers to all the vitriolic minerals.

ALZARAC, a kind of coarse camphor, of a brown colour; the same with our rough camphor as imported from the Indies.

ALZEMAFOR, in chemistry, cinnabar.

ALZILAT, in medicine, a weight of three grains.

ALZOFAR, in chemistry, burnt copper.

ALZUM, or ALDUM, in botany, a name given by the ancients to the tree which produces the gum bdellium, called by the Arabians mokel.

AM. The first person, present tense, indicative mood, of the verb *to be*. It is remarkable that the verb corresponding to this, is irregular and auxiliary in many languages. The Gothic, Saxon, and German tongues, are those from which the principal forms in English are derived. Gothic, Ik im, thee is, is est, Wus syum, Ik Was, Wus, wesum, are the archetypes of our present imperfect tenses.—To similar originals we may refer the remaining forms, for which, see the grammars of the above-named languages, and their northern affinities.

> What? do I feare my selfe? There's none else by,
> Richard loues Richard, that is, I *am* I,
> Is there a murtherer heere? No; yes, I *am*.
> *Shakspeare's King Richard III.*

> SES. Thou bors't the face once of a noble gentleman,
> Rankt in the first file of the virtuous,
> By every hopeful spirit.
> Tell me, Virolet,
> If shame have not forsook thee, with thy credit.
> VIR. No more of these racks; what I *am*, I *am*.
> *Beau. and Fletch. Double Marriage*, act iii.

> And God said unto Moses, I *am* that I *am*: and he said, Thus shalt thou say unto the children of Israel, I *am* hath sent me unto you. *Exodus* iii. 14.

> Come then, my soul: I call thee by that name,
> Thou busy thing, from whence I know I *am*:
> For knowing that I *am*, I know thou art;
> Since that must needs exist, which can impart.
> *Prior.*

> 'I *am* be'ter than thou,' raises the furious and bloody contestations for precedency: 'I *am* holier than thou,' causes a contemptuous separation from company perhaps better than ourselves: 'I *am* wiser than thou,' is guilty of all the irregular opinions that the world is disquieted withal.
> *Bp. Hall's Peace Maker.*

AM, in geography, supposed to be the present Am, a famous city of Armenia, where they formerly reckoned 100,000 houses, and about 1000 mosques. It was taken by the Tartars in 1219, and is now considerably reduced.

AMA, AME, or rather AMES, *αμης*, in medicine, a sort of cake. Aretæus used this word, to express the quantity of hellebore which is sufficient for a dose in strong constitutions, when given in a vertigo.

AMA, AMULA, or HAMA, in ecclesiastical writers, a vessel wherein wine, water, or the like were held, for the service of the eucharist.

AMA in commerce, a wine measure, a cask, pipe, or the like.

AMABYR, in ancient customs, a price paid to the lord of the manor on marrying a virgin of his tenantry. 'Pretium virginitatis domino solvendum.' It once prevailed in many parts of England and Wales, and so late as the 3d of Philip and Mary, we find Henry, earl of Arundel, releasing to his tenants this right.

AMACHURA, a river of the province of Cumana, in South America, which empties itself northward in the principal mouth of the Orinoco.

AMACK, or AMAK, a small island of the Baltic, joined to Copenhagen, on the south, by two bridges, was colonized originally from East Friesland, by Christian II. in 1516, for the purpose of supplying the inhabitants of the capital of Denmark, with butter, cheese, and herbs, and is to this day principally appropriated to the same purpose. The inhabitants preserve much of their original dress and manners, which are said to resemble those of the society called Friends; and, indeed, their particular privileges, courts of judicature, &c. tend to preserve these distinctions, although intermarriages are constantly taking place between them and their neighbours. The island is about four miles long, and two broad; has some quarries for lime, and stone for building; and contains about 3,500 souls, who are distributed among six different villages. A portion of this capital, called Christian's haven, (from its being principally built by Christian IV.) is erected upon the shore of this island. The inlet between Amack and the main land, from the harbour of COPENHAGEN, which see.

AMACORE, a large river of South America, in the province of Guiana, which descends from the western Cordillera, and, running eastward, bordered by beautiful trees, after being joined by several other rivers, falls into the Atlantic Ocean.

AMACUSIA, a city and province of Japan, near the island of Ximo.

AMADABAT, a corruption from AHMED ABAD, or AHMED's city.

AMADAN, or HAMADAN. See HAMADAN.

AMADANAGER, or ANDANAGER. See AHMEDNUGGAR.

AMADEUS V. count of Savoy, succeeded to the sovereignty, in 1282, and obtained the sur-

name of 'the great.' His possessions were much enlarged by marriage, purchase, and donation. In defending Rhodes against the Turks, in 1311, he gained distinguished honour; and, in memory of this service, he and his successors took for their device, F. E. R. T. the initials of the Latin words, 'Fortitudo ejus Rhodum tenuit,' i e. 'His valour preserved Rhodes.' The grand master of the knights of St. John, to whom Rhodes belonged, granted him a palace at Lyons as a reward of his effectual succour. He died, after a reign of 38 years, in 1323, at Avignon, where he was soliciting pope John XXII. to publish a crusade in favour of Andonicus, emperor of the East, who had married his daughter. He was much loved and honoured by all the sovereigns of Europe, and was generally the mediator in their differences. *Mod. Univ. Hist.* vol. xxxiv. p. 16.

Amadeus VIII. count of Savoy, succeeded his father, Amadeus VII. in 1391, and acquired the titles of the 'Pacific,' and 'the Solomon of the age.' In 1416 Savoy was erected by the emperor into a duchy; but after this elevation, Amadeus formed the resolution of retiring from his throne and family, into a religious house, at a place called Ripaille. In his retreat, which he had sought, according to the opinion of the world, from religious motives, he devoted himself to every kind of pleasure and luxury, so that faire repailles, became proverbial to signify a life of exquisite gratification and indulgence. Here he instituted the order of St. Maurice, or the Annunciata, consisting of a number of hermits, who excluded women from their community, but in other respects maintained the character of Epicureans, and votaries of pleasure. Here also Amadeus aspired to the papacy, and employed large sums of money at the council of Basil, to secure the object of his ambition. Accordingly, in 1439, this council having deposed pope Eugenius IV. conferred the triple crown on Amadeus (though he had never taken holy orders), under the name of Felix V. A schism was the consequence of this extraordinary election; and Eugenius at length excommunicated his rival. On his death, Amadeus was persuaded to abdicate, and a new pope was chosen in his room. His resignation was amply recompensed, by the dignities of cardinal, bishop, and apostolical legate, and by his being allowed to retain most of the pontifical insignia. He died, at the age of 69, in 1451, at Lausanne. *Mod. Univ. Hist.* vol. xxxiv. p. 78.

Amadeus IX. count of Savoy, was surnamed the 'happy,' on account of his virtue and piety. He succeeded Lewis, in 1464; and, though his bodily infirmities prevented his engaging in any great exploits, acquired and maintained a very exemplary character. He was eminently distinguished by the benevolence of his disposition. Being once asked by a courtier, 'whether he kept hounds?' he pointed to a great number of poor people, who were seated at tables, eating and drinking, and replied, 'those are my hounds, with whom I go in chace of heaven.' When told that his alms would exhaust his revenues: 'Take the collar of my order,' he said, 'sell it, and relieve my people.' He married Iolande of France, who concurred with him in all his good deeds. His death, in 1472, at the age of [illegible] after a reign of seven years, was universally regretted. *Mod. Univ. Hist.* vol. xxxiv. [illegible]

AMADIA, an important town and fortress in Kurdistan, in Asia, on a lofty mountain, the base of which is a plain covered with [illegible] villages. Its prince, or governor, is descended from the caliphs of Bagdad. Only one [illegible] by a narrow flight of steps, cut out of the rock, leads up from below. The town, which has considerable trade, is 72 miles north of [illegible].

AMADOU, in natural history, is a variety of the boletus igniarius, found on old ash and [illegible] trees. When boiled in water to extract its soluble parts, and beaten with a mallet to loosen its texture, it has the appearance of very spongy soft skin leather. It is now impregnated with a solution of nitre, and dried, when it is called spunk, or German tinder; and is a substance much used on the continent for lighting fires.

AMAGUANA, a town and river of South America, in Quito. The river rises on the east side of the Andes, in the desert of Tumaco, after running northward, joins the Esmeraldas near St. Antonio, and falls into the Pacific. The town is 10 miles south of Quito.

AMAIN, *adv.* Ang. Sax. Magan, to be able, power or might; past participle Magen. Hence with all might. Power, strength.

When stars doe counsell rest
Incroching cares renue my griefe as faste,
And thus desired night in wo I waste:
And to expresse the harts excessive paine,
Mine eies their deawie teares distill *amaine*.
Turbervile.

Great lords, from Ireland am I come *amain*,
To signify that rebels there are up. *Shakspeare.*

What! when we fled *amain*, pursued, and struck
With heaven's afflicting thunder, and besought
The deep to shelter us? *Milton.*

The hills, to their supply,
Vapour and exhalation, dusk and moist,
Sent up *amain*.

From hence the boar was rous'd, and sprung aloof
Like light'ning sudden, on the warriour train.
Beats down the trees before him, shakes the grove,
The forest echoes to the crackling sound,
Shout the fierce youth, and clamours ring around.
Dryden.

From step to step the rolling ruin bounds:
At every shock the crackling wood resounds,
Still gath'ring force, it smokes and urg'd *amain*
Whirls, leaps, and thunders down impetuous to the plain. *Pope's Iliad*, xii. [illegible]

Amain, or Amayne, in sea language, a term importing to lower something, either at once or by degrees. Thus, to strike amain, is to lower or let fall the top-sails; to wave amain, to make a signal, by waving a drawn sword, or the like, as a demand that the enemy strike their top-sails; which is done either in the fore-top or on the poop.

AMAISTRE', *v.* To master. See Maistre.

Plato had a cause his seruaunt to scourge, and cleaped he his neighbour, to perfourme the deed himselfe would not, least wrath had him *amaistred*, and so might he haue laid on too much.
Chaucer. Test of Love, fol. 306.

Is he not rich that hath suffisance, and hath power that no man may *amaistrein*. *Id.* fol. 307.

AMAK, or ABULNAGIE AL BOKHARI, a celebrated poet of Persia. His principal production is a poetical History of the Loves of Joseph and Zoleiskah. He was the first president of the academy of poets, instituted in the fifth century, by Khedar Khan. He lived to an advanced age.

AMALAGANOR, or ISLAND of CONCEPTION, one of the Ladrone isles, about six miles in circuit, and three and a half from Gugnan. Long. 128°. 14. E. lat. 18°. 16'. N.

AMALARIC, or AMAURY, king of the Visigoths, was the son of Alaric II.; but being an infant of five years, at his father's death, in 506, the throne was usurped by Gensaliac, the natural son of Alaric. Amalaric, in the meanwhile, was taken into Spain; and his grandfather, Theodoric, king of the Ostrogoths, having expelled Gensaliac from the throne, reigned over the Visigoths also, till his death, in 526, when Amalaric assumed the government. This prince was zealously attached to the Arian doctrine and cause, and as he had married Clotilda, the daughter of Clovis, who inherited the piety and orthodoxy of her mother, he used various means, and as the Catholic historians say, those of violence, to proselyte her to his own opinion. In consequence of her complaints, her brother, Childebert, king of France, marched with a numerous army into the territories of Amalaric, defeated him in an engagement, and forced him to take refuge on board his fleet. But recollecting that his treasures were left in the city of Narbonne, Amalaric went on shore, where he was surprised by the enemy; and seeking safety in a church belonging to the Catholics, a common soldier ran him through with a spear, A. D. 531. Some say that he retired to Barcelona, and was assassinated by his own subjects. *Mod. Univ. Hist.* vol. xvi.

AMALASONTHA, regent and queen of Italy, was the daughter of Theodoric the Great, king of the Ostrogoths, by Audefleda, the sister of Clovis, and united in her person the two most illustrious families of the barbarians. She was born about the year 498, and in 515 was married to Eutharic, the last heir of the royal race of the Amali, whom her father had sent from Spain, and designed for his successor, as the sex of his daughter excluded her from the Gothic throne. Eutharic soon died, and left an infant son, Athalaric; when Amalasontha assumed the guardianship of her son, and of the kingdom of Italy. His death, at the age of 16, in consequence of intemperance, left her destitute of any firm support, or legal authority; she now conceived the design of sharing with one of her cousins, the regal title. The eloquent Cassiodhrius announced to the senate and to the emperor, that Amalasontha and Theodatus, had ascended the throne of Italy. But the issue of this scheme of ambition soon proved fatal. Instigated by the principal Goths, Theodatus caused the queen to be imprisoned in a small island, in the lake of Bolsena, where she was strangled in the bath, A. D. 535. *Gibbon's Hist.* vol. vii.

AMALEK, עמלק, Heb. i. e. a sucking people, the son of Eliphaz, by his concubine, Timna, and grandson of Esau. He was the 7th ruler of Edom, and the successor of Gatam in the government of the Edomites; unless, as is probable, all the seven rulers, mentioned Gen. xxxvi. 15, 16, were cotemporary. Some authors suppose him to have been the progenitor of the Amalekites; but this is improbable. See the article AMALEKITES.

AMALEK, the son of Ham, and grandson of Noah, according to the Arabians, the progenitor of the Amalekites, and the father of Ad, a celebrated Arabian prince, the head of the Arabian tribe, called Adites, and the grandfather of Schedad and Schedid. See next article.

AMALEKITES, a people of Arabia, long ago exterminated. Some authors trace their origin from Amalek, ruler of Edom, and pretend to account for their early antipathy to the Israelites, from their revenge for Jacob's having deprived Esau of his birth-right; but these writers seem to forget that Moses mentions the Amalekites as a distinct nation in the time of Abraham, Gen. iv. 7; and expressly says, that their country was ravaged by the four combined kings, Amraphel, Arioch, Chedorlaomer, and Tidal, at least 200 years before the birth of Amalek the Edomite. Balaam, too, in his prophecy, Numb. xxiv. 20. styles them the first of nations. We rather adopt the opinion of the Arabians, who trace their descent from a son of Ham, see last article. The earliest account we have of this nation, after the depredations committed upon them by Chedorlaomer and his allies, A. M. 2091, is their uprovoked and cowardly attack upon the Israelites, after their arrival in the wilderness, when they assaulted those who, through weakness or fatigue, were unable to keep pace with their brethren; an act of inhumanity for which the Israelites were expressly commanded to extirpate the nation. See Deut. xxv. 17; Exod. xvii. 8—14; Judges iii. 13, &c.

AMALFI, an ancient city of Italy, situated on the bay of Salerno, ten miles west from that city, and thirty from Naples. It is said to have derived its origin from a number of Roman families, who, about the middle of the fourth century, left Rome and embarked for Constantinople; but meeting with storms on their passage, were thrown on the shores of Salerno, where they founded a flourishing republic. Impervious mountains and inaccessible coasts preserved their infant state from the first fury of the Lombards, who seldom attempted the conquest of a maritime people; and in 825, it attained considerable rank and importance under the patronage of the eastern emperors. Sico, prince of Salerno, marched a body of troops by night; surprised Amalfi; and, carrying off the greatest part of the inhabitants, compelled them to fix at his own capital, which had lately suffered a great loss of people by an epidemical disorder. But before the fifth year of their captivity was expired, the Amalfitans took advantage of the absence of the Salernian chiefs, who were then carrying on a war with the Beneventans; armed themselves; and, after burning and plundering Salerno, marched in triumph back to their own country. On their return, their first plan was to vest the supreme authority in a temporary prefect; but afterwards they placed that power in the hands of

a duke elected for life, whose office was hereditary in the family of Piccolomini. Under these governors Amalfi attained the summit of her glory; and extended her territory eastward from Vico Vecchio, to the promontory of Minerva westward, including likewise the island of Caprea, and the two islands of the Galli. Towards the north it comprehended the cities of Lettere, Gragnans, Pimontio, and Capule di Franchi; towards the south those of Scala, Ravelli, Minori, Majori, Atrani, Tramonti, Agerula, Citara, Prajano, and Rosilano. Leo IV. found the Amalfitans useful allies in his wars with the infidels, and honoured the commonwealth with the title of Defender of the Faith. The Neapolitans experienced many signal favours from them; and even the Mussulmans found it expedient to court their alliance. A court was established at Amalfi for the decision of all controversies arising in maritime transactions; and its code and reports became the general rule throughout this part of Europe. To crown the glory of the republic, it was reserved to the lot of an Amalfitan to make, or at least to perfect, the most important discovery for the improvement of navigation. Pasitano, a village which stands on the shore a few miles west of Amalfi, boasts of having given birth to Flavius Gioia, or, as others call him, Flavius Bembo, the inventor of the mariner's compass. The Amalfitan merchants long engrossed the trade of the Levant. The Pisans, Venetians, and Genoese, rose upon their ruin; and made way for the more comprehensive and daring spirit of the present maritime powers. At present Amalfi is subject to Naples, and is the see of an archbishop. It is but a shadow of what it was in its flourishing state, when it extended over the stupendous rocks that hang on each side, still crowned with remains of battlements, fortified walls, and ruined towers. Its buildings, Mr. Swinburne says, are not remarkable for elegance or size; and contain at most 4000 inhabitants. The cathedral is an uncouth building. Under the choir is the chapel and tomb of the apostle St. Andrew; to whose honour the edifice was dedicated, when Cardinal Capuano, in 1208, brought his relics from Constantinople. Long. 15°. 20′. E. lat. 40°. 35′. N.

AMALFIANS, or AMALFITANS, the inhabitants of Amalfi. See their history in last article.

AMAL'GAME, *v.* } Fr. *Amalgamer*; generally deduced from the Gr. *αμα*, together, & *γαμεω*, to unite. To unite together; to incorporate.
AMAL'GAM, *n.* }
AMAL'GAMATE, }
AMALGAMA'TION. }

Amalgamation is the mixing of mercury with any of the metals. The manner is thus in gold, the rest are answerable: Take six parts of mercury, mix them hot in a crucible, and pour them to one part of gold made red hot in another crucible; stir these well, that they may incorporate; then cast the mass into cold water, and wash it. *Bacon.*

The metaphysical and alchemistical legislators, have attempted to confound all sorts of citizens, as well as they could, into one homogeneous mass; and then they divided this, their *amalgama*, into a number of incoherent republics.

Burke, on the French Revolution.

AMALGAM, in chemistry, from the Greek *αμα*, together, and *γαμειν*, to join: mercury united with a metal. The amalgam of mercury with lead, is a soft, friable substance, of a silver colour. By washing and grinding this amalgam with warm water in a glass mortar, the impurities of the metal will mix with the water; and by changing the water, and repeating the lotion again and again, the metal will be farther and farther purified.—Boerhaave mentions it as one of the greatest secrets in chemistry, to bring off the liquor as clear as when first poured on the amalgam; which, he says, might afford a method of making the nobler metals, or procuring them from the baser metals. This philosophical way of purifying metals may be easily applied to all metals, except iron and copper. The amalgams of gold, silver, tin, lead, zinc, bismuth, and copper, with quicksilver, are all white; and when the quantity of metal is large in proportion to that of the mercury they thicken into a kind of paste. All metals, except iron and copper, spontaneously unite and amalgamate with mercury; but gold with the greatest facility; silver the next; then lead and tin; copper and regulus of antimony with difficulty; iron and cobalt, scarce at all; but with all other metals and semi-metals, mercury may easily be amalgamated.

For the combination of one metal with another, it is generally sufficient that one of them be in a state of fluidity. Mercury, being always fluid, is capable of amalgamation with other metals without heat, although heat considerably facilitates the operation. To amalgamate without heat requires nothing more than rubbing the two metals together in a mortar; but the metal to be united with the mercury should be previously divided into very thin plates or grains. When heat is used, which is always most effectual, and in some cases indispensably necessary, the mercury should be heated till it begins to smoke, and the grains of metal made red hot before they are thrown into it.

The amalgamation of COPPER is a very difficult process, mercury not mixing well with that metal, unless when in fusion, and the heat sufficient to keep it in that state being great enough to evaporate the mercury. Trituration, however, may be made to supply the place of heat, first reducing the copper to an exceedingly fine powder. This amalgam boiled in river water, then distilled in a retort, and cohobated twice, leaves the copper in form of a new metal, of the colour of gold, and more ductile than before. Amalgamations of copper may likewise be performed by dissolving the metal in aquafortis, diluting the solution with twelve times the quantity of pure water, then beating and putting into it polished plates of iron; by this means the copper will be precipitated to the bottom, and the iron dissolved. Pour off the liquor, and wash the precipitate with hot water, till it becomes insipid. The powder being well dried, and put into a glass mortar, with an equal quantity of hot mercury, an amalgam will be made.

Amalgamation of GOLD is usually performed by heating the plates of that metal red hot; after which, quicksilver, gently heated, is to be poured upon them, and the mixture stirred with a small iron rod, till it begins to rise in a smoke. It is then thrown into a vessel full of water, when it

coagulates, and becomes manageable. This amalgam is of great use among goldsmiths and gilders. Being laid on any other metal, and afterwards placed on a small fire to evaporate, the gold will be left on the surface of the copper, which makes what we call gilding.—The blackness adhering to the amalgam may be washed away with water; and a great part of the mercury may be pressed out through a linen cloth; and the rest being evaporated in a crucible, by a gentle and gradual heat, the gold remains behind in an impalpable powder, which admits better of being burnished, than that which is procured by grinding of gold-leaf. Gold retains about thrice its own weight of mercury. The gold-dust, or filings, as well as those of silver, dispersed through the sweepings of the goldsmiths' shops, which would otherwise be lost, are recovered by amalgamation with mercury, after washing and trituration.

Amalgamation of IRON has been reckoned extremely difficult, if not absolutely impossible. However, Mr. Navier succeeded in combining mercury with iron by the following process:—Having made strong solutions of iron and of mercury separately in distilled vinegar, he put equal quantities of each into a mattrass, which he placed in balneo mariæ. As soon as the liquor became very hot, there began to be formed on its surface, and within it, an extremely light, fine, white substance, resembling snow, which evidently contained mercury and iron, in a saline form, intimately united with each other. The liquor being filtered left behind this snowy substance, which, when washed and dried, appeared to be a silvery mass, made by the union of innumerable crystals in the form of thin plates, without acidity or acrimony.

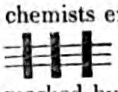
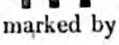
Amalgamation of LEAD is thus performed.—Melt a proper quantity of pure lead in an iron crucible; remove the vessel from the fire, and when the metal is a little cooled, add to it an equal weight of clean mercury, which will immediately enter the lead with a hissing noise. Stir the mixture well together with an iron rod, and when cold it will appear in the form of a softish brittle mass.—Bismuth promotes the action of mercury upon lead in a remarkable manner. Mercury impregnated with one-fourth, one-eighth, or one-twelfth its weight of bismuth, dissolves masses of lead, in a gentle warmth, without the agitation, triture, comminution, or melting heat, necessary for uniting lead with pure mercury.

Amalgamation of PLATINA. Dr. Lewis rubbed together one ounce of platina with six ounces of pure quicksilver, together with a little common salt and water, and a few drops of spirit of salt in an iron mortar. After the grinding had been continued for about six hours, the grains of platina appeared to be coated with the quicksilver, so as to cohere together into a kind of imperfect amalgam. After repeating the experiment several times, and evaporating the mixture, he always found, on examining the dark coloured powder, intermingled with shining particles which remained, that a part of the platina was dissolved by the mercury, and that the undissolved grains were coated with it.

Amalgamation of SILVER is performed in the same manner with that of gold; or it may be previously dissolved in aquafortis, and precipitated. Mr. Gellert observes concerning this amalgam, that its specific gravity is not only greater than the intermediate specific gravity of the mercury and of the silver, but that it is even greater than the specific gravity of mercury, although silver is much lighter. This amalgam is used in the operation of silvering; and also in making the Arbor Dianæ, or the philosophical tree.

Amalgamation of TIN is made in the same way with that of lead. It is used for tinning looking-glasses, and for making mercury balls used in purifying water. Mr. Canton first observed that a small quantity of this amalgam, with a little chalk, being rubbed on the cushion of a glass globe, or on the oiled silk rubber of a tube, would contribute to increase the power of electricity.

Perhaps the most important amalgams are those of gold and silver, and the simplest mode of preparing them is, by taking advantage of the natural affinity, and trusting the combination to the fluidity of the mercury alone. Thus, leaf-gold, by simple trituration, will form with mercury an amalgam in a few minutes; and pieces of gold, silver, or tin, even of considerable thickness, will, without trituration, be dissolved in a few days. The crystalline form of amalgams, owing to their soft or semi-fluid state, at a moderate temperature, distinguishes them from the pure metals. Any metal, melted and cooled very slowly, will exhibit in its fracture a crystalline structure, the crystals of which, by particular management, may be exhibited in a state of separation from each other. Similar appearances may, however, be produced with much greater ease in amalgams. All amalgams are brittle, and any of them, being broken, will exhibit a granular or laminated texture, which, by the microscope, will be found to be owing to a multitude of minute crystals, applied by their surfaces to each other, but not adhering with any considerable force. M. Sage obtained regular crystals of most of the amalgams in the following way:—Having prepared a very fluid amalgam, by adding four, five, or six times a greater quantity of mercury than of the other metal, he put it into retort, and proceeded to distillation in a sand-bath, till a fourth, or even a third, of the mercury had been driven off; the residue, being then allowed to cool very gradually, was found regularly crystallized at the bottom of the vessel. He thus obtained silver amalgam in the form of articulated tetrahedrons, aluminiform octahedrons, resembling the native dendritic silver. In the same manner the amalgams of gold, bismuth, tin, and zinc, assumed the form of regular crystals; but it is found that crystals of copper, arsenic, and antimony could not be obtained by this mode.

AMALGAMA, or AMALGAM, is amongst chemists expressed by the character  or  The operation of amalgamation is marked by three letters, A A A

AMALTHÆA, in fabulous history, the name of the Cumæan Sibyl, who is said to have offered to Tarquin II. nine books, containing the Roman destinies, and demanded 300 pieces of gold for them. He derided her; whereupon she threw three of them into the fire; and asked the same price for the other six; which being denied, she burnt three more; and still demanded the same price. Upon which Tarquin, consulting the pontiffs, was advised to buy them. These books were in such esteem, that two magistrates were created to consult them upon extraordinary occasions. The books, and the whole story concerning them, appear to have been fabrications of the Roman priests to impose upon that superstitious people, and increase their own importance, by occasionally quoting and pretending to interpret these Sibylline oracles.

AMALTHÆA, in pagan mythology, the daughter of Melissus, king of Crete, and the nurse of Jupiter, whom she fed with goats' milk and honey. According to others, Amalthæa was a goat, which Jupiter, after she died, translated into the sky, with her two kids, and gave one of her horns to the daughters of Melissus, as a reward for the pains they had taken in attending him. This horn had the peculiar property of furnishing them with whatever they wished for, and was thence called the cornucopiæ, or horn of plenty. See ÆGIS.

AMALTHÆUS, (Jerome, John Baptist, and Cornelius), three celebrated Latin poets of Italy, who flourished in the 16th century. Their compositions were printed at Amsterdam, in 1685. One of the best pieces in that collection is an epigram on two children, whose beauty was very extraordinary, though each of them was deprived of an eye:

Lumine Acon dextro, capta est Leonilla sinistro,
Et poterat forma vincere uterque deos.
Parve puer, lumen quod habes concede sorori;
Sic tu cæcus Amor, sic erit illa Venus.

The following imitation in English, comes far short of the original, but may convey to the unlearned reader a faint idea of the humour of the epigram:

Acon and Lonilla are
Each of one eye bereft.
The boy the right deplores; the fair
Mourns that she wants the left.
Each might with gods in beauty vie.
And could the lad but spare
His light, blind Cupid he might be,
And she a Venus fair.

AMANA, a mountain beyond Jordan, in the half tribe of Manasseh.

AMANCE, a town of Franche Comté, France, the head of a canton in the department of the Upper Saone, arrondissement of Vessoul, 15 miles north of Vessoul. This place was first assigned to France, at the peace of Baden, in 1714; and formerly contained a celebrated abbey, the chapter of which was composed of 44 ecclesiastics, one third of whose places were in the gift of the crown. The abbey church is still admired for the boldness and elegance of its architecture. Here are chalybeate waters, much recommended for rheumatism and the stone; they are impregnated with sulphur and salt. The manufactures have gone to decay, with the exception of a pottery, which produces very fine earthen ware. The inhabitants of the neighbourhood are chiefly occupied in spinning.

AMANCE, a town of France, seated on a river of that name, six miles east of Nancy, in the department of the Meurthe.

AMAND, ST. a town of France, seated on the river Cher, in the department of Cher, 8 miles south of Bourges. It was built on the ruins of Orval, and is the head of an arrondissement, containing 12 cantons. It has iron works, a cannon foundry, and a great trade in corn and wine. Inhabitants about 3000.

AMAND, ST. a fortified town of France, in the department of the North, seated upon the river Scarpe, three leagues north of Valenciennes. It contains from 8000 to 9000 inhabitants. Long. 3°. 35′. E. lat. 50°. 27′. N.

AMAND, ST. or AMANS, ST. a town of France, in Languedoc, the head of a canton in the department of the Lozere, arrondissement of Mende, with 3380 inhabitants. Four leagues north of Mende.

AMAND, ST. or ST. AMAND DE VALENCE, a town of France, on the river Taure, in Languedoc, the chief town of a canton in the department of the Tarn, arrondissement of Castres, with 2015 inhabitants. It is 5½ leagues south-east of Castres.

AMAND, ST. a town of France, in the Nivernois, with 1500 inhabitants, the head of a canton in the department of the Nievre, arrondissement of Cosne; noted for the manufacture of earthen ware. 13½ leagues north of Nevers.

AMAND, ST. a town of France, in Champagne, department of the Marne, arrondissement of Vitry, with 1060 inhabitants. It was formerly the seat of a commandery of the order of Malta. 5½ leagues south-east of Chalons.

AMAND DE BOUEX, ST. a town of France, in the Angoumois, with 1410 inhabitants, formerly with an abbey; it is now the head of a canton, in the department of the Charante, arrondissement of Angoulême, from which it is seven north, about four leagues.

AMAND, ST. (Mark Anthony General, sieur de), a French poet, was born at Rouen, in Normandy, in 1594. His father commanded a squadron of ships in the service of queen Elizabeth, for 22 years, and our poet was for some years a prisoner in the Black Tower at Constantinople; two of his brothers having been killed in an engagement against the Turks. His life was spent in a continual succession of travels. The greater part of his poems are comic; the best edition is that of Paris, in 8 vols. 12mo. He died in 1661.

AMANDAVA, in ornithology, a species of fringilla found in Bengal, and concisely described by Linnæus, as being of a brown and reddish colour, spotted with white. It is about the size of a wren, or four inches in length. The upper part of the plumage brown, with a mixture of dull red, the under part of the same colours, but naked, except the middle of the belly, which is darkest. It has been called the Bengal finch, or Amaduvade; in allusion to which Brisson names it Bengalus punctatus, and Bris-

Bengale piqueté. There is a variety of this species, the Amændava (β) of Linnæus, hitherto found only in Bengal, which is said to be entirely brown, and without spots. It is the Bengalus fuscus of Brisson, and Bengale brun of Buffon.

AMANDINUS Lapis, in mineralogy, a gum of various colours, said to resist poisons.

AMANIBO, a river of South America, in Dutch Guiana, which enters the Atlantic, near the lake of Iracubo, in lat. 5°. 57′. N.; also a town on the coast between Paramaribo and Cavenne.

AMANICÆ Pylæ, AMANIDES Pylæ, or AMANI Portæ, Straits in Mount Amanus, through which Darius entered Cilicia; at a greater distance from the sea than the Pylæ Ciliciæ, through which Alexander passed.

AMANITA, in botany, (from α, privative, and μανια, madness, i. e. the least hurtful of all the species,) an old Greek name for fungi in general, and used by Haller, after Dillenius, for the whole Linnæan genus of Agaricus, or nearly so. Persoon adopts it for such species only as are furnished with a volva, which, on that account, he considers distinct. See Agaricus.

AMANOA, in botany, a genus of the pentandria monogynia class and order. Its characters are: calyx quinquepartite: no cor.; the germen is triangular, the stigma trigonous, concave, and fimbriated. There is one species, viz. A. Guianensis. Aubl. pl. gui.

AMANTEA, a sea-port town of Naples, situated near the bay of Euphemia, in the province of Calabria, 20 miles south-west of Cosenza.

AMANUEN'SIS, *n.* Low Latin, *amanuensis*, the principal ingredient in which is *manus*, the hand: one who assists another with his penmanship, or hand-writing only.

I have no such authority, no such benefactors, as that noble Ambrosius was to Origen, allowing him six or seven *amanuenses* to write out his dictates; I must for that cause do my business myself.

Burton's Anat. of Mel. Dem. to the reader.

The mirth of the commons grew so very outrageous, that it found out work for our friend of the quorum, who by the help of his *amanuensis* took down all their names and their crimes, with a design to produce his manuscript at the quarter sessions, &c. &c. &c.

Spectator, No. 617.

AMANUS, in ancient geography, a mountain of Syria, which separates it from Cilicia, the straits of which are the Amanicæ Pylæ mentioned above. It is a branch of mount Taurus, extending chiefly eastward, from the sea of Cilicia, to the Euphrates; and is now called Monte Negro, or rather Montagna Neres, by the inhabitants; that is, the watery mountain as it abounds in springs and rivulets. It is celebrated by Appian as the retreat of wild beasts. Κυνηγ. l. 3. Κιλικάς τε πάγας καὶ πρῶνας Αμάνου.

AMAPALLA, a city of South America, in the province of Guatimala in Mexico, seated on the gulph of the same name in the Pacific Ocean, 220 miles south-east of the town of Guatimala, and four leagues from St. Miguel. It trades in cochineal, cocoa, indigo, hides, &c.

Amapalla, a large gulf or bay on the west coast of America, between the province of Guatimala and Nicaragua. It is nearly sixty miles in length, and from nine to thirty in breadth It is also called the gulf of Fonseca. 100 miles north-west of Leon. Lon. 88°. 56′. W. lat. 13°. 30′. N.

AMARA, in antiquity, ἀμάρα, a furrow or channel through which water flows.

Amara, in medicine, bitters, or the essence of a bitter substance; of which great use is made in medicine, particularly for bracing the relaxed fibr es of the organs of digestion.

Amara Dulcis, in botany, the solanum dulc mara.—Amara Indica, the momordica charantia of Linnæus.

Amara (Singha), a Hindoo brahmin of the first century, the author of a Sanscrit dictionary, entitled, Amara Kocha, including the names of stars, elements, &c. The first part of this dictionary was published at Rome by Father Paulin, in 1798, entitled, Amara Singha, Sectio Prima de Cœlo ex tribus ineditis Codicibus Manuscriptis, 4to. A manuscript of the whole is preserved in the royal library at Paris.

AMARACUS, among ancient naturalists. See Sampsuchus.

Amaracus, in botany, bastard feverfew.

AMARADULUS, in botany, a name sometimes given to the woody nightshade.

AMARANTE, an order of knighthood, instituted in Sweden by queen Christina in 1653, at an annual feast; at the close of which she threw off her habit, which was covered with diamonds, leaving it to be pulled in pieces by the masques. In memory of this ridiculous scramble, she founded a military order, called in Swedish, Ceschilschafft, into which all present at the feast were admitted, including sixteen lords, and as many ladies, besides the queen. Their device was the cypher of Amarante, composed of two A's, the one erect, the other inverted, and interwoven together; the whole enclosed by a laurel crown, with this motto, 'Dolce nella memoria.'

Amarante, a town of Portugal, in Entre-Duero-e-Minho. It has a linen manufacture, and contains about 4000 inhabitants; 23 miles south-east of Braga.

AMARANTH, *n.* Amaran'thine. α, not; and μαραινω, to wither. 'Its nature is expressed by its name,' says Pliny, 'since it does not fade.' A well-known plant of the description vulgarly called *Everlasting*. The amaranthus of poetry is not described, at least by botanists, and is supposed to be imaginary.

Some roots are yellow, as carrots, and some plants blood-red, stalk and leaf, as the *amaranthus*.

Bacon's Nat. and Exper. History.

Immortal *amaranth!* a flower which once
In paradise, fast by the tree of life,
Began to bloom; but soon, for man's offence,
To heav'n remov'd, where first it grew: there grows,
And flow'rs aloft, shading the fount of life;
And where the river of bliss, through midst of heav'n,
Rolls o'er Elysian flow'rs her amber stream:
With these that never fade, the spirits elect
Bind their resplendent locks, inwreath'd with beams.

Milton's Par. Lost.

By the streams that ever flow,
By the fragrant winds that blow
O'er the Elysian flow'rs;

By those happy souls that dwell
In yellow meads of asphodel,
Or *amaranthine* bow'rs. *Pope.*

Whatever was brought before her, she beheld by the steady light of the torch of truth; and when her examination had convinced her that the laws of just writing had been observed, she touched it with the *amaranthine* end of the sceptre, and consigned it over to immortality. *Rambler.*

The only *amaranthine* flow'r on earth
Is virtue; th' only lasting treasure, truth.
Cowper's Task, book iii.

AMARANTHOIDES, in botany, the trivial name of a species of illecebrum.

AMARANTHUS, in botany, from α privative, and $\mu\alpha\rho\alpha\iota\nu\omega$, to wither; because the flower of this plant, when cropped, does not soon wither. Amaranth, or flower-gentle, according to Dioscorides, was a remedy against the bites of serpents: A genus of the pentandria order belonging to the monoecia class of plants; and in the natural method ranking under the 54th order, miscellanea: The characters are, the male CAL. a five or three-leaved perianthium, erect, coloured, and persistent: no COR.: STAM. consist of five or three erect capillary filaments, the length of the calyx; the antheræ are oblong and versatile: the female CAL. the same as the male, and no COR.: PIST. an ovate germen; the styli three, short, and subulated; the stigmata simple and persistent: PER. an ovate capsule, three beaked, unilocular, and cut round: the seed is one, globular, compressed, and large. Of this genus Linnæus enumerates nineteen species; the most remarkable of which are:— 1. A. bicolor, melancholicus, or two-coloured amaranthus. This greatly resembles the Tricolor, in its manner of growth; but the leaves have only two colours, which are an obscure purple, and a bright crimson. 2. A. caudatus, with very long hanging cylindrical spikes. This species is a native of America. It has an upright stem, three feet high; the leaves and stalks are of a pale green. The spikes of flowers are produced from the wings of the stalks, and at the extremities of the branches. They are of a bright purple colour, and hang downward, sometimes two feet and a half long, so that many of them touch the ground. 3. A. maximus, or tree-like amaranthus, grows with a strong stem to the height of seven or eight feet. 4. A. oleraceus, with obtuse indented leaves. This has no beauty; but it is used by the Indians as a substitute for cabbage. 5. A. sanguineus, with compound spikes and oblong oval leaves, a native of the Bahama islands, is an esculent plant, and bears fine flowers. 6. A. tricolor, or three-coloured amaranthus. This has been long cultivated in gardens, on account of the beauty of its variegated leaves, which are green, yellow, and red; very elegantly mixed.

AMARANTHUS is also the thirtieth natural order in Jussieu's system, being the first of his seventh class. The following are the characters of these amaranthi: CAL. divided, more or less deeply, often surrounded by scales at the base: STAM. definite, sometimes distinct, sometimes monadelphous; in some genera there are scales alternate with the filaments; in others the combined filaments form a tube or sheath: [illegible] style or stigma simple, or double, [illegible] CAPS. of one cell, with an [illegible] tacle, and either bursting at the [illegible] splitting all round, containing one [illegible] CORCULUM curved round a farinaceous [illegible] Flowers capitate or spiked. Leaves [illegible] undivided and pointed; in some alternate, others opposite; in a few instances [illegible] by stipulas: STEM. for the most part herbaceous. Stamens and pistils sometimes in separate flowers.

Under his first section, (leaves alternate, without stipulas,) Jussieu enumerates amaranthus, celosia of Linnæus; with aerua of Forskal, a genus formed of alternate-leaved species of illecebrum; and digera of the same author. To achyranthes muricata of Linnæus is supposed to belong. §. 2. Leaves opposite without stipulas, consists of iresine, achyranthes, gomphrena, illecebrum. §. 3. Leaves opposite, with stipulas. Here are ranged paronychia of Tournefort, separated from the Linnæan illecebrum; and paronychia of all authors. This order, as he candidly observes, is very nearly related to that of the caryophylleæ. Jussieu, in the Annals of the Museum, v. 2. 131., has published some additions to the present order, which, according to a recent alteration in the nomenclature of the orders, he there terms amaranthaceæ. A translation of his paper may be seen in Sowerby's Konig's Ann. of Bot. v. 2. 274. To the order with stipulated leaves, he adds three new genera: 1. Anychia of Michaux, to which belongs the canadensis of Linnæus. 2. Lithophila of Swartz. 3. Polychroa of Loureiro. Jussieu also remarks that cyathula of Loureiro, a plant of the East Indies, is really an achyranthes with a many-celled germa; but that polia of the same author, supposed to belong to the amaranthi, is one of the caryophylleæ.

AMARELLA, in botany, feverfew.

AMARIN, or DAMARIN, a small town of France, in the department of the Upper Rhine, on the Thur, has 1400 inhabitants. It is the head of a canton, and has a good iron trade, supplied by the valley of Amarin, which abounds in that metal.

AMARAWDH, prince of North Wales, son of Roderick the Great, king of Wales, was the sixth in a direct line from Cadwallader, the last king of the South Britons, succeeded to the throne, A. D. 877, in North Wales, the southern principality being allotted to his brother, and had various wars with the Danes and Anglo-Saxons. He died, A. D. 913, in the 36th year of his reign.

AMARUCO, a river of South America, which traverses the eastern part of Guiana, and runs from the south into the Orinoco, just above its mouth. It is navigable for sloops about twelve miles.

AMARUM, in mineralogy, sulphate of magnesia, or Epsom salt; a genus of mineral substances; class salts; a bitter taste, easily soluble in water, and melting in heat.

AMARUMAJU, a considerable river of South America, in the kingdom of Peru, which rises in the Cordillera of the Andes, in 13°. 30'. S. lat. It passes through the province of Moyo-

after frequently changing its name, enters the Amazons in 4°. 36′. S. lat.

AMARUS Dulcis Orientalis, in botany, costus.

Amarus, in mineralogy, a genus of earths, of the class silices, consisting of silica, with a small portion of magnesia, alumina, and carbonate of lime.

AMARYLLIS, lily-asphodel: a genus of the monogynia order, belonging to the hexandria class of plants; and in the natural method ranking under the ninth order, spathaceæ. The characters are: cal. an oblong obtuse spatha, emarginated, and withering: cor. six petals, lanced: stam. six subulated filaments: the antheræ oblong, incumbent and ascending: pist. a roundish fulcated germen beneath; a filiform stylus, nearly the length of the stamina: the stigma trifid and slender: per. is an ovate trilocular capsule, with three valves: the seeds are many. The principal species are: 1. A. farinensis, or Guernsey lily, is supposed to have come originally from Japan, but has been many years cultivated in the gardens of Guernsey and Jersey; in both which places it seems to thrive as well as if they were in their native country, and from these islands its roots are sent annually to the curious in most parts of Europe. 2. A. formosissima, or jacobæa lily, produces its flowers two or three times a year, without being regular to any season. 3. A. lutea, or autumnal narcissus. 4. A. Orientalis, or lily daffodil, with leaves shaped like a tongue. This is a native of the Cape of Good Hope. 5. A. Regina, or belladonna lily, is a native of Portugal, where it was formerly cultivated in great plenty; but of late it has been supplanted by the jacobæa lily, so that the roots which have been brought from that country for some time past for the belladonna, have generally proved to be the jacobæa lily. 6. A. Zeylanica, or Ceylon lily, is a native of the West Indies, and usually flowers in June. Sometimes the same root will flower again in autumn, but the flowers are of no long duration. These three last species of the amaryllis may easily be raised by taking care to shelter them in a stove from the winter's cold.

AMASA, אמשא, Heb. i. e. sparing the people: the son (by some supposed illegitimate) of Abigail, the sister of David, by Jether. See 2 Sam. xx. 10.

AMASAI, the son of Elkanah, a principal officer under Saul, who, with a number of his friends, joined David in his exile. 1 Chron. xii.

AMASIA, an ancient city of Germany, now Marpurg, in the landgravate of Hesse, on the Lahn. Acccording to others, it is Embden in Westphalia.

Amasia, an ancient town of Turkey, in Natolia, the capital of the district of that name, and memorable for the birth of Strabo the geographer. It is the residence of a bashaw, and is seated near the river Iris or Kasalmack, fifty miles north-west of Tocat, and two hundred east of Constantinople. It was anciently the residence of the kings of Cappadocia. It is commanded by a fort, situated at the highest part of the town, on a sharp-pointed rock, and is surrounded by mountains, so that it can be approached only by two narrow passes on the north and south, which are so rugged as to be easily defensible. Though an extensive and populous place, the streets are narrow and dirty, and most of the houses are built of wood. The greater part of the inhabitants being Christians, there is only one mosque, a fine edifice with two lofty minarets, all of hewn stone; of which material the numerous baths, and some few of the better houses, are also constructed. The baths have agreeable promenades in front, with several rows of trees; and the whole are surrounded with a high wall. The river is large and rapid, and affords abundance of water, which is raised by means of wheels nearly thirty feet in diameter, filling buckets on their circumference, which empty themselves into troughs or reservoirs; and the water is thence conveyed in pipes to the baths and fountains. A kind of good wine, resembling sherry, is made in Amasia; and the environs produce abundance of fruits. The inhabitants are distinguished for their urbanity and attention to strangers, and the women are celebrated as the fairest and most engaging of all Asia Minor. Population from 60,000 to 70,000 Long. 36°. 12′. E. lat. 40°. 40′. N.

AMASIS, first a prime minister, and afterwards king of Egypt. He owed his royal dignity to a very singular circumstance. Apries, king of Egypt, or, as he is called in scripture, Pharaoh Hophra, having by his oppressions excited the Egyptians to revolt, sent his minister Amasis to pacify them; when the people, while he was haranguing them, brought a crown and other ensigns of royalty, and forcing them upon him proclaimed him king. He was afterwards countenanced by Nebuchadnezzar, king of Babylon, who assisted him against Apries. He made a law that all his subjects should annually give an account of their means of support; and refused to continue his alliance with Polycrates, of Sicily, on account of his extraordinary prosperity. The close of his reign was, however, very different from its commencement. Having by some means or other incurred the displeasure of Cambyses, the Persian monarch prepared to invade Egypt, and derived effectual assistance from Phanes, of Halicarnassus, who commanded the Greek auxiliaries in the pay of Amasis. But Amasis was rescued from the evils that were gathering round him, by death, B. C. 525, after a reign of forty-four years. His body being embalmed, was deposited in a sepulchre which he had built for himself in the temple at Sais. The reign of his successor, Psammenitus, was short and calamitous; and the victorious Persians, after his defeat, capture, and death, took the body of his father Amasis from the tomb, mangled it in a shocking manner, and then burnt it to the great disgust of the Egyptians.—*Herod.* i. ii. iii.

AMASONIA, in botany, a genus of the angiospermia order, belonging to the didynamia class of plants. The characters of which are: cal. a tripartite monophyllous perianthium, bell-shaped and persistent: cor. monopetalous and tubular; the border quinquefid, expanding and small: stam. four filaments longer than the corolla; the antheræ oval and incumbent: pist

an ovate germen; the stylus the length of the stamina; the stigma two, acute: there is no pericarpium: SEED an ovate unilocular nut, the length of the calyx.

AMASS', *v.* & *n.* } Fr. *amasse*; Lat. *massa*;
AMASS'MENT. } Gr. μασσω, to knead into a lump. Things which when heaped together unite, are said to be amassed.

For treasure spent in lyef, the bodye doth susteyne:
The heire shall waste the whourded gold *amassed* with muche payne. *Surrey.*

The last is the compounded order: His name being a brief of his nature. For this pillar is nothing in effect, but a medly, or an *amasse* of all the precedent ornaments. *Reliquiæ Wottonianæ.*

The rich man is not blamed, as having made use of any unlawful means to *amass* riches, as having thriven by fraud and injustice. *Atterbury's Ser.*

When we would think of infinite space, or duration, we, at first step, usually make some very large idea, as perhaps of millions of ages, or miles, which possibly we double and multiply several times. All that we thus *amass* together in our thoughts, is positive, and the assemblage of a great number of positive ideas of space or duration. *Locke.*

AMASTRIS, AMASTRO, a sea-port of Anatolia, in Turkey; but its two harbours have been long choked up with sand; and little of its ancient splendour now remains, except some ruins.

AMATA, in fabulous history, the wife of king Latinus, and the mother of Lavinia, who hanged herself that she might not see Æneas married to her daughter.

AMATARIA, in entomology, a species of the Phalæna, of the geometra family, that inhabits Europe. The wings are angulated, of a pale brown, slightly speckled, with an obsolete darker waved streak, and a straight purple line across the middle. It is produced from a green larva, with yellow rings, that feeds on the leaves of oaks. *Linnæus. Don. British Insects*, tab. 33. fig. 2.

AMATE'. A. S. mœt. To dream: to be made stupid; senseless.

But thought and sicknesse were occasion
That he thus lay in lamentation,
Grouffe on the ground, in place desolate
Sole by himself, awhaped and *amate*.
Chaucer. Complaint of the Blacke Knight, f. 271, c. 3.

Upon the wall the pagans old and young
Stood hush'd and still, *amated* and amazed.
Fairf. b. xi. xii.

No more appal'd with fear
Of present death, than he whom never dread
Did once *amate*. *O. Pl.* 2. 214.

For never knight, that dared warlike deed,
More luckless disadventures did *amate*.
Spens. 1. 2. 1. 9. 45.

AMATEUR. Fr. one who has a taste for an art, but does not practise it professionally.

It must always be to those who are the greatest *amateurs*, or even professors of revolutions, a matter very hard to prove, that the late French government was so bad, that nothing worse, in the infinite devices of men, could come in its place. *Burke.*

AMATH, in ancient geography, a town of Phœnicia, sacred to Venus; which had an ancient temple dedicated to that goddess.

AMATHA, a city on the Jordan.

AMATHUS, an ancient town in the south of Cyprus, so called from Amathus the [illegible] from Amath in Phœnicia. It had a very [illegible] temple of Venus and Adonis: and, accord[illegible] Ovid, was rich in copper ore. It is now [illegible] Limisso.

AMATHUS, a town of the tribe of Gad, [illegible] Jordan; but at what distance from [illegible] determined.

AMATI, a violin maker of Cremona, [illegible] lived about the year 1600, and by his [illegible] his family's skill gave name to the Amati [illegible] which are still considered, with the [illegible] perhaps of Stainer's, the first in the world. [illegible] are also called Cremonas.

AMATOR'IAL, *adj.* } Amo; amator
AMATOR'IOUS, } love; a lover
AMATOR'IAN, } or concerning
AM'ATORY. }

They seem to have been tales of love and chi[illegible] *amatorial* sonnets, tragedies, comedies, and pas[illegible] *Warton's Hist. Eng. Poetry*

It is the same thing whether one ravish [illegible] by force, as Tarquin, or by *amatory* potions [illegible] allure her, but necessitate her to satisfy his [illegible] incline her effectually, and draw her inevitab[illegible] follow him spontaneously. *Bramhall against H[illegible]*

AMATORII MUSCULI, in antiquity, [illegible] sometimes used for the obliquus superior [illegible] obliquus inferior muscles of the eye, as [illegible] muscles assist in ogling, or drawing the [illegible] sideways.

AMAURI I. and II. kings of Jerusa[illegible] the first succeeded to the throne in 1163, and [illegible] a courageous and enterprising prince, but [illegible] qualities were sullied by avarice and [illegible] He died in 1174.—Amauri II. succeeded [illegible] brother, Guy de Lusignan, in 1194; his [illegible] was contested by Isabella, second daughter [illegible] Amauri I.; but on her becoming a widow [illegible] married her, and was crowned. The Sara[illegible] having taken his capital, he applied for assist[illegible] to the European princes, but before the succ[illegible] arrived he died, in 1205.

AMAUROSIS, from ἀμαυροω, to darken, [illegible] medicine, is by some defined to be a depra[illegible] of sight, the eye remaining fair and seem[illegible] unaffected. A perfect amaurosis is when [illegible] blindness is total; when there is still a power [illegible] distinguishing light from darkness, the [illegible] is called by M. de St. Ives an imperfect amau[illegible] rosis. There is a periodical sort which [illegible] on instantaneously, continues for hours or [illegible] and then disappears. Mr. Hey, surgeon at Le[illegible] mentions several cases of patients afflicted [illegible] the amaurosis who were relieved by [illegible] electrified.

AMAZE', *v.* & *n.* } From the Dutch, mas[illegible]
AMA'ZEDLY, } to miss, to err, to wan[illegible]
AMAZED', } Hence maze, a labyrin[illegible]
AMA'ZEDNESS, } To maze occurs [illegible]
AMAZE'MENT, } older writers. To [illegible]
AMA'ZING, } with what is incom[illegible]
AMA'ZINGLY. } hensible; to con[illegible]

perplex, astonish, stupify.

I am right siker, that the pot was crased,
Be as be may, be ye no thing *amased*.
As usage is, let swepe the flore as swithe,
Plucke up your hertes and be glad and blithe.
Chaucer. The Chanone Yemans

Heare O Israell, ye are come vnto battell agenste yor enemyes,let not your hartes faynte, neither feare, nor be *amased* nor a dread of them.
Bible, 1539. *Deuteronomie*, c. xx.

Yea, I will make many people *amazed* at thee, and their kings shall be horribly afraid for thee, when I shall brandish my sword before them, and they shall tremble at every moment; every man for his own life in the day of the fall. *Ezekiel.*

He answer'd nought at all; but adding new
Fear to his first *amazement*, staring wide,
With stony eyes, and heartless hollow hue,
Astonish'd stood, as one that had espy'd
Infernal furies, with their chains unty'd.
Faerie Queene.

But look! *amazement* on thy mother sits;
O step between her and her fighting soul:
Conceit in weakest bodies strongest works. *Shaksp.*

But why
Stands Macbeth thus *amazedly?*
Come, sisters, cheer we up his sprights. *Id.*

He ended, and his words impression left
Of much *amazement* to th' infernal crew,
Distracted and surpris'd with deep dismay
At these sad tidings. *Milton.*

Fairfax, whose name in arms thro' Europe rings,
And fills all mouths with envy or with praise,
And all her jealous monarchs with *amaze*. *Id.*

Meantime the Trojan cuts his wat'ry way,
Fix'd on his voyage, through the curling sea;
Then casting back his eyes with dire *amaze*,
Sees on the Punick shore the mounting blaze. *Dry.*

ALM. As when some dreadful thunder-clap is nigh,
The winged fire shoots swiftly through the sky;
Strikes and consumes ere scarce it does appear,
And by the sudden ill prevents the fear:
Such is my state in this *amazing* woe,
It leaves no power to think, much less to do.
Dryden's Indian Emperor.

An amphitheatre's *amazing* height
Here fills my eye with terror and delight,
That on its public shows, unpeopled Rome,
And held, uncrowded, nations in its womb. *Addison.*

It is an *amazing* thing to see the present desolation of Italy, when one considers what incredible multitudes it abounded with during the reigns of the Roman Emperors. *Addison.*

Know'st thou the importance of a soul immortal?
Behold this midnight glory, worlds on worlds!
Amazing pomp! redouble the amaze!
Ten thousand add, and twice ten thousand more;
Then weigh the soul, one soul outweighs them all.
Young.

AMAZIAH, the eighth, or including the usurper Athaliah, the ninth monarch of Judah, succeeded his father Joash, A. M. 3164, or according to Alstedius, A. M. 3109. See 2 Kings, xiv. and 2 Chron. xxv.

AMAZIAH, the priest of Bethel, under Jeroboam, II. king of Israel.

AM'AZON, *n.* } Gr. *α*, without; *μαζος*, the
AMAZO'NIAN. } breast. A warlike woman, a virago.

When the strong town of Hennebond, near Rennes, was besieged by the French, this redoubtable *amazon* [the Countess of Montfort] rode in complete armour from street to street, on a large courser, animating the garrison. *Warton's Hist. Eng. Poetry*, i. 254.

I do not with less willingness own my weakness than my sex, being far from any such *amazonian* boldness as affects to contend with so many learned and godly men. *Bp. Taylor's Artificial Handsomeness.*

AMAZONIA, a country of South America, situated between the equator. Its boundaries are: on the north, Terra Firma and Guiana; on the east, the Atlantic Ocean and Brazil; on the south, Paraguay; and on the west, Peru.—This country was first discovered, and so named, by Francisco Orellana, who, about the year 1541, in a bark manned with fifty soldiers, was borne down by the stream of the river Napo into the channel of the Maragnon; and pretended to have discovered along its banks nations so rich that the roofs of their temples were covered with plates of gold; he also described a warlike and powerful republic of women, who, with arms in their hands, opposed his passage, and hence he called the country Amazonia; and the river, which had formerly been denominated Maragnon Amazon.

AMAZONIUM, a place near Athens, so called from a battle fought between the Athenians and the Amazons.

AMAZONIUS, in pharmacy, a kind of pastil, or troche, anciently used against risings of the stomach and vomitings. It is composed of smallage, anise-seed, wormwood, myrrh, pepper, castorium, opium, and cinnamon.

AMAZONS, in antiquity, a nation of female warriors, who are said to have founded an empire in Asia Minor, upon the river Thermodoon, along the coasts of the Black Sea, as far as the Caspian; and to have formed a state from which men were excluded. What commerce they had with that sex was only with strangers, and that for the purpose of continuing the race; they killed all their male children; and they cut off the right breasts of their female ones, to make them more fit for the combat. From that last circumstance it is, that they are supposed to take their name, which is compounded of the privative *α* and *μαζος*, breast. But Dr. Bryant, in his Analysis of Ancient Mythology, explodes this account as fabulous; and observes, that they were in general Cuthite colonies from Egypt and Syria, who formed settlements in different countries, and that they derived their name from zon, the sun, which was the national object of worship. It has indeed been controverted, even among ancient writers whether there really ever were such a nation as that of the Amazons. Strabo, Palæphatus, and others, deny it; whilst Herodotus, Pausanias, Diodorus Siculus, Trogus Pompeius, Justin, Pliny, Mela, Plutarch, &c. expressly assert their existence. The most ancient Greek writers mention the Amazons. In the third book of the Iliad, Priam speaks of having been present in a battle with them; and some of them are said afterwards to come to the assistance of that prince during the siege of Troy. They are also mentioned by Herodotus, who says that the Grecians defeated them on the river Thermodoon. After their victory, they carried off all the Amazons they could take alive, in three ships. But while they were at sea, the Amazons conspired against the men, and killed them all. Having no knowledge of navigation, they were now driven by wind and tide towards the precipices of the lake Mæotis, in the Scythian territories. Here they went ashore, seized the first horses they met with, and began to plunder the inhabitants. The Scythians at first supposed them to be men; but after they had

taken some prisoners, and discovered them to be women, they were unwilling to carry on hostilities against them. By degrees a number of the young Scythians took these gentle dames as wives, who prevailed with their husbands to retire to Sarmatia. 'Hence,' says Herodotus, 'the wives of the Sarmatians continue their ancient way of living. They hunt on horseback in the company of their husbands, and sometimes alone; they march with their armies, and wear the same dress with the men: and no virgin is permitted to marry till she has killed an enemy in the field. Diodorus Siculus has decribed a similar people who dwelt near the Thermodoon, who were subject to the government of women, and in which females managed all the military affairs like men.

Justin represents the Amazonian republic to have arisen in Scythia. The Scythians had a great part of Asia under their dominion upwards of 400 years, till they were conquered by Ninus, the founder of the Assyrian empire. After his death, which happened about 1150 years before the Christian æra, and that of Semiramis and their son Ninias, Ilinus, and Scolopites, princes of the blood-royal of Scythia, were driven from their country by other princes, who like them aspired to the crown.—They departed with their wives, children, and friends; and being followed by a great number of young people of both sexes, they passed into Asiatic Sarmatia, beyond mount Caucasus, where they formed an establishment, and supplied themselves with what they wanted, by making excursions into the countries bordering on the Euxine sea. The people of those countries, exasperated by the incursions of their new neighbours, united, surprised, and massacred the men. The women then resolving to revenge their death, and to provide for their own security, formed a new kind of government; chose a queen; enacted laws; and maintained themselves, without men; for ever renouncing marriage, which they considered an insupportable slavery. For the continuance of the race, however, they made a law to go every year to the frontiers, and invite men to come to them, but to leave them as soon as they were pregnant. The female infants among the Amazons were educated; but the boys, if we believe Justin, were strangled at the moment of their birth. According to Diodorus Siculus, they crippled their legs and arms, so as to render them unfit for military exercises. Quintus Curtius, Philostratus, and Jordarus, say, that the less savage sent them to their fathers. Their right breast is said to have been burnt off, by applying to it, at eight years of age, a hot brazen instrument; but other writers state that this breast was constantly compressed from infancy, so as to prevent its growth, at least so far as to hinder its ever being incommodious in war.

Plutarch, in his life of Theseus, speaks of a battle which had been fought between the Athenians and the Amazons at Athens, and says, that the graves of those that were slain, were to be seen in the streets that lead to the gate Piraica, by the temple of the hero Chalcodue. In another place he states, that 'it appears, that the passage of the Amazons through Thessaly was not without opposition; for there are yet to be seen many of their sepulchres near Scrotusæa and Cynoscephalæ. And in his life of Pompey, that, 'they about those parts of mount Caucasus that look towards the Hyrcanian Sea, (not bordering upon the Albanians, for the territories of the Gelæ and the Leges lie between): and with these people do they yearly, for two months only, accompany and cohabit near the river Thermodoon. Quintus Curtius states, the nation of the Amazons to be situated upon the borders of Hyrcania in the plains of Thermiscyra. Their queen was named Thalestris, and she had under her subjection the country that lies between mount Caucasus and the river Phasis. This queen came out of her dominions, in consequence of an amorous desire she had conceived to see Alexander, and sent messengers to acquaint him that she was come to have the satisfaction of an interview. Having obtained permission to visit him, she advanced with 300 of her Amazons, leaving the rest of her troops behind; and arriving within sight of the king, leaped from her horse, holding two javelins in her right hand. She surveyed Alexander with an undaunted countenance, and narrowly examined his person; when the king having asked whether she had any thing to desire of him, she replied, without scruple or hesitation, that she was come with a view to have children by him. Their offspring, if of the female sex, she would retain herself; and if of the male sex, it should be delivered to Alexander. He then asked her whether she would accompany him in his wars. But this she declined, alleging that she had left nobody to take care of her kingdom. Having accomplished her object, she returned home. Justin repeatedly mentions the visit of Thalestris to Alexander, and says, 'she performed a march of twenty-five days in order to obtain the meeting. The interview between Alexander and Thalestris is likewise mentioned by Diodorus Siculus. The Amazons are represented as being armed with bows, arrows, and javelins; and also with an axe of particular construction. According to the elder Pliny, it was invented by Penthesilia, the queen, who went to the Trojan war. On many ancient medals are representations of the Amazons, armed with these axes. They are also said to have had bucklers in the shape of a half-moon. The Amazons are mentioned by many other ancient authors besides those which have been enumerated; and if any credit be due to the accounts concerning them, they subsisted through several ages.

The ancient medals and monuments on which they are represented are also very numerous. The Abbé Guyon speaks of the history of the Amazons as having been regarded by many persons as fabulous, 'rather from prejudice than from any real and solid examination.'

Among the striking instances of Amazonian conduct in modern ladies, may be mentioned that of Jane of Belleville, widow of Monsieur de Clisson who was beheaded at Paris in the year 1353, on a suspicion of carrying on a correspondence with England and the Count de Montfort. This lady, filled with grief for the death of her husband, and exasperated at the ill treatment which she considered him as having received

sent off 'her son secretly to London; and, when her apprehensions were removed with respect to him, sold her jewels, fitted out three ships, and put to sea, to revenge the death of her husband upon all the French with whom she should meet. This female corsair made several descents upon Normandy, where she stormed castles; and the inhabitants of that province were spectators more than once, whilst their villages were all in a blaze, of one of the finest women in Europe, with a sword in one hand and a torch in the other, urging the carnage, and eyeing with pleasure all the horrors of war.' Mezerai, says, that during the crusade in 1147 'many women did not content themselves with taking the cross, but also took up arms to defend it, and composed squadrons of females, which rendered credible all that has been said of the prowess of the Amazons.' In 1590, the League party obtained some troops from the king of Spain. Upon the news of their being disembarked, Barri de St. Aunez, Henry IV's governor at Lucate, sent out to communicate a scheme to the Duke de Montmorenci, commander of that province. He was taken in his way by some of the troops of the League, who were also upon their march with the Spaniards towards Leucate. They were persuaded that, by thus having the governor in their hands, the gates of that place would be immediately opened to them, or at least would not hold out long. But Constantia de Cecelli, his wife, after having assembled the garrison, put herself so resolutely at their head, pike in hand, that she inspired the weakest with courage; and the besiegers were repulsed wherever they presented themselves. Shame and their great loss having rendered them desperate, they sent a message to the courageous woman, acquainting her that if she continued to defend herself they would hang her husband. She replied, with tears in her eyes, 'I have riches in abundance: I have offered them, and I do still offer them, for his ransom; but I would not ignominiously purchase a life which he would reproach me with, and which he would be ashamed to enjoy. I will not dishonour him by treason against my king and country.' The besiegers having made a fresh attack without success, put her husband to death, and raised the siege. Henry IV. afterwards sent to this lady the brevet of governess of Leucate, with the reversion for her son. The famous maid of Orleans is a shining example of female courage and patriotism, well known to every reader; and her fate is an everlasting disgrace to the tyrant who murdered her. See Joan of Arc. In the end of the eighteenth century, the enthusiasm of French liberty and equality excited many females of that nation to commence Amazons, and follow their husbands, brothers, and lovers, to victory or death. The Abbé Arnard, in his memoirs, speaks of a countess of St. Balmont, who used to take the field with her husband and fight by his side. She sent several Spanish prisoners of her taking to Marshal Feuquires; and, what is not a little extraordinary, this Amazon at home was all affability and sweetness, and gave herself up to reading and acts of piety. John de los Sanctos, a Portuguese author, in his description of Ethiopia, speaks of a nation of Amazons existing in Africa; and Æneas Sylvius gives a very particular account of a nation of real Amazons in Bohemia.

Amazons, Maragnon or Orellana, a river of South America, and one of the largest in the world. It rises in Peru, between two ridges of the Andes, in about sixteen degrees of south latitude, under the name of the Apurimac; and flows northerly over a country overspread with forests; and expanding, by means of numerous tributary accessions, forms the Ucayale, about 300 geographical miles from its source. From this point it pursues a northerly direction for a distance of about six degrees, where it unites with the Tunguragua, and forms the Amazon. It then takes an easterly course, or nearly so, across the continent; and, after traversing 4000 miles, rolls its vast tide into the ocean with such violence that it repels all other waters, and carries its own stream pure and unmixed to the distance of eighty leagues. This circumstance is the more remarkable, as it is calculated that from Obidos, 400 miles from its mouth, the ground does not decline more than four feet. This river is navigable up to the very foot of the Andes, and is, at its mouth, 180 miles wide. The principal branches of the Amazon from the south are: 1. The Tunguaraque and Ucayale, already described; 2. The Madeira, its principal tributary, which rises in the United Provinces near Potosi, about 20° S. lat.; and passing under various names into Brazil is joined by numerous other rivers, and rolls in a north-easterly direction to the Amazon, after a course of 2000 miles; 3. The Tocantins, which enters the Amazon near its mouth, after a course of about 1500 miles. Its tributary, the Araguay, rises between the parallels of 18° and 19° of south latitude. The other important tributaries of the Amazon from the south are, the Jutay, the Juruay, and the Puros, which join it between the Ucayale and the Madeira; and the Tapajos and Xingu, which join it between the Madeira and the Tocantins. The principal rivers which fall into the Amazon on its northern bank are, the Napo, the Icaor, the Putumayo, the Jupura, and the Negro, the last of which is remarkable for sending off a branch towards the north, which, under the name of Cassiquiari, falls into the Orinoco, and unites, by this means, the Amazon with that magnificent stream. All the rivers which rise on the eastern declivity of the Andes, between the parallels of 2° north latitude and 20° south, including a space of 1600 or 1700 miles, contribute to swell the waters of the common channel, by which this immense portion of South America is drained of its waters. The basin of the Amazons has been calculated at more than 1500 miles from north to south, and upwards of 200 from east to west, including a superficial area of 3,000,000 square miles, or nearly half of South America.

The banks of this river are clothed with immense and impenetrable woods, abounding with bears, tigers, leopards, wild boars, snakes, and serpents. Alligators are numerous, and frequently grow to the length of thirty feet. They are often seen stretched along on the banks, in appearance like long branches of timber covered

[illegible] seven years to [illegible] was wrapt in admiration [illegible] by the eye, [illegible] than the [illegible] soon about [illegible] themselves to cheaper [illegible] To the crowd [illegible] diversify the [illegible] presented [illegible] indeed the [illegible] that was to be [illegible] for the earth is [illegible] and [illegible] to find a [illegible] square, requires a [illegible] and 400 or 50 [illegible] down the river, a stone [illegible] rare as a diamond [illegible] countries, indeed, have [illegible] and when on [illegible] them, the wonder [illegible] every gesture [illegible] them together, [illegible] with the precious burden, [illegible] their abundance, they [illegible] and throw them away.

[illegible] who visited the [illegible] Orreiana, who, [illegible] women or Amazons [illegible] the river its [illegible] in a river in the [illegible] being carried by [illegible] into the main current of the [illegible] at the North Cape, in Guiana [illegible] more than 5000 miles. [illegible] into this river from [illegible] stream on the southern side; but [illegible] in the course of his voyage by [illegible] who afterwards [illegible] It was afterwards [illegible] by Pedro Texeira, whose voyage [illegible] together with a chart of the [illegible] In 1707, a new chart was [illegible] by Father Fritz, who had traced the [illegible] throughout its whole length; but, for want [illegible] necessary instruments, could not fix [illegible] degree of accuracy the position of [illegible] In 1743 and 1744 it was [illegible] Monsieur de Condamine, of the royal [illegible] of sciences at Paris; who has published [illegible] may of its course.

A tradition long prevailed among the [illegible] missionaries, that this river and the Orinoco [illegible] joined together by some of their [illegible] streams, but no clear evidence was [illegible] ward in favour of the fact, until the [illegible] Humboldt, who in the course of his [illegible] the interior penetrated from the Rio [illegible] branch of the Amazons already described [illegible] Cassiquiari, and ascending its stream [illegible] the main channel of the Orinoco.

AMBA, in botany, the manga, [illegible] mango tree, called also ambalam and [illegible]

AMBAGES, *n.* A circuit of words; [illegible] direct manner of expression.

> Calchas led us with *ambages*,
> That is to saine, with double words slie,
> Such as men clepen a word with two [illegible]
>
> *Chaucer. Troilus & Creaud*, [illegible]

amma in which every mery conceited man, vithout any long studie or tedious *ambages*, s frend sport, and anger his foe, and give a ıip, or shew a sharpe conceit in a few verses.

Puttenham. Art of Poesie, lib. 1. c. 27.

gave those complex ideas names, that they he more easily record and discourse of things re daily conversant in, without long *ambages* :umlocutions; and that the things they were ally to give and receive information about, ›e the easier and quicker understood. *Locke.*

BAHLAH, or AMBALAYA, a large town in vince of Delhi, 126 miles north by west from ty of Delhi, and belonging to Sheik chiefs. walled town, and has a large citadel. The are mostly built of burnt bricks, but the are so narrow as scarcely to allow room elephant to pass. Lat. 30°. 21′. N. long. 7′. E.

BA-GESHEN, a rock in Abyssinia, in the dis›r independent state of Amhara of pro›s steepness, and almost impregnable. Its ıit is said to be about half a Portuguese e in breadth, and the circumference at the m about half a day's journey. The ascent ›t is easy; but grows afterwards so pre›us, that the Abyssinian oxen, which will wise clamber like goats, must be craned up, let down with ropes. Here the princes of lood were formerly confined, a circumstance ıich Dr. Johnson so finely alludes in the open›hapter of his Rasselas, prince of Abyssinia.

MBAIBA, a tree in Brazil, called by the ans tipisca.

MBALAM, in botany, an Indian tree, the of which is a kind of kernel that is good ssuage pains in the ears; of the root is made ssary that promotes the menstrual discharge. bark converted into a powder is beneficial in nteries, and a decoction of its wood is given success in gonorrhœas. *Raii. Hist. Plant.*

MBARVALE CARMEN, the song or prayer l at the festival of the AMBARVALIA, which

A formula of it is preserved in Cato, *De Rustica*, cap. cxlii.

MBARVALE SACRUM, the sacrifice offered at Ambarvalia. See next article.

MBARVALIA, in antiquity, a festival among Romans celebrated annually in honour of es, in order to procure a happy harvest. At se feasts they sacrificed a bull, a sow, and a ep, which, before the sacrifice, were led in ›cession thrice around the fields; whence the st is supposed to have taken its name; from Greek *αμφι*, about; or the Latin ambio, I go ınd; and arvum, a field.—Though others ite it, ambarbalia, and ambarbia, and deduce from ambire urbem, to go round the city. om the beast offered in sacrifice, the ceremony ıs also called suovetaurilia. The ambarvalia ere of two kinds, public and private. The ivate were those solemnized by the masters of nilies, accompanied with their children and rvants, in the villages and farms out of Rome. ıey walked three times round the grounds, ery one being crowned with leaves of oak, ıd singing hymns in honour of Ceres. After e procession they went to sacrifice. The pub› ambarvalia were those celebrated in the ›undaries of the city, and in which twelve priests, called fratres arvales, officiated pontifically, walking at the head of a procession of the citizens, who had lands and vineyards at Rome. These festivals were annual, some say twice a year, viz. in January or April, and in July or August. Some make a quinquennial ambarvalia, performed once every lustrum, or fifth year.

AMBARVALIS FLOS, in botany, a name given by some authors to the polygala, or milkwort.

AM'BASSY, *n.*
AMBASSADE',
AMBAS'SADOUR,
AMBAS'SADRESS,
AM'BASSAGE,
AMBAS SATRIE,
AMBAS'SIAT.

Low Latin, *ambascia; ambasciator*: one who waits or resides near the highest authorities.

Go ye therfore as trustye *ambassadoures*, and stickynge to me your authour; teache fyrst the Jewes, than the next nyghboures vnto them, afterwardes all the natiōs of the whole world.

Udall. Math. cap. xxviii.

Maximilian entertained them with dilatory answers; so as the formal part of their *ambassage* might well warrant their further stay. *Bacon.*

Give first admittance to th' *ambassadours*. *Shaksp.*

Rais'd by these hopes, I sent no news before,
Nor ask'd your leave, nor did your faith implore;
But come without a pledge, my own *ambassadour*.
Dryden.

Well, my *ambassadress*———
Come you to menace war, and loud defiance?
Or does the peaceful olive grace your brow? *Rowe.*

AMBASSADOR, or EMBASSADOR, the representative of one sovereign power to another, to which he is sent properly accredited. The origin of the domestic management of a state, is not the whole of government; every country has neighbours and is obliged to look abroad, to discover how its interests are affected by the countries around it; to discern with sagacity in what manner they may be either injured or best promoted, and to take wise measures to prevent the one, or to second the other: to accomplish this with the fullest effect, a skilful agent seemed necessary on the spot, to suggest views and motives, to represent the circumstances of his own country in the most favourable light, and those of the country to be opposed in the most unfavourable. It was soon found that all the nations in Europe had some ties of connexion, and that the views of no one country could be modelled to the purposes of another without producing a correspondent effect on the views of all the other countries which fell within this great circle of connexion; the foreign politics of modern nations became in this manner very complicated; each was obliged to direct its attention not to one or a few, but to all the nations, to perceive how its interests were likely to be affected by any one. As it became necessary to transact business of so much consequence with the rulers or ministers of a nation's government, it was found advisable to send men possessing high dignity in their own nation. Thus the title of agent was exchanged for that of ambassador, and complication, finesse, and aristocracy, continue to support the title. See *Lord Chesterfield's Letters to his Son*, passim. Ambassadors

are either ordinary or extraordinary: ambassadors ordinary are those stationed at a foreign court to preserve a good understanding between the court sending them and that to which they are sent: the signing and countersigning of passports, the general protection of trade, and the transmission of intelligence, as far as it can interest their respective courts, are the chief duties of their office. Ambassadors extraordinary are those deputed on some important occasion, and are generally surrounded with superior pomp and splendour. Till within these 200 years, ambassadors in ordinary were not heard of: all, till then, were ambassadors extraordinary; that is, such as are sent on some particular occasion, and who retire as soon as the affair is despatched. By the law of nations, none under the quality of a sovereign prince can send or receive an ambassador. The privileges of ambassadors are various. By the law of Europe, and of most civilized nations, not only the person of the ambassador is inviolate, but his whole train are exempt from the municipal law of the country where he resides. On the breaking out of a war, the ambassador, with all his attendants and property, is permitted to retire home. Notice may be given that an ambassador will not be received; and if this caution be neglected, they may be taken for enemies; but if admitted, though by enemies in arms, they are entitled to the protection of the law of nations; and the ordinary respect paid to a flag of truce proceeds upon this principle. The Turks have, indeed, thrown ambassadors into the castle of the Seven Towers at Constantinople, on the commencement of hostilities, and even mutilated their persons; but the porte, of late, has shewn a disposition to follow the humane usage of other courts. By statute, 7 Anne, cap. 12, an ambassador and suite is in this country protected from the consequences of arrest by the king's writs for debt; if they are arrested, the process shall be void, and the persons suing out and executing the writ shall suffer such penalties and corporeal punishment as the lord chancellor, or either of the chief justices, shall think proper to inflict. This act originated in the following circumstance: The count de Matueof, ambassador of Peter the First of Russia, to the court of queen Anne, was publicly arrested by a laceman of London, and maltreated by the bailiffs, who dragged him from his coach to prison, where he continued until bailed by the earl of Feversham; and neither the count nor the czar were readily to be appeased. Most of the foreign ambassadors in London joined in a protest against the insult, and Matueof retired to Holland. Anne and her ministers were much perplexed respecting the proper course to be pursued; the parties concerned in the arrest were apprehended; but the secretary of state acknowledged that the law of England provided no adequate punishment for the offence. Peter demanded, without hesitation, that the sheriff and all concerned should suffer death. Nor was it until an extraordinary embassy was sent, with the new act now carried through parliament, and the offer to pay all the expenses of the count, that this affair was amicably settled. There are shewn in Westminster-abbey the unburied coffins of two [illegible] ambassadors, whose bodies were [illegible] death. It has been enquired what [illegible] the criminal code of a country ought [illegible] punished in an ambassador? The modern [illegible] is to consider him amenable to his own [illegible] reign only, in all cases, excepting that of [illegible] against the state where he resides, which [illegible] violation of the law of nations. Instances [illegible] contrary, however, have occurred in [illegible] times. In 1654 the brother of the Portuguese ambassador, who is said to have been [illegible] accredited with him to the English court, was tried, condemned, and beheaded for murder; the only difference made between his punishment and that of some of his servants, who were also implicated, was in the mode of execution. When the duke de Sully resided at this court as ambassador of Henry IV. of France, being informed that one of his gentlemen had murdered a man at a bagnio, he sent a message to the magistrates of the city, that they might take the offender and proceed with him according to law; for though he was tried and condemned, the [illegible] monarch thought proper to grant him a pardon and his liberty.

The ceremonies, on the reception of ambassadors, vary according to the customs of different courts. At some, an ambassador is expected not to quit his house until he has been received with all due pomp at the court to which he is sent. In China the ceremony of prostration is required on the admission of an ambassador to the presence of the emperor; and a mark of humiliation of this kind has been exacted: hitherto this has been refused by British ambassadors, and sometimes at the expense of the total failure of the mission. So important is the ceremony of a due reception, that, according to the general usage of European states, no ambassador is entitled to any privilege of his office, nor can he assume any of its functions, until he has been thus properly acknowledged.

At Athens, ambassadors mounted the [illegible] of the public orators, and there opened their commission, acquainting the people with their errand. At Rome, they were introduced to the senate, and delivered their commissions to the senators. Ambassadors should never attend public solemnities, as marriages, funerals, &c. unless their masters have some interest there; nor must they go into mourning on any occasions of their own, because they represent the person of their prince.

AMBATO, Assiento de, the capital of a district of the same name in South America, which stands upon the banks of the river Ambato. It has a parish church, two chapels of ease, and a convent of Franciscans. In the year 1698 it was entirely destroyed by an eruption of Cotopaxi, which is near it, and at the same time the snowy mountain or desert of Carguairaso, throwing up a river of mud and lava, inundated the whole country. The monuments of this misfortune are still visible. The town, however, now flourishes. It is eight leagues from Quito, and four from Tarunga. The river Ambato is amazingly violent in its course, and forms one of the tributaries to the [illegible]

AMBAZAC, a town of France, in Limousin, the head of a canton in the department of Upper Vienne and arrondissement of Limoges, four leagues north-north-east of the last place. It contains 2800 inhabitants.

AMBE, in anatomy, a superficial jetting out of a bone.

AMBE, in botany. See AMBA.

AMBE, in surgery, an ancient instrument, with which they reduced dislocated bones. The ambe, or commander, is mentioned by Hippocrates, and has its partizans among the moderns, especially for replacing the arm. But it is only useful in luxations directly downwards, and even in these is dangerous. M. Le Cat has endeavoured to remedy its defects. See *Phil. Trans.* N. 469.

AM'BER, *v. n.* & *adj.* German, *amberen, anbernen,* or *anbrennen;* to burn, to kindle.

Yet neuer eye to Cupid's seruice vow'd
Beheld a face of such a louely pride,
A tinsell vaile her *amber* locks did shroud,
That stroue to couer what it could not hide.
Fairfax's Tasso, book iv.

Thy belt of straw and ivy buds,
Thy coral clasps and *amber* studs;
All these in me no means can move,
To come to thee and be my love.
Sir Walter Raleigh, in Ellis, v. ii.

——— Fresh roses bring
To strew my bed, 'till the impoverish'd spring
Confess her want; around my amorous head
Be dropping myrrh and liquid *amber* shed,
'Till Arab has no more. *Prior's Solomon,* b. ii.

Say, will no white-rob'd son of light,
Swift-darting from his heav'nly height,
Here deign to take his hallow'd stand;
Here wave his *amber* locks; unfold
His pinions, cloth'd with downy gold;
Here smiling stretch his tutelary wand?
Mason's Elfrida.

If light penetrateth any clear body that is coloured, as painted glass, *amber,* water, and the like, it gives the light the colour of its medium. *Peacham.*

No interwoven reeds a garland made,
To hide his brows within the vulgar shade;
But poplar wreaths around his temple spread,
And tears of *amber* trickled down his head. *Addison.*

The spoils of elephants the roofs inlay,
And studded *amber* darts a golden ray. *Pope.*

AMBER, or AMBEER, a town in the province of Ajmeer, district of Jyenagur, or Jeypoor Hindostan. It was formerly the capital of the district; until Mirza Rajah Jeysing, in the reign of Aurengzebe, built a new city named Jeypoor, since which time the rajahship has taken that name also. Lat. 26°. 58′. N. long. 75°. 53′. E. See JYENAGUR.

AMBER, from *ambar,* or *ambra,* Arab. amongst naturalists, has been defined a solid, hard, semipellucid, bituminous substance of a particular nature, of use in medicine, and in several of the arts, and called electrum by the Greeks. Amber has a resinous taste, and smells like oil of turpentine; it is chiefly found in the Baltic sea, along the coasts of Prussia. Some naturalists refer its origin to the vegetable, others to the mineral, and some even to the animal kingdom. Pliny describes it as a resinous juice, oozing from aged pines and firs, and discharged thence into the sea. He adds, that it was hence the ancients gave it the denomination of succinum, from succus, juice. But as good amber has been found in digging at a considerable distance from the sea as that gathered on the coast. Boerhaave ranks it with camphor, which is a concrete oil of aromatic plants, elaborated by heat into a crystalline form. Within some pieces of amber have been found leaves, and insects included; which seems to indicate, either that the amber was originally in a fluid state, or that, having been exposed to the sun, it was softened, and rendered susceptible of the leaves and insects. Amber, when rubbed, draws or attracts bodies to it; and, by friction, is brought to yield light pretty copiously in the dark. Some have distinguished amber into yellow, white, brown, and black; but the two latter are supposed to be of a different nature and denomination; the one called jet, the other ambergris. Liquid amber is a kind of native balsam or resin, like turpentine; clear, reddish, or yellowish; of a pleasant smell, almost like ambergris. It flows from an incision made in the bark of a fine large tree in New Spain, called by the natives ososol. The colour of amber is generally some shade of yellow, as wine, wax, or honey-yellow, hyacinth-red, yellowish-white; it is also found occasionally green or brown. It occurs amorphous, and in detached pieces, more or less shining, with a waxen lustre. Its fracture is conchoidal, and when broken it flies into indeterminate, not particularly sharp, fragments. It is commonly transparent, more rarely semitransparent or translucid. It is brittle, and its specific gravity varies from 1.065 to 1.1. By rubbing, it readily becomes electric. When applied to a lighted candle it takes fire, swells considerably, but does not run into drops, and exhales a white smoke of a pungent penetrating odour. From its Greek name ηλεκτρον, the important science of electricity received its name.

Amber has been of great repute in the world from the earliest times. Many years before Christ it was in esteem as a medicine; and Plato, Aristotle, Herodotus, Æschylus, and others, have commended its virtues. Theophrastus wrote expressly upon the subject, about A. A. C. 300. In the times of the Romans it became in high esteem as a gem; and in the luxurious reign of Nero, immense quantities of it were brought to Rome, and used for ornamenting works of various kinds. It was greatly esteemed among the Goths, their king Theodore being very fond of it. The phænomena of insects found in amber can only be accounted for from their being attracted by its flavour; for those insects are never found in the centre of the pieces of amber, but always near the surface. It is observed by the inhabitants of those places where amber is produced, that all animals, whether terrestrial, aerial, or aquatic, are extremely fond of it, and that pieces of it are frequently found in their excrements. The bodies of insects found buried in amber have been long admired; but of the most remarkable of these, many are to be suspected as counterfeit, the great price at which beautiful specimens of this kind sell having tempted ingenious cheats to introduce animal bodies in such an artful manner into seemingly whole

pieces of amber, that it is not easy to detect the fraud. Of those which have been originally enclosed in amber, some are plainly seen to have struggled hard for their liberty. This also may account for the common accident of finding legs, or wings of flies, without the rest of their bodies, in pieces of amber; the insects having, when entangled in the yet soft and viscid matter, escaped at the expense of leaving those limbs behind them. Drops of clear water are sometimes also preserved in amber. These have doubtless been received into it while soft, and preserved by its hardening around them. Beautiful leaves of a pinnated structure, resembling some of the ferns, or maiden-hairs, have been found in some pieces; but these are rare, and the specimens of great value. Mineral substances are also found at times lodged in masses of amber. Some of the collections of the German princes boast of specimens of native gold and silver in masses of amber; but as there are many substances of the marcasite, and other kinds that have all the glittering appearance of gold and silver, it is not to be too hastily concluded that these metals are really lodged in these beds of amber. Iron is found in various shapes immersed in amber; and as it is often seen eroded, and sometimes in the state of vitriol, it is not impossible but that copper, and the other metals, may be also sometimes immersed in it in the same state: hence the bluish and greenish colours, frequently found in the recent pieces, may be owing, like the particles of the gem colours, to those metals; but as the gems, by their dense texture, always retain their colours, this lighter and more lax bitumen usually loses what it gets of this kind by being kept. Small pebbles, grains of sand, and fragments of stones, are also found immersed in amber. Naturalists have been greatly divided as to the origin of this substance, and what class of bodies it belongs to. Some suppose amber a compound substance. Prussia, say they, and the other countries which produce amber, are moistened with a bituminous juice, which, mixing with the vitriolic salts abounding in those places, the points of those salts fix its fluidity, whence it congeals; and the result of that congelation makes what we call amber; which is more or less pure, transparent, and firm, as those parts of salt and bitumen are more or less pure, and are mixed in this or that proportion. Brydone, in his tour to Sicily and Malta, says, that the river Gearetta, formerly celebrated by the poets under the name of Simetus, throws up near its mouth great quantities of amber. He mentions also a kind of artificial amber, not uncommon there, made, as he was told, from copal, but very different from the natural. According to Hartman, amber is formed of a bitumen mixed with vitriol and other salts. But though this were allowed him in regard to the fossil amber, many dispute whether the sea-amber be so produced. It is, however, apparent, that all amber is of the same origin, and probably that which is found in the sea has been washed thither out of the cliffs; though Hartman thinks it very possible that some of it may be formed in the earth under the sea, and be washed up thence. The sea-amber is usually finer to the eye than the fossil; but the reason is, that it is divested of that coarse coat with which the other is covered while in the earth. Upon the whole, it seems generally agreed upon, that amber is a true bitumen of fossil origin.—In a late volume of the Journal de Physique, however, we find it asserted by Dr. Girtanner to be an animal product, a sort of honey or wax, formed by a species of large ant called by Linnæus formica rufa. These ants, he says, inhabit the old pine forests, where they sometimes form hills about six feet in diameter; and it is generally in these ancient forests, or in places where they have been, that fossil amber is found. This substance is not so hard as that which is taken up in the sea at Prussia, and which is well known to naturalists. It has the consistence of honey or of half-melted wax, but it is of a yellow colour like common amber; it gives the same product by chemical analysis, and it hardens like the other when it is suffered to remain some time in a solution of common salt. This accounts for the insects that are so often found enclosed in it. Among these insects ants are always the most prevailing; which tends farther, Dr. Girtanner thinks, to the confirmation of his hypothesis. Amber then, in his opinion, is nothing but a vegetable oil rendered concrete by the acid of ants, just as wax is nothing but an oil hardened by the acid of bees; a fact incontestibly proved, we are told, by Mr. Metheries, who has made artificial wax by mixing oil of olives with the nitrous acid, which wax is not to be distinguished from the natural. In the second volume of the Edinburgh Philosophical Journal, Dr. Brewster has given an account of some optical properties of amber, from which he considers it established beyond a doubt that amber is an indurated vegetable juice; and that the traces of a regular structure, indicated by its action upon polarized light, are not the effect of the ordinary laws of crystallization by which mellite has been formed, but are produced by the same causes which influence the mechanical condition of gum arabic, and other gums, which are known to be formed by the successive deposition and induration of vegetable fluids.

There are several indications which discover where amber is to be found. The surface of the earth is there covered with a soft scaly stone; and vitriol in particular always abounds there, sometimes white, sometimes reduced into a matter like melted glass, and sometimes figured like petrified wood. Amber of the finest kind has been found in England. It is frequently thrown on the shores of Yorkshire and many other places, and found even in our clay pits; the pits dug for tile-clay, between Tyburn and Kensington gravel pits, and that behind St. George's Hospital at Hyde Park Corner, have afforded fine specimens. Poland, Silesia, and Bohemia, are famous for the amber dug up there at this time. Germany affords great quantities of amber, as well dug up from the bowels of the earth, as tossed about on the shores of the sea and rivers there. Saxony, Misnia, and Sweden, and many other places in this tract of Europe, abound with it. Denmark has afforded, at different times, several quantities of

fossil amber; and the shores of the Baltic abound with it. But the countries lying on the Baltic afford it in the greatest abundance; and of these the most plentiful country is Prussia, and the next Pomerania. Prussia was, as early as the times of Theodoric the Goth, famous for amber; for this substance coming into great repute with this prince, some natives of Prussia, who were about his court, offered to go to their own country, where that substance, they said, was produced, and bring back great store of it. They accordingly did so; and from this time Prussia was the Country of Amber, instead of Italy, which had before undeservedly that title. Junker describes, after Neumann, the Prussian amber mines, which are the richest known: First, at the surface of the earth, is found a stratum of sand. Immediately under this sand is a bed of clay, filled with small flints about an inch diameter each. Under this clay lies a stratum of black earth, or turf, filled with fossil wood, half decomposed, and bituminous; this stratum is extended upon a bank of minerals, containing little metal, except iron, which are consequently pyrites. Lastly, under the bed the amber is found, scattered about in pieces, or sometimes accumulated in heaps.

Its chemical properties have been as yet but little examined. According to Hoffmann, one part of powdered amber, and two of oil of almonds, are capable of combining with each other into a clear gelatinous mass, by being moderately heated for about an hour in a Papin's digester. It is also, according to the same author, totally soluble in caustic potash. Alcohol extracts the colouring part with some resin, but is not a complete solvent. It is said also, that sulphuric acid is a menstruum for amber, but probably not without considerably changing its properties. When exposed to dry distillation in a glass retort, it melts and swells greatly, and gives out first a watery acid liquor, smelling strongly of amber, then a concrete acid salt which crystallizes in yellowish needles in the neck of the retort, and is the succinic acid; after which there passes a light coloured odorant oil, which, as the distillation goes on, becomes of a darker colour and thicker consistence; a small quantity of the acid also rises at the same time. When all the volatile parts are thus separated, there remains in the retort a spongy intensely black shining coal, the basis of the fine black varnish. The oil is afterwards rectified by distillation with water, when only the light fragrant colourless part comes over. The relative proportions of oil and acid vary according to the purity of the amber used, and the care of the operator. From sixteen ounces of the common dark brown amber of the shops, Neumann obtained eleven ounces six drachms of oil, four drachms and a half of acid, an ounce and a half of acidulous water, and about an ounce of carbonaceous residue. From thirty-two ounces of the small granular kind, or sandstein, he obtained nine drachms of acid, and twenty-four ounces of oil. The specific gravity of amber is from 1.065 to 1.100. When it melts it yields an agreeable smell, and projected on burning coals, burns with a whitish flame and a whitish yellow smoke, gives little soot, and leaves brownish ashes. Amber is said to be the basis of all varnishes by solution, but when once melted irrecoverably loses its beauty and hardness. Some have, however, pretended they had an art of melting some small pieces of amber into a mass, and constituting a large one of them: but this seems such another undertaking as the making of gold; all the trials that have yet been made by the most curious experimenters, proving that the heat which is necessary to melt amber is sufficient to destroy it. See Phil. Trans. N°. 248. Hartman indeed mentions a phenomenon which shows the possibility of many pieces of amber being combined into one, by an operation of nature, though it cannot be effected by art. A sheep, he says, was once killed in Prussia, in whose stomach was found a large piece of amber, which was composed of several other smaller pieces, the joinings of all which were visible, though as firm as the pieces themselves. This showed the animal had swallowed the amber in small pieces with its food, and that nature, by the heat and juices of its stomach, had softened those pieces without melting them, in such a manner as to make them unite firmly, though not blended together. Amber has been much used and recommended in medicine for its nervous and cordial qualities, also for promoting the menstrual discharge, expulsion of the fœtus, &c. as an antidote for spasms, and preservative against the pestilence; but many of its supposed qualities are at least questionable.

Amber, Oil of, a fine, transparent, ponderous, yellow oil, procured from amber, by increasing the heat after the spirit is obtained. See next article. It is reckoned a good anti-hysteric and anti-spasmodic.

Amber, Spirit of, an acid liquor, procured from amber by pulverizing and distilling it with a sand heat. It is chiefly used in rheumatic pains externally, and in inveterate gleets internally.

Amber-tree, in botany, frutex Africanus ambram spirans. A shrub whose beauty is in its small ever-green leaves, which grow as close as heath, and, being bruised between the fingers, emit a very fragrant odour. We shall here only observe, that this is one of several genera of plants, which afford a decisive evidence of the truth of the Linnæan or sexual system of botany; as the male and female flowers grow on different plants, which when separated cannot propagate, more than animals of different sexes separated from each other. For many years there were only a few male plants of this shrub in our gardens, which were continued by cuttings, till seeds of the female plant were imported from the Cape of Good Hope, when plants of both sexes were raised. See Anthospermum.

Amber, Volatile Salt of, is the principal chemical production of amber. It is a peculiar acid salt, which rises after the oil, and fixes in the neck of the retort. Mr. Potts concludes, from various experiments, that the acid of this salt is essentially different from the mineral acids, and approaches nearest to those of the vegetable kingdom. It is a good cephalic and detergent; and Quincy says, it attenuates, cuts, and pene-

trates, the most remote and minute recesses; and thus scours, as it were, the whole nervous system. Its chief tendency, he adds, is to secretion; and what it carries off, is by urine. It also contributes to promote a diaphoresis, and is prescribed in chronic cases, as palsies, and epilepsies. It is often adulterated with sal ammoniac, nitre, and cream of tartar, &c.

AMBER LIQUID. See BALSAM.

AMBERG, a city of Germany, formerly the capital of the upper palatinate of Bavaria, with a good castle, armory, ramparts, bastions, and deep ditches; several beautiful walks are now made in and about the latter. It is seated near the confines of Franconia, on the river Ills, or Wills, 40 miles east of Nuremberg, and 32 north of Ratisbon, is divided into the upper and lower towns, and it drives a great trade in iron and other metals found in the neighbouring mountains. Population about 9000. The houses though mostly of wood are well-built, and the streets broad and clean. The principal square in the middle of the town is regular and even beautiful. In it stands the old Gothic town-house, and the splendid parish church of St. Martin. There is here an academy and lyceum, a well-endowed hospital and several religious houses. A convent of very respectable nuns, founded by the electress Maria in 1692, maintains a public school for young girls and has a new and noble church. Among the other edifices may be noticed the electoral (now royal) castle, the arsenal, the government buildings (where the colleges of justice and finance had their sittings), and the mint, reckoned one of the finest in Germany. The manufactures are those of fire-arms, earthen-ware, tobacco, and iron; and there is a good trade in salt. The district to which the town gives name contains on an extent of 187 square miles, 13,339 inhabitants, exclusive of the town. Amberg was taken by the Austrians in 1743, and by the French in 1796.

AMBERGREASE KEY, an island in the bay of Honduras, northward of the British settlement of Balize. It is upwards of 70 miles in length, but very narrow, abounding with game, and diversified with numerous fresh water lakes. No constant settlement of any consideration has ever been made on it, but it is a place of agreeable resort, in the hot months, to the settlers on the neighbouring continent. The brasiletto, logwood, and other dyeing woods abound here. See HONDURAS.

AMBERGRIS, AMBERGREASE, or GREY AMBER, is described by natural historians as a fatty inflammable substance, variegated like marble, remarkably light, rugged and uneven in its surface, and having a fragrant odour when heated; which increases as it grows older, or when it is mixed with musk, or other aromatics, as is done in preparing perfumes or odoriferous waters. It does not effervesce with acids; it melts freely over the fire into a kind of yellow resin; and is hardly soluble in spirit of wine. It is found swimming upon the sea, or the sea-coast, or in the sand near the sea-coast; especially in the Atlantic ocean, on the sea-coast of Brazil, and that of Madagascar; on the coast of Africa, of the East Indies, China, Japan, and the Molucca Islands; but most of the ambergris which is brought to England comes from the Bahama islands, from Providence, &c. where it is found on the coast, as well as in the abdomen of whales by the whale-fishermen, in lumps of various shapes and sizes, weighing from half an ounce to 100 pounds or more. An American fisherman from Antigua found, some years ago, about fifty-two leagues south-east from the Windward Islands, a piece of ambergris in a whale, which weighed about 130 pounds, and sold for £500 sterling. Lumps are sometimes formed of near 200 pounds weight. The inhabitants of the Samballas search for ambergris in a singular manner. They hunt it by the scent; after a storm they run along the shore, and if any ambergris be thrown up they discover it by the smell. There are certain birds and other animals on those coasts that are very fond of ambergris, and attracted from a distance by its scent. There are various suppositions and theories as to the nature of this substance, whether it belongs to the vegetable, mineral (for it is found adhering to rocks washed by the sea), or to the animal kingdom. By many it has been considered as a bitumen, a sort of petroleum issuing from the rocks, and condensed by the action of the sun and the water of the sea. Others have imagined it to be made up of the excrements of birds nourished on odoriferous herbs; and by some it has been taken for a sea-mush-room, torn up from the bottom by the violence of tempests. Others, again, have ascribed its origin to the froth thrown out by sea-calves, the excrements of the crocodile, &c. Some maintain that ambergris is made from the honey-combs, which fall into the sea from the rocks, where the bees had formed their nests; several persons having seen pieces that were half ambergris and half plain honey-comb; and others have found large pieces of ambergris, in which, when broken, honey-comb and honey too were found in the middle.

Pommet and Lemery thought it a mixture of wax and honey, hardened by the action of the sun, and altered by the sea water. M. Formey, who has adopted this opinion, supports it by an experiment which consists in digesting wax and honey: he asserts, that a product may thus be formed of an agreeable smell, nearly the same with that of ambergris. Some authors have considered ambergris as an animal juice, deposited in bags situated near the root of the genital organ in the male whale; and others have imagined that it is formed in the bladder of that cetaceous animal: but the nebs of cuttle-fishes found in this concrete juice are sufficient to confute these opinions. The most probable opinion, and which has of late obtained the most general admission, is that of Dr. Schwediaur, who, after examining a great many specimens of this substance, and receiving accounts concerning it from different navigators, has concluded it to be formed in the alimentary canal of the physeter macrocephalus, or spermaceti whale. He considers ambergris as an excrement of this cetaceous animal, mixed with some parts of its food, 1. Because fishermen find it in these whales; 2. Because it is common in the lati-

udes which they inhabit; 3. Because beaks of the cuttle-fish with eight feet, sepia octopoda, on which that animal lives, are always found in it; 4. Because he distinguished the black spots mixed through ambergris to be the nebs of this polypous animal; Lastly, because the excrements of several quadrupeds, as cows, hogs, &c. exhale an odour similar to that of ambergris, when kept for any length of time.

Ambergris when taken from the whale is not so hard as it becomes afterward on exposure to the air. Its specific gravity ranges from 780 to 926. If good, it adheres like wax to the edge of a knife with which it is scraped, retains the impression of the teeth or nails, and emits a fat odoriferous liquid on being penetrated with a hot needle. It is generally brittle; but on rubbing it with the nail it becomes smooth like hard soap. Its colour is either white, black, ash-coloured, yellow, or blackish; or it is variegated, namely, grey with black specks, or grey with yellow specks. Its smell is peculiar, and not easy to be counterfeited. At 144° it melts, and at 212° is volatilized in the form of a white vapour: but on a red-hot coal it burns, and is entirely dissipated. Water has no action on it; acids, except nitric, act feebly on it; alkalies combine with it, and form a soap; æther and the volatile oils dissolve it; so do the fixed oils, and also ammonia, when assisted by heat; alcohol dissolves a portion of it, and is of great use in analyzing it. When distilled, it yields an aqueous phlegm, a brown-coloured acidulous spirit, a deeper-coloured oil, a thick balsam, and, as some say, a volatile salt, leaving a black shining residuum. The spirit, oil, balsam, and salt, are similar to those obtained from amber; but the oil is of a more grateful smell. Its chemical products resemble those of bitumens, among which it has been ranked.

According to Bouillon la Grange, who has given the latest analysis of it, 3820 parts of ambergris consist of adipocere 2016 parts, a resinous substance 1167, benzoic acid 425, and coal 212. Bucholz found no benzoic acid in it; but two different specimens examined by Dr. Ure exhibited a difference in this respect. The one yielded benzoic acid; the other, equally genuine to all appearance, afforded none.

Ambergris, in a medical view, is stomachic, cordial, and antispasmodic. In Asia, and part of Africa, it is used not only as a perfume and a medicine, but as an article of cookery; in which it is added to dishes in lieu of all-spice. A great quantity of it is bought by the Mecca pilgrims, probably to use it for the purpose of fumigation and sacrifice. With us its use is chiefly confined to perfumers, who melt it over a gentle fire, and make extracts, essences, and tinctures of it; they also use it to scent pillows, candles, balls, bottles, gloves, and hair-powder. As ambergris is very dear, it is counterfeited and mixed with different substances. It may be known to be genuine by its fragrant scent, when a hot needle or pin is thrust into it, and its melting like fat, of a uniform consistence; it swims also on water when pure, and does not stick to hot iron.

AMBERICA or St. Germain d'Amberieux, a town of France, the head of a canton in the department of the Ain, arrondissement of Bellay, 6½ leagues from Bourg. Population 2900.

AMBERT, a town of France, in the department of Puy-de-Dome, the head of an arrondissement, seated in a beautiful valley on the river Ore, 21 miles east of Issoire, and 300 from Paris. It was the chief town of the ci-devant territory of Livradois. An extensive manufacture of paper is carried on in it; as well as of camblets, ferrets, coarse laces, &c. Lon. 3°. 50′. E. lat. 45°. 25′. N. Population 5500.

AMBIANENSIS Civitas, or Ambiani, now Amiens, a city of ancient Gaul. It is called Samarobriva by Cæsar and Cicero; which, according to Valesius, signifies the bridge of the Samara or Somme. Ambiani is a later name, taken from that of the people, after the usual manner of the lower age. See Amiens.

AMBIDEXTER, *n.* } Lat. *ambo*, *dexter*;
Ambidextrous. } αμφιδεξιος; both hands right. One who uses the left hand equally with the right. One who will act with readiness on both hands, or with either party.

Some are *ambidexterous* or right-handed on both sides; which happeneth only unto strong and athletical bodies, whose heat and spirits are able to afford an ability unto both. *Brown's Vulgar Errours.*

Others not considering *ambidextrous* and left-handed men do totally submit unto the efficacy of the liver. *Brown*

Æsop condemns the double practices of trimmers, and all false, shuffling, and *ambidextrous* dealings. *L'Estrange.*

Ambidexter. Various conjectures, or rather chimeras, have been offered with respect to the causes of ambidexterity. Some have thought, that were it not for education and habit, all mankind would be ambidexters; and, in fact, we frequently find nurses obliged to take much pains before they can bring children to forego the use of their left hands. How far it may be an advantage to be deprived of half our natural dexterity, may be doubted. It is certain, there are many occasions in life, when it would be better to have the equal use of both hands. Surgeons and oculists are of necessity obliged to be ambidexters; bleeding, &c. in the left arm, or left ancle, and operations, on the left eye, cannot be well performed but with the left hand; and instances occur in history, where the left hand has been exercised preferably to the right. By the laws of the ancient Scythians, people were enjoined to exercise both hands alike; and Plato enjoins ambidexterity to be observed and encouraged in his republic. In the German armies formerly, the more distinguished soldiers, their pikemen, and halberdiers, as well as those who formed the first line of the battalions, were trained to be able to fight equally with the left hand or the right. We find it mentioned in scripture, that on an extraordinary occasion, the single tribe of Gad produced 700 brave men, who fought with the left hand as well as the right, Judges xx. 16; David had also slingers and archers of this description, 1 Chron. xii. 2; and the Roman historians inform us, that they had gladiators who were trained to ambidexterous combats. An ingenious French writer is

surprised, that among all the modern refinements in the art of war, none have thought of restoring the ancient practice of training ambidexters, who undoubtedly might be of service in cases of stratagem.

AMBIEGNA Bos, in antiquity, an ox; so named by the augurs because it had the other victims around it. *Varro de Ling. Lat.* l. 6, c. 3.

AM'BIENT, *adj.* } Lat. *ambio; ambiens:*
AM'BIT. } *am*, corruption of the Gr. *αμφι*, around, and *ire* to go. Going round, surrounding or encircling.

This which yields or fills
All space, the *ambient* air wide interfus'd.
Milton.

The thickness of a plate requisite to produce any colour, depends only on the density of the plate, and not on that of the *ambient* medium. *Newton's Optics.*

Around him dance the rosy hours,
And damasking the ground with flow'rs,
With *ambient* sweets perfume the morn.
Fenton to Lord Gower.

Illustrious virtues, who by turns have rose
With happy laws her empire to sustain,
And with full pow'r assert her *ambient* main.
Prior.

The *ambient* æther is too liquid and empty to impel horizontally with that prodigious celerity.
Bentley.

Around the circle of their *ambient* skies,
New moons may grow or wane, may set or rise.
Prior's Solomon.

The tusk of a wild boar winds about almost into a perfect ring or hoop; only it is a little writhen. In measuring by the *ambit*, it is long or round about a foot and two inches; its basis an inch over.
Grew's Museum.

AMBIGENÆ Oves, in the heathen sacrifices, an appellation given to such ewes as, having brought forth twins, were sacrificed together with their two lambs, one on each side. We find them mentioned among other sacrifices of Juno.

AMBIGENAL Hyperbola, a name given by Sir Isaac Newton to one of the triple hyperbolas of the second order, having one of its infinite legs falling within an angle formed by the asymptotes, and the other without.

AMBIGU'ITY, *n.* } Lat. *ambigo*: from *am*
AMBIG'UOUS, } for *αμφι* around, and *ago*
AMBIG'UOUSLY. } to drive. Ambiguity denotes confusion and doubt; going this way and that way for want of knowing the right direction; at a loss.

We can clear these *ambiguities*,
And know their spring, their head, their true descent.
Shakspeare.

The words are of single signification, without any *ambiguity*; and therefore I shall not trouble you, by straining for an interpretation, where there is no difficulty; or distinction, where there is no difference.
South.

But what have been thy answers, what but dark,
Ambiguous, and with doubtful sense deluding?
Milton.

Th' *ambiguous* god, who rul'd her lab'ring breast,
In these mysterious words his mind exprest;
Some truths reveal'd in terms, involv'd the rest.
Dryden.

Some expressions in the covenant were ambiguous, and were left so, because the persons who framed them were not all of one mind. *Clarendon.*

Silence at length the gay Antinous broke,
Constrain'd a smile, and thus *ambiguous* spoke.
Pope.

Simplicity apace,
Tempers his rage, he owns her charms divine,
And clears th' *ambiguous* phrase, and lops the wieldly line. *Beattie's Minstrel.*

AMBIT. See Ambient.

Ambit, in antiquity, was used to denote a space of ground to be left vacant between one building and another. By the laws of the twelve tables, houses were not to be built contiguous, but an ambit or space of two feet and a half was to be left about each for fear of fire. The ambitus of a tomb or monument denoted a certain number of feet, in breadth and length, around the same, within which the sanctity assigned to it was limited. It was usual to inscribe the ambit on it, that it might be known how far the sanctity extended; as 'in fronte pedes tot, in agrum pedes tot.'

Ambit, in geometry, is the same with what is otherwise called the perimeter of a figure. See Perimeter.

AMBIT'ION, *n.* } *Ambio*, to go round
AMBIT'IOUS, } *am* and *eo*. A going about
AMBIT'IOUSLY, } to solicit places of honour.
AMBIT'IOUSNESS. } A strong desire of honour and glory.

How divine a thing is knowledge, whereof even innocency itself is *ambitious!* *Hall's Contemplations.*

For wild *ambition* like a ravenous wolf,
Spur'd on by will, and seconded by power,
Must make an universal prey of all,
And last devour itself.
Dryden's Troilus and Cressida.

The neighb'ring monarchs, by thy beauty led,
Contend in crowds, *ambitious* of thy bed:
The world is at thy choice, except but one,
Except but him thou canst not choose alone.
Dryden.

The grandeur and beauty of the soul charm us universally, who have all of us implanted in our bosoms, even in the midst of misery, passions of high descent, immense *ambition*, and romantic hopes.
Gibbon.

Contest begets aversion: a little success inspires more *ambitious* hopes. *Cowper's Letters.*

The quick'ning power would be, and so would not
The sense would not be only, but be well:
But wit's *ambition* longeth to the best,
For it desires in endless bliss to dwell. *Davies.*

No nation was ever governed by a conqueror that did not suffer by his *ambition*.
Hawkesworth's Telemachus.

No, freedom, no, I will not tell
How Rome before thy face,
With heaviest sound, a giant-statue fell,
Push'd by a wild and artless race,
From off its wide *ambitious* base.
Collins' Ode to Liberty.

Ambition is generally used in a bad sense for an immoderate or illegal pursuit of power or honour. In the literal, and perhaps original meaning, however, of the word, it signified the same with the ambitus of the Romans. See Ambitus. Ambition, in the former and more usual sense, is a passion that can never be satis-

fied. It swells gradually with success, and every acquisition serves but as a spur to farther pursuits. Yet Dr. Young has justly styled ambition, or the love of fame, the universal passion. In this enlarged view, we would define ambition to be—a desire of excelling, or at least of being thought to excel, our neighbours in any thing This definition, we apprehend, will apply to ambition in every point of view, whether its objects are good or bad—laudable or the contrary. It was represented, in ancient hieroglyphics, as a young man clad in green, and crowned with ivy, about to climb a steep ascent, at the top of which appeared crowns and sceptres. He had a lion by his side to denote that fortitude which should be the companion of ambition.

AMBITIOSI. See Ambitus.

AMBITUS. *αμφι, εω*: *ambitus*, Lat. Derived from the custom of candidates surrounding those whose suffrages they sought. Seeking the favour or interest exemplified by the English practice of canvassing a town or county previously to an election.

Ambitus, in antiquity, the setting up for some magistracy or office, and formerly going round the city to solicit the interests and votes of the people. Ambitus differed from ambition, as the body does from the soul; the former being the act, or effect; the latter the exciting cause existing in the mind. It was of two kinds; one lawful, the other infamous. The first, called ambitus popularis, was when a person offered his service to the republic frankly, leaving it to every body to judge of his pretensions as they found reasonable. The means and instruments here made use of were various: 1. Amici, or friends, under different relations, including cognati, affines, necessarii, familiares, vicini, tribules, clientes, municipes, sedales, collegæ. 2. Nomenclatura, or the calling and saluting every person by his name; to which purpose the candidates were attended with an officer, under the denomination of interpres, or nomenclator. 3. Blanditia; or obliging persons, by serving them, or their friends, patrons, or the like, with their vote and interest on other occasions. 4. Prensatio; the shaking every person by the hand, offering him his service, friendship, &c. The second kind was that wherein force, cajoling, money, or other extraordinary influence, was made use of. This was held infamous, and severely punished, as a source of corruption and other mischiefs. Ambitus was practised not only at Rome and the forum, but in the meetings and assemblies of other towns in Italy, where numbers of citizens were usually found on account of trade and business. The practice ceased in the city from the time of the emperor, as posts were no longer to be had by courting the people, but by favour from the prince. Ambitus was also shamefully practised by persons who had causes depending, going about among the judges to implore their favour and mercy. They who practised this were called ambitiosi. Hence, we also meet with ambitiosa decreta, and ambitiosa jussa, used for such sentences and decrees as were thus procured from the judges, contrary to reason and equity, either gratuitously or for money.

Ambitus, in music, signifies the particular extent of each tone, or modification of grave and sharp.

AMBIX, in ancient writers, denotes a vessel of glass or shell. Hence the origin of the word alembic, which we sometimes also find denoted by the word ambix.

AMBLAW, Ambloo, or Belaw, one of the Molucca islands, about fifteen miles in circumference. It is but thinly peopled, and dependent on Amboyna. The Papuas plundered it about the year 1765, and carried off all the inhabitants. Fine shells are found on the shore. Distant two leagues south of Bouro. Long. 127°. 0′. east. lat. 3°. 55′. south.

AM'BLE, *v.* } Lat. *ambulare*, to walk. Ap-
Am'bling, } plied to a horse which goes a
Am'bler. } gentle pace, distinct from trotting.

This markis hath hire spoused with a ring
Brought for the same cause, and than hire sette
Upon an hors snow white, and well *ambling*.
Chaucer. The Clerke's Tale.

Who *ambles* time withal?—A rich man that hath not the gout; for he lives merrily, because he feels no pain; knowing no burden of heavy tedious penury: him time *ambles* withal.
Shakspeare's As you like it.

It is good, on some occasions, to enjoy as much of the present, as will not endanger our futurity; and to provide ourselves of the virtuoso's saddle, which will be sure to *amble*, when the world is upon the hardest trot. *Dryden.*

A laughing, toying, wheedling, whimpering she,
Shall make him *amble* on a gossip's message,
And take the distaff with a hand as patient
As e'er did Hercules. *Rowe's Jane Shore.*

Frequent in park with lady at his side,
Ambling and prattling scandal as he goes;
But rare at home, and never at his books,
Or with his pen, save when he scrawls a card.
Cowper's Task, book ii.

AMBLESIDE, a town of England, in the county of Westmoreland, situated on a declivity near the banks of Windermere lake. Here is a considerable manufactory of woollen cloth, which is sent to Kendal, thirteen miles distant. The place is supposed to have been the Dictus of the Romans. Distance from London 274 miles north.

AMBLETEUSE, a maritime town of France, in Picardy; formerly in the Boulonnois, now in the department of the Pas de Calais, arrondissement of Boulogne. It has a fort and a harbour, which was ruined by the English in the 17th century, and is remarkable as being the place where James II. landed, after his abdication in 1668, four miles south of Boulogne.

AMBLOSIS, in midwifery, Abortion, which see.

AMBLOTICS, *αμβλωτικα*, Gr. medicines that cause abortion.

AMBLYGON, from *αμβλυς*, obtuse, and *γονια*, angle: in geometry, denotes an obtuse-angled triangle, or a triangle one of whose angles consists of more than ninety degrees.

AMBLYGONITE, in mineralogy, a pale-green mineral, marked superficially with reddish and dark yellow spots. It is found massive, and crystallized, in oblique four-sided prisms; is of a vitreous lustre, fracturing uneven, and the fragments rhomboidal.

AMBLYOGMOS and AMBLYOPIUS, in medicine, *αμβλυωγμος*, a word frequently used by Hippocrates for dimness of sight.

AM'BO. *Αμβων*, whatever rises up or projects: an elevated place in churches, distinct from the pulpit and reading desk, formerly used in churches, some of which are still standing, for the purpose of chanting and preaching to the people.

Between the Τποπιπλοντες and the faithful, stood the *ambo*, or reading desk.

Sir G. Wheler's Acc. of the Chur. of Prim. Chris.

The principal use of this *ambo* was, to read the scriptures to the people, especially the epistles and gospels. They read the gospel there yet, and not at the altar. *Id.*

AMBO, or AMBON, from *αναβαινειν*, to mount, or ambo, the admission to it being from both sides: a kind of pulpit, or desk, in the ancient churches where the priests and deacons stood, to read or sing part of the service, and preach to the people; called also analogium. The ambo was ascended by steps; which occasioned that part of the office performed there to be called the Gradual. See GRADUAL. At the top of the ambo the gospel was read, and the epistle a step lower; they likewise published from this place the acts of martyrs, the commemoration of departed saints, &c. Here, too, converts made their confession of faith; and bishops their defence, when accused: treaties also were sometimes concluded, and the coronations of emperors and kings performed, in this place. A late writer shows, that the usual place from whence the ancients preached was the steps of the altar; and when St. Chrysostom and St. Augustine preached from the ambo, it was considered an extraordinary circumstance.

AMBOISE (George D'), a cardinal, was born of a noble French family in 1460. He became successively bishop of Montauban, archbishop of Narbonne, and lastly of Rouen. Louis XII. made him prime minister, and he soon acquired great and just popularity by taking off the taxes which had usually been levied on the people at the accession of every new monarch. The king, by his advice, undertook the conquest of the Milanese, and succeeded. Soon after this, he was appointed the pope's legate in France, with the dignity of cardinal, and in that capacity effected a considerable reform among the religious orders. He died in 1510; and on his death-bed often said to the friar who attended him, 'Brother John, why have not I been my whole life brother John?' D'Amboise was certainly one of the best statesmen France ever possessed. His nephew, George D'Amboise, succeeded him in the archbishopric; and in 1546 was created a cardinal. He died in 1550.

AMBOISE, a town of France, in the department of Indre and Loire, arrondissement of Tours, seated at the confluence of the rivers Loire and Massee; 15 miles east of Tours, and 141 south-west of Paris. The town is mean and ill built, consisting only of two streets, but with the suburbs containing about 5600 inhabitants. The principal places of note are the fine promenade, the two churches, and the castle. The manufactures are woollen and silk stuffs, buttons, swords, and other hardware. The silk stuff called amboisienne is peculiar to this town; and the steel from the establishment of Sanche approaches in hardness and durability very near to that of Sheffield. The castle is on a craggy rock, extremely difficult of access, and the sides of which are almost perpendicular. At its foot flows the Loire, which is divided into two streams by a small island. To this fortress the duke of Guise, when an insurrection among the Hugonots was expected, removed Francis II. for his security. Only two detached parts of the ancient castle now remain, one of which was constructed by Charles VIII. and the other by Francis I. The former of those princes was born at Amboise, and died here in 1498. Lon. 0°. 54′ E. lat. 47°. 25′. N.

AMBON, in anatomy, *αμβων*, the edge of the sockets in which bones are inserted.

AMBONG, a large and deep harbour on the north-west coast of Borneo, with an island in the centre. Lat. 6°. 14′. N. long. 116°. 25′. E.

AMBOON, or AMBOOR, a district of Hindostan, formerly included in the territories of the Nabob of Arcot, but ceded, with the rest of his possessions, to Great Britain in the year 1801. It is now included in the Arcot district of the Carnatic. In Amboon the thermometer in the hot season rises in the shade to 100 degrees, and in the sun to 120 degrees. It is surrounded with hills, whose skirts are covered with the date and palmyra trees, and which embosom well watered plantations of the cocoa nut, tobacco and mango. The river Palar enters them about three miles east of the town of Amboon, and is conducted by various works along the margin of the heights.

AMBOON, the capital of the above district, is situated on the river Palar, thirty miles west of Arcot in N. lat. 12°. 51′, and E. lon. 78°. 50′. It stands at the foot of a high hill, which was once defended by a considerable fort now in ruins; and is a compact and well-built town. The lower part of the fortress is used as a provincial prison. It stands completely isolated from the place, on a mountain which has a broad plain on the summit, containing two invaluable tanks of water. The atmosphere on this summit is delightfully cool and refreshing. It has been principally an object of British policy to dismantle this fort; few places in India have more natural facilities for defence, or have been more prized in former times as rallying points in war. The principal export of Amboon is a superior castor oil.

AMBOTON, one of the Philippines near the south coast of Mindanao. Lon. 121°. 8′. E. lat. 12°. 15′. N.

AMBOULE, a province and town of Madagascar, somewhat to the northward of south lat. 23°., is said to be a fertile and agreeable country, watered by the river Manampani, whose mouth lies in south lat. 23°. 30′. This country produces plants and fruits in great plenty, and iron mines are also found here; the cattle also are extremely fat, and their flesh excellent. Near the town is a fountain of hot water, within twenty feet of a river whose sand is almost burning. The people are employed in manufacturing the iron

and steel, which they have from their own mines, into different instruments, which they do with tolerable skill. Their governor is honoured with the title of rabertau, or great lord.

AMBOY, a city of New Jersey, Middlesex county, situated at the head of Rariton bay, and standing on a neck of land between Rariton river and Arthur Kull sound. It lies open to Sandy-Hook, and has one of the best harbours on the continent, which may be entered in almost any weather. It is a port of entry and post-town, but not in a flourishing state. It is thirty-five miles south-west of New York, and seventy-four north-east of Philadelphia. Long. 74°. 50′. W. lat. 40°. 35′. N.

AMBOYNA, the largest and most valuable of the Molucca Islands in the Indian Ocean, and the seat of their government. It lies in E. long. 128°. 15′., and S. lat. 3°. 42′., and is between fifty and sixty English miles in length from north to south. On the western side it is divided by a bay into two peninsulas, one of which is called Hitou, being twelve leagues long and two and a half broad; and the other Leytimor, about five leagues in length and one and a half in breadth. There is an inferior harbour on the eastern side, where the Portuguese originally erected their principal fort. It has no river of importance, but its general aspect is beautiful, and the climate is generally salubrious. The rainy season sets in with the southerly monsoon, accompanied with thunder, lightnings, and earthquakes. The soil is a darkish red clay, mixed with sand. Some of the hills are incrusted with a copious efflorescence of sulphur, and one on the Hitou peninsula is called Wawani, or Brimstone-hill, from the great abundance of that article imbedded there. The deer and wild boar are the principal animals of the island; but there are a few sheep and black cattle, buffaloes, horses, and goats. The cassowary parades the mountains; but the chief boast of Amboyna is its rich productions of the vegetable kingdom. An astonishing variety of beautiful wood for inlaying, and other ornamental purposes, forms part of the commerce of the island; 400 different species are reckoned by Rumphius. The cajaput tree affords a valuable oil, and the sassafras an aromatic bark. The clove tree is, however, its staple production. In favourable situations this tree, according to some writers, grows frequently to the height of fifty feet; its branches spread wide from the stem; the cloves grow in clusters, but on separate stalks, and the leaves are long and tapering. It will bear from about nine or ten years, to one hundred years of age. The average quantity of cloves annually produced is from seven to twelve pounds per tree, but some have been known to afford thirty pounds; and the island, taken together, about 650,000 pounds. They are gathered from October to February. The Dutch, during the long period of their former possession of this island, attempted the entire monopoly of this spice; the number of trees was regularly registered by the governor, all the plantations visited, and particular districts appropriated to their cultivation. They bought from the neighbouring islands all the cloves that other nations were likely to import, and in some cases compelled their chieftains to destroy the rest, and the trees that bore them. The Dutch East India company's warehouse was the depository of the crop; and they are said to have prohibited the culture of many edible roots on the island, to deprive settlers and conquerors of the means of subsistence. When the cloves were gathered from the tree, they were dried before the fire upon hurdles, and sprinkled with water; by which means their natural colour, which is red, was changed into deep purple or black. The design of this process was said to be, to prevent the worm from getting into the fruit; but another motive was suspected,—that of adding to their weight.

Thirty years back, the Dutch allowed some nutmegs to be grown here, because Banda did not furnish a sufficient supply for the demand. Sugar and coffee are plentiful at Amboyna; the sago tree is a principal article of subsistence; and the few fruits cultivated are delicious; among the latter may be reckoned the mangusteen of Hindostan. They import their cattle and grain from the island of Java, and a variety of curious woods from Ceram.

Amboyna is inhabited by four distinct races of people; the Aborigines, the Amboynese properly so called, Chinese, and Europeans. The first, who are called Alforese or Horaforas, and seem to be of the same description as the Idaan or Maroot of other eastern islands, are now much reduced. They are represented as wild and savage, of a lighter complexion, and greater muscular power than the Amboynese; and their women handsome. The natives, like the other Malays, are rude and savage in their manners, and, when intoxicated with opium, are equal to the perpetration of any crime. Mixed races from intermarriages are nearly as fair as Europeans. Those who are the offspring of European fathers and native mothers are called mixtices or mestees; those of a mixtice and European marriage, poestices; and those of a European and poestice, castices. These children are all legitimated, and included with the European society of the island. The Chinese are industrious, and live much together. Some of the aboriginal race in the woods are said to be extremely barbarous, and to offer human sacrifices. Their dress consists of a loose shirt or frock of cotton cloth. The men wear large whiskers and mustachios; the women bind their hair in knots. Wives are bought of their fathers; and should they bear no children the contract is dissolved. When the English took this island in 1796 it contained about 45,252 inhabitants, of whom no less than 17,813 were protestants; and the rest Mahommedans and Chinese. The houses of the natives are made of bamboo canes and sago trees; they sleep upon mats; and use, as weapons, bows, darts, scimitars, targets, &c. Their chiefs are called rajahs. The Amboynese are said to be indolent, effeminate, and pusillanimous; and their women particularly licentious.

The Dutch governor of Amboyna had ten adjacent islands under his jursidiction: Ceram, Ceram-Lavut, Bouro, Amblau, Manipa, Kelang, Bonva, Orna, Honimoa, and Noussa-Laout; the three last isles are called Uliassers. The growing

of cloves is limited to the Uliassers and Amboyna.

Diegro D'Abrew and Ferdinand Magellan, two Portuguese adventurers, first discovered Amboyna in 1515; in 1564 it was taken possession of by Portugal, and afterwards conquered by the Dutch republic in 1605. The English had erected several factories in the country, which were protected by the Dutch fort; but disputes arising between the settlers, the treaty of 1619 between Great Britain and the United Provinces stipulated that the English colonists should reside unmolested at Amboyna, and possess one-third part of its cloves. In 1622 fresh differences arose, which were referred to the Dutch council at Jacatra, in the island of Java; and finally to the government of the two countries in Europe for decision. The Dutch colonists however contrived, by alleging a fictitious plot against the English, to make themselves masters of the whole island. This event is known in history by the name of the 'Massacre of Amboyna.' A plot, it was said by the Dutch authorities, was confessed by two soldiers in their service, and confirmed by an English prisoner, but these had been all first sentenced to the rack. Upon this evidence the English were accused of being confederates in a conspiracy against the Dutch possessions: they were immediately seized, loaded with irons, and thrown into prison. The most savage modes of torture were then resorted to by the Dutch governor, for the purpose of extorting a further confession from the unhappy sufferers: some were put to the rack, others half-drowned and miserably scorched with fire. Those who escaped this inhuman treatment were all executed, although they persisted in their innocence to the latest breath. The number of persons who thus perished were ten Englishmen, eleven Japanese, and one Portuguese. The day after these wretched men were put to death, the governor ordered public festivals and solemn thanksgivings for their deliverance from this pretended conspiracy. It is absurd to suppose that such a plot as pretended by the Dutch ever existed; for the number of the English did not exceed twenty persons upon the island, whereas the Dutch garrison in the fort amounted to three hundred men; and the English had not a single ship in the port, whereas eight Dutch vessels were lying off the town of Amboyna. In consequence of this massacre the English factory was withdrawn from the island, and the Dutch retained possession of the effects of the English merchants to the amount of £400,000. The English factories in the adjacent islands were also seized, and the traders forcibly dispossessed. James I. and Charles I. of England were either unwilling or unable to avenge the national honour upon the cruelty and cowardice of the Dutch; but Cromwell compelled the United Provinces, in his celebrated treaty with that power, to pay the sum of £300,000, as a small recompense for their atrocious conduct. From this time down to the year 1796, Amboyna remained quietly in the hands of its Dutch masters; but in that year the English admiral Rainier took it without opposition. It was restored to the Batavian republic at the peace of Amiens; and again taken by the English in the year 1810. At the general peace of Paris, in the year 1814, the Dutch were again reinstated in the possession of it, under whose government the island is far from being in a flourishing condition.

Amboyna, the capital of the island, is situated on the peninsula of Leytimor, and commands a capacious harbour. It is a regularly built town, though most of the houses are of wood, and but one story high. Matted cane is neatly contrived to form a substitute for glass in their windows, and the roofs are made of the branches and entwined leaves of palm-trees. Abundance of water runs through this town in rivulets. There is an hospital; a good town-house; and two churches, in one of which divine service is performed in the Malay language. An earthquake completely destroyed one of the churches in 1755, and rent the other throughout; but they were immediately rebuilt. Between the fortifications of the harbour and the town is a fine esplanade, terminated by a handsome range of houses, shaded by a double row of nutmeg-trees, where many of the principal inhabitants reside.

AMBRACIA, one of the most considerable cities of ancient Epirus, situated on the river Aracthus, at a small distance from the sea, built, according to Polybius, by Ambrax son of Thesprotus, when the territory of his father had been ravaged by the Dryopes; and thus the origin of the Ambracians is traced to an era about fifty years before the last war of Troy. At first it was a free city; but was afterwards reduced by the Æacidæ, kings of Epirus, who chose it for the place of their residence. In process of time the Ætolians made themselves masters of it, and held it till the year before Christ 189, when it fell into the hands of the Romans. At this time Ambracia was a place of great strength. It was defended on one side by the river Aracthus, on the other by steep and craggy hills; and surrounded with a high and thick wall, above three miles in circumference. The Roman consul Fulvius began the siege by throwing up lines of circumvallation and contravallation; and building a wooden tower, in form of a castle, over against the citadel. The Ætolians, however, before the lines were quite finished, found means to throw about 1000 men into the place, and sustained attack in five different places at once. While Fulvius was carrying on the siege, Nicander, the Ætolian praetor brought 500 men into the city, under the command of Nicodamus, with whom Nicander agreed to attack the Roman camp in the night time; but Nicodamus did not appear. However, the garrison marched out, armed with fire-brands and torches; and though two parties were driven back, the third made a great slaughter of the Romans, and retired in good order into the city. The consul beginning to undermine the wall, they countermined him, and the two parties met, when a battle ensued; after which the Ætolians, in order to drive the enemy out, invented a machine, which is thus described: it was a hollow vessel with an iron bottom, bored through in many places, and armed with spikes at proper distances, to prevent the enemy from approaching; having filled it with feathers, they set it on

fire, and driving the smoke with bellows on the besiegers, and thus obliged them to leave the mine, half suffocated. At last Fulvius obtained the place by employing Amynander, king of the Athamanes, to persuade the inhabitants to surrender. From this time the city of Ambracia made no figure in history. It is scarce known where it stood; but Arba, in Upper Albania, seems best to agree with what is said of its ancient situation.

Ambraria, in botany, the anthospermum Æthiopicum of Linnæus.

AMBRESBURY. See Amesbury.

AMBRIERE, or Ambrieres, a town of France, the head of a canton in the department and arrondissement of Mayenne. It had formerly the title of barony, and contains 240 houses, 2230 inhabitants; three leagues north of Mayenne. Long. 0°. 33′. W. lat. 48°. 24′. N.

AMBRIZ, a river of Congo, forming a bay, and affording anchorage to small vessels, which enter from the south

AMBRONES, a people of ancient Gaul, who lived near the foot of the Alps, between Switzerland and Provence. They invaded the Roman territories, in conjunction with the Cimbri and Teutones; but were defeated with great slaughter by Marius about A.A.C. 102. Their women, who had staid during the engagement in a kind of fortification made with carts, on seeing their husbands flying, and the Romans in pursuit, armed themselves with axes, and fell with indiscriminating fury both on the pursuers and the pursued. Their first rage being spent, they offered to surrender, upon condition that their honour should be preserved; but this equitable request being denied, they first killed their children, and then themselves.

AMBROSE (Isaac), a presbyterian minister, ejected from Garstang in Lancashire in 1662. He wrote the Prima, Media, et Ultima; or the First, Middle, and Last Things; War with the Devils; Looking unto Jesus, &c. the last of which is to this day a popular tract.

Ambrose (St.), bishop of Milan, one of the most eminent fathers of the fourth century, born in Gaul A.D. 333, according to Dr. Cave, or according to Dupin in 340. His father was at this time præfectus prætorio in Gaul; and resided at Arles, the capital of Gallia Narbonensis. A swarm of bees is said to have settled upon the mouth of the saint as he lay in the cradle; and was regarded as a presage of his eloquence. He soon acquired a considerable share of secular learning; and pleaded before Probus with so much success, that he was appointed his assessor, and soon after governor of the provinces of Liguria and Æmilia. He settled at Milan; where, in 374, upon the death of Auxentius bishop of that city, there being a great contest between the Catholics and Arians concerning the choice of a new bishop, Ambrose thought it his duty, as governor, to go to the church to compose the tumult. At the close of his address to the people, a child exclaimed, 'Ambrose is bishop!' The voice of the infant was regarded by the multitude as a divine intimation to elect the orator to that office, which was accordingly done. Ambrose expressed considerable reluctance to accept the office, and adopted expedients to induce a change, which seem singular enough; such as acting with unwonted harshness and severity in his magisterial capacity, and receiving into his house women of bad character. He was, however, ordained bishop towards the latter end of 374, or beginning of 375. About the year 377, the barbarous nations making an incursion into the Roman empire, he fled to Illyricum, and afterwards to Rome. In 384 he was sent to the tyrant Maximus, who had usurped the empire, and prevailed upon him not to pass over into Italy. The heathens being encouraged by these intestine commotions in the empire, attempted to restore paganism, and employed Q. Aurelius Symmachus, prefect of Rome, a man of great eloquence, to plead their cause. This gave rise to the famous contest between St. Ambrose and him, about repairing the altar of victory. But Symmachus, having lost his cause, was expelled the city, and commanded not to approach within 100 miles of it. The petition which Symmachus presented to the emperor Valentinian II. is still extant. St. Ambrose wrote a confutation of it. In his office he met with much opposition from the Arians. Justina, the empress and mother of Valentinian, resolving to restore Arianism at Milan, demanded of him one of the churches, called the Portian church, but he refused it; and the people surrounding the palace in a body, she was obliged to desire him to pacify them. After this, Ambrose was a second time sent to Maximus on the behalf of Valentinian, who soon after retired to Thessalonica in Illyricum to desire Theodosius' assistance. Theodosius having defeated Maximus, and restored Valentinian, committed great cruelties at Thessalonica, and Ambrose exhorted him to repentance in a pastoral letter. Soon after this, the emperor coming to Milan, went to receive the sacrament at the great church; but Ambrose meeting him at the door, denied him entrance, and represented his guilt in the most forcible and pathetic terms. The emperor was struck with his words, and with great uneasiness of mind returned to his palace; but about a year after, Ambrose, being convinced of the sincerity of his repentance, admitted him into the church. In 392, Valentinian being assassinated, Ambrose was obliged to leave Milan; but he returned the year following, and died there the 4th of April, 397. The most considerable of his works is the De Officiis; but his writings are intermixed with many strange and peculiar opinions. Paulinus wrote his life, and dedicated it to St. Augustine: this life is generally prefixed to St. Ambrose's works; the best edition of which is that published by the Benedictines, two volumes folio, Paris, 1682 and 1690.

Amrrose (St.), an island in the South Pacific, on the coast of Chili, five leagues due west from St. Felix island. It appears at a distance like two small islands; but they are joined by a reef. It lies in latitude 26°. 17′. 40″. S. and long 79°. 8′. 35″. W.

AMBRO'SIA, *n.* Ambrosiack, Ambro'sial, Ambro'sian } *Αμβροσια*, from *α* not, and *βροτος*, mortal. The food of the gods; so called from its supposed power of be-

stowing everlasting life: applied to whatever is exquisitely grateful to the senses of taste and smell.

Nectar et *ambrosium*, latices, epulasque deorum.
Ovid.

Thus while God spake, *ambrosial* fragrance fill'd
All heav'n, and in the blessed spirits elect
Sense of new joy ineffable diffus'd. *Milton.*

Through breaking ranks his furious course he bends,
And at the goddess his broad lance extends;
Through her bright veil the daring weapon drove
Th' *ambrosial* veil which all the graces wove:
Her snowy hand the razing steel profan'd,
And the transparent skin with crimson stain'd.
Pope's Iliad, v. 415.

AMBROSIA, in ancient mythology, from *a* privative, and *βροτος*, mortal, denotes the food of the gods. It had the appellation ambrosia, as being supposed to render those immortal who fed on it; and it is said, that Berenice, the wife of Ptolemy Soter, was saved from death by eating it. Titonus was made immortal by Aurora, by eating ambrosia; and in like manner, Tantalus and Pelops, who, on account of their impiety, had been driven from heaven, and compelled to die upon earth, had their lives preserved. It had the power of healing wounds, and therefore Apollo, in Homer's Iliad, saves Sarpedon's body from putrefaction by rubbing it with ambrosia; and thus also Venus heals the wounds of her son, in Virgil's Æneid. Lucian, ridiculing the follies of the heathen worship, says, that ambrosia and nectar, of which one is the meat, and the other the drink of the gods, were not so excellent as the poet describes them, since these deities would leave them for the blood and fat of the sacrifices.

AMBROSIA, in antiquity, a feast celebrated by the Aconians, in honour of Bacchus. They were also denominated Choa and Lenæa, being held in the month called Lenæon.

AMBROSIA, in botany, a genus of the pentandria order, belonging to the monœcia class of plants; and, in the natural method, ranking under the 49th order, compositæ nucamentaceæ. Characters: male flowers compound; CAL. single-leaved perianth, the length of the florets: COR. uniform, tubular, flat, and hemispherical; monopetalous, funnel-shaped, and quinquefid: STAM. five very small filaments: ANTH. erect, parallel, and pointed: PIST. has a filiform stylus, the length of the stamina: STIGMA orbicular and membraneous: the receptaculum naked.—Female flowers below the male ones, on the same plant, doubled: CAL. single-leaved perianthium, entire (with the belly quinquedentated,) one flowered, and persistent: COR. none: PIST. an ovate germen in the bottom of the calyx: STYL. filiform, the length of the calyx; the stigmata two, long, bristly: PERICARP. an ovate unilocular nut: seed single and roundish. Of this genus, five species are enumerated: 1. A. trifida, trifid-leaved ambrosia. 2. A. elatior tall ambrosia. 3. A. artemisifolia, mugwort leaved. ambrosia. 4. A. maritima, sea ambrosia. 5. A. arborescens, tree ambrosia. They are perennial, and may be propagated, either by cuttings or by seeds.

AMBROSIA, in medicine, a splendid title given by some physicians to certain alexipharmic compositions. Nic. Abn. Frambesia has written a treatise on the preparation of ambrosiæ.

AMBROSIA, in natural history, is applied, by ancient authors, to the food of the bees.

AMBROSIACA, in ornithology, a species of hirundo, or swallow, inhabiting Senegal, and smelling particularly strong of ambergris; of a greyish brown colour, bill blackish, legs brown. In length it is five inches and an half, bill half an inch, the plumage darkest on the head and quills, and the tail very forked.

AMBROSIAN OFFICE, or RITE, in church history, a particular formula of worship in the church of Milan, which takes its name from St. Ambrose, who instituted that office in the fourth century. Each church originally had its particular office; and when the Pope, in aftertimes, took upon him to impose the Roman office upon all the western churches, that of Milan sheltered itself under the name and authority of St. Ambrose; from which time the Ambrosian ritual has prevailed.

AMBROSIN, in middle-age writers, a coin struck by the lords or dukes of Milan, whereon was represented St. Ambrose on horseback, with a whip in his right hand.

AMBROSINI (Bartholomew), professor of physic, and director of the botanical garden at Bologna, where he died in 1657. He published, 1. Panacæa ex Herbis quæ à sanctis denominantur, 1630. 8vo. 2. Historia Capsicorum cum Iconibus, 1630, 12mo. 3. Theodorica Medicina, 1632, 4to. His brother and successor, Hyacinth, published several valuable works on botany.

AMBROSINIA, in botany, a genus of the monandria order belonging to the monœcia class of plants; the characters of which are: CAL. single-leaved spatha, divided by a partition into two cells: COR. none: STAM. numerous, with two roundish concave nectaries at their base: PIST. is in the interior cell: germen roundish; STYL. cylindrical, and shorter than the spatha; STIGM. obtuse: PERICARP. a capsule, roundish and unilocular. There is but one species, a native of Turkey.

AMBROSIUS, AURELIUS, or AURELIANUS, a famous general of the ancient Britons, of Roman extraction. He was educated at the court of Aldroen of Armorica; who, at the request of the Britons, sent him over with 10,000 men to assist them against the Saxons, whom Vortigern had invited into Britain. The success of Ambrosius induced the Britons to choose him for their king, and compelled Vortigern to give up all the western part of the kingdom to the Roman high-way, called Watling-street. On the death of Vortigern, Ambrosius became sole monarch of Britain; and assumed the imperial purple, after the manner of the Roman emperors. Geoffrey of Monmouth tells us, that Ambrosius built Stonehenge near Salisbury in Wiltshire. Coming to a monastery near Caercaradoc, now Salisbury, where 300 lords, massacred by Hengist, lay buried, and resolving to perpetuate the memory of this action, he ordered his workmen to prepare a large quantity of stones and other

materials. But having here consulted the famous Merlin, he was advised, it is said, to send over to Ireland for certain great stones, called chorea gigantum, the giants' dance, placed in a circle on a hill called Killair, and his sons after a battle with an Irish prince brought away the stones. Alexander Mecham celebrates this fable in his poem De divinæ sapientiæ laudibus. See STONEHENGE. After the Britons had defeated the Saxons, and obliged them to retire northward, Ambrosius convened the princes and great men at York, where he gave orders for repairing the churches destroyed by the Saxons, and restoring the exercise of religion to its former lustre; and tells us he was poisoned at Winchester by one Eopa a Saxon, hired for that purpose by Pascentius one of the sons of Vortigern; but the generally received opinion is, that he was killed in a battle which he lost in the year 508, against Cerdric, one of the Saxon generals.

AMBRUM, or EMBRUN. See EMRUN.

AMBRY, in antiquity, the place where arms, plate, and every thing belonging to house-keeping of a great family were formerly kept. Hence, probably, the ambry at Westminster was so called; or perhaps from aumonery, a house adjoining to an abbey; in which the charities were laid up and distributed to the poor. The word is still used in Scotland.

AMBRYM, one of the new Hebrides in the South Sea. It is about 60 miles in circuit, and exhibits the appearance of a volcano in activity. Long. 168°. 80′. E. lat. 16°. 15′. S.

AMBUBAJÆ, in Roman antiquity, were immodest women, who came from Syria to Rome, where they lived by prostitution, and by playing on the flute: the word is derived from the Syriac abub, which signifies a flute; although others make it to come from am and baiæ, because these prostitutes often retired to Baiæ. According to Cruquius, these women used likewise to sell paint for ornamenting the face, &c.

AMBUBEIA, in botany, wild succory.

AMBULANT, or AMBULATORY COMMISSIONERS, were commissioners under the old government of France, who had no settled office; but visited all the offices within a certain district, to see that nothing was done in them against the king's right and the interest of his farms.

AMBULANT, in commerce, is applied to those brokers at Amsterdam, or exchange agents, who have not been sworn before the magistrates.

AMBULATION, *n.* } *Ambulatio*, Lat.
AMBU'LATORY, *n.* & *adj.* } Walking.

On fair *ambulande* horse they sit.
Gower. Con. Ai b. iv.

A knight dormant, *ambulant*, combatant!
Gayton's Notes on Don Quixote.

From the occult and invisible motion of the muscles, in station, proceed more offensive lassitudes than from *ambulation*. *Brown's Vulg. Er.*

The gradient, or *ambulatory*, are such as require some basis, or bottom, to uphold them in their notions: such were those self-moving statues, which, unless violently detained, would of themselves run away. *Wilkin's Math. Magick.*

He was sent to conduct thither the princess, of whom his majesty had an *ambulatory* view in his travels. *Wotton.*

AMBULATION, in medicine, a term used by some for the spreading of a gangrene

AMBULATOR, in entomology, a species of lamia, figured by Petiver Gazop, and described by Fabricius. The anterior part of the thorax is armed on each side with two spines, and the body clouded with cinereous and chesnut. It is properly a cerambyx of Linnæus.

AMBULATORIA TURRIS, in ancient warfare, an engine or battery, on wheels, for taking towns.

AMBULATORIUS, in entomology, a species of ichneumon, very rare, with a yellowish scutellum, and spotted thorax, the second joint of the abdomen ferruginous brown, the margins of the others white. It inhabits Great Britain, and was first described by Fabricius in the Species Insectorum, from a specimen in the cabinet of Sir Joseph Banks, Bart.

AMBULIA, in botany, a genus of the didynamia angiospermia class and order. Essential characters: CAL. quindentated: COR. tubulose, quadrifid, with unequal segments: CAPS. pentagonous, single-celled, and single-seeded. One species, viz. A. monosperma, of Gmelin, or A. aromatica of La Marck. This plant, according to La Marck, grows in Malabar, in a sandy and watery soil, and appears to be annual. All its parts have a sweet and aromatic smell, resembling pepper when green. Its taste is bitterish; and it is administered in a decoction for fevers, or in sour milk for vertigo.

AMBURBIALES VICTIMÆ, victims carried round the city of Rome, and afterwards sacrificed. See next article.

AMBURBIUM, or AMBURVIUM, in Roman antiquity, from ambire, to go round, and urbs, the city; a procession made by the Romans round the city and pomœrium, in which they led a victim, and afterwards sacrificed it, in order to avert some calamity that threatened the city. Scaliger in his notes on Festus, and several other critics, maintain the amburvia to have been the same with the AMBARVALIA, which see.

AMBURY, or ANBURY, among farriers, denotes a tumour, wart, or swelling, which is soft to the touch, and full of blood, sometimes cured by tying a horse-hair very hard about its root; and when it has fallen off, which happens in about eight days, strewing some powder of verdigris upon the part, to prevent the return of the complaint. If the tumour be so low that nothing can be tied about it, it is cut out with a knife, or burnt off with a sharp hot iron; in sinewy parts, they eat it away with oil of vitriol, or white sublimate. Many farriers recommend the following preparation: take three ounces of green vitriol and one ounce of white arsenic; beat them to a coarse powder, and put them into a crucible; place the crucible in the midst of a charcoal fire, stirring the substance, but carefully avoiding the poisonous steams; when the whole grows reddish, take the crucible out of the fire, and when cool, break it and take out the matter at the bottom; beat this to powder in a mortar, and add to four ounces of this powder five ounces of album rhosis; make the whole into an ointment, and let it be applied cold to warts; rubbing them with it every day.

AMBUSCADE′, *n.* } *Emboscudo*, Spanish; from *bosque*, a bush. To ambush is to hide in a bush in order to surprise an enemy. Applied literally and metaphorically to any mode of concealment adopted for the purpose of stratagem.—Busse, enbusse, bussement, and enbussement are common in R. Brunne.

AMBUSCA′DO, AMBUSCA′DOED, AM′BUSH, *v.* & *n.* AM′BUSHMENT.

Saladyn priuely was *bussed* beside pe flom.
R. Brunne, p. 187.

In secret *ambush* I, in yonder wood, in place not wide,
That so both wayes I may besidge, myselfe intend to hide. *Twyn.*

A winding vale there lay, within the shade,
Of woods, by nature for an *ambush* made. *Pitt.*

Againe great dole on either partie grewe,
That him to death unfaithful Paris sent;
And also him that false Ulysses slewe,
Drawne into danger through close *ambushment*.
Spenser. Virgil's Gnat.

Like as a wily fox, that having spied
Where on a sunny bank the lambs do play,
Full closely creeping by the hinder side,
Lies in *ambushment* of his hoped prey. *Spenser.*

Nor shall we need,
With dangerous expedition, to invade
Heav'n, whose high walls fear no assault or siege,
Or *ambush* from the deep.
Milton's Paradise Lost.

Thick as the shades, there issue swarming bands
Of *ambush'd* men, whom by their arms and dress,
To be Taxallan enemies I guess.
Dryden's Indian Emperor.

When I behold a fashionable table set out, I fancy that gouts, fevers, and lethargies with innumerable distempers, lie in *ambuscade* among the dishes.
Addison.

AMBUSTA, in entomology, a species of phalæna of the noctua family. The thorax is crested; and the wings are incumbent, greyish-brown, with three yellowish streaks, an annule in the middle, and an undulated streak behind. This moth is produced from a naked brown larva, with white lines. The antennæ are ferruginous, white at the base; head and thorax reddish-grey. Posterior wings white, tips brown. Inhabits Austria, on Lichen parietinus. *Fabricius.*

AMBUSTA, in medicine, burns or scalds.

AMBUSTUS, in ornithology, a species of falco. The body is of a pale tawny colour, front of the head between the eyes and bill naked, cere large, legs bluish. This is the tawny vulture of Brown and Latham. The bill is dusky, short and thick, cere large, and beset with bristles, the chin bearded with a tuft of long slender feathers: head, neck, breast, belly, and thighs, pale tawny; coverts of the wings intermixed with brown; tail dirty white, with brown bands; legs slender, bluish claws, long and slightly bent. The length of this bird is two feet four inches; it inhabits Faulkland islands.

AMCHITCHE, one of the Fox Islands, in the North Pacific Ocean. Long. 178°. 14′. E. lat. 53°. 22′. N.

AMEA, in botany, a name given, by the natives of Guinea, to a plant which they use in bleedings at the nose, by drying and powdering the leaves, and snuffing up the powder. It seems to be a species of the plant called pajamirioba, by Sir Hans Sloane, in his Jamaica Catalogue. Its leaves are large and alated, and of a beautiful green, even when dried

AHMEDABAD.

AMEDANA, in botany, the alnus vulgaris of Linnæus.

AMEDEI, or AMEDIANS, in church history, a congregation of religious in Italy instituted A. D. 1400, so called from their professing themselves amantes Deum, 'lovers of God;' or rather amati Deo, 'beloved of God.' They wore a grey habit, wooden shoes, and girt themselves with a cord. They had twenty-eight convents, and were united by pope Pius V. partly with the Cistercian order, and partly with that of the Soccolanti, or wooden-shoe wearers.

AMEDNAGUR. See AHMEDNUGGER.

AMEIVA, in zoology, a species of Brasilian lizard, which, according to Marcgrave, resembles the TABAGUIRA (which see) in figure, but has a bifid tail. Ray, however, doubts the existence of any such two-tailed species.

A′MEL, *n.* } Ang. Sax. mylran melta, to
AMEL′LED. } melt. Supposed to signify enmelled.

And with a bend of gold tassiled
And knoppes fine of gold *amiled*.
Chaucer. Romaunt of the Ro.

Heaven's richest diamond set in *amel* white.
Fletch. Purple Is. v. 8.

A husband like an *ammel* would enrich
Your golden virtues. *Duchess of Suff.* act 2.

The materials of glass melted with calcined flints compose an undiaphanous body. This white enamel is the basis of all those fine concretes that goldsmiths and artificers employ in the curious art of enamelling.
Boyle on Colours.

AMEL CORN, from amylum, Latin, starch, French rice, a species of grain from which starch is made.

AMELANCHIER, in botany, the chionanthus virginica and mespelus amelanchia of Linnæus. *Raii Hist. Plant.*

AMELI, in botany, karetta-amelpodi of Rheede, Malab. a plant, from the leaves of which the inhabitants of Malabar obtain a decoction good for the colic.

AMELIA POINT, the south point of the bay of islands on the west shore of King George's archipelago. Long. 224°. 25′. E. lat. 57°. 17′. N.

AMELIA, formerly AMERIA, or ÆMILIA, an episcopal city of Italy, in the pope's territories, seated on a mountain, between the Tiber and Nira, in a fertile country, 18 miles south-west of Spoletto, and 45 north of Rome. Lon. 12°. 30′. E. lat. 42°. 35′. N.

AMELIA, a county of Virginia, situated between Blue-ridge and the tide waters, having Cumberland county on the north, George county on the east, and Lunenburg county on the south and west. Amelia, including Nottaway, a new county, contains 18,097 inhabitants, of which 11,037 are slaves.

AMELIA ISLE, an island on the coast of Florida, about seven leagues north of St. Augustine, and very near Talbot island on the south, at the mouth of St. John's river. It is thirteen miles long and two broad, is very fertile, and has an excellent harbour. Its north end lies opposite Cumberland Island, between which and Amelia

Isle is the entry into St. Mary's river, in lat. 30°. 52′. N. lon. 67. 23′. W.

AME'LIORATE, *v.* } *Ameliorare*, modern
AMELIORA'TION. } Latin; Fr. *ameliorer*; Lat. *melior*. To better, to mend, to improve.

The class of proprietors contributes to the annual produce by the expense which they may occasionally lay out upon the improvement of the land, upon the buildings, drains, enclosures, and other *ameliorations*, which they may either make or maintain upon it.

Smith's Wealth of Nations.

His humanity must exult at the probability of their lot being so much *ameliorated*.

Swinburne's Travels through Spain, letter 36.

AMELLUS, STARWORT, a genus of the polygamia, superflua order, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, compositæ oppositifoliæ. The characters are: common CAL. imbricated and roundish: compound COR. is radiated: the hermaphrodite corollets numerous in the disk; the female numerous in the ray; proper corolla of the hermaphrodites are tubular and quinquefid; of the females, tongued, loose, and two or three toothed: STAM. in the hermaphrodites, consist of five short capillary filaments: the antheræ cylindric and tubular: PIST. an ovate germen; a filiform stylus, the length of the stamina; and two filiform stigmata: there is no pericarpium, but the calyx unchanged: the seeds are ovate and solitary; the pappus is hairy, the receptaculum chaffy. Of this there are two species, viz. 1. A. lychnitis, with one flower on each footstalk. This is a native of the Cape of Good Hope, and is a perennial plant, rising about three feet high. 2. A. umbellatus, with flowers growing in umbels, a native of Jamaica, from two to three feet high.

AMELLUS, in Virgil, is used for the aster Atticus, and by some other botanical authors for the caltha palustris.

AMELOT DE LA HOUSSAI (Nicholas), born at Orleans in 1634, was much esteemed at the court of France, and appointed secretary of an embassy which that court sent to the commonwealth of Venice; but his writings afterwards gave such offence, that he was imprisoned in the Bastile. They were: 1. Histoire du Government de Venice, &c.; Paris, 1676. 2. La Morale de Tacite; 1686. 3. A Translation of Palafox's Theological and Moral Homilies upon the Passion of our Lord; besides Translations into French of Machiavel's Prince; Father Paul's History of the Council of Trent; Balthasar Gracian's Oraculo Manual; and the first six books of Tacitus's Annals. Niceron also gives a list of some other pieces.

AMELOTTE (Denis), was born at Saintonge, in 1606, and died in 1678, leaving, 1. La Vie du P. D. Gondren, 4to. Paris, 1643. 2. A French Translation of the New Testament, in 4 vols. 8vo. 1666-8. 3. Abrégé de la Theologie, 4to. Paris, 1675. 4. Les Epitres et les Evangiles de toute l'Annee; &c.

AMELPODI, in botany, an Indian tree, used as an antidote against the bites of serpents. *Raii Hist. Plant.*

AMEN', *interj.* אמן, Heb. whence Gr. *αμην*, used in scripture, and still in the Christian church at the conclusion of prayer. It signifies verily; so be it; or so it ought to be. It has been rendered literally into the languages of most countries, possessing a translation of the scriptures.

One cried, God bless us! and, *Amen!* the other,
As they had seen me with those hangman's hands:
List'ning their fear, I could not say *Amen*,
When they did say God bless us.

Shakspeare's Macbeth.

Blessed be the Lord God of Israel, from everlasting and to everlasting, *Amen* and *Amen*.

Psalm xli. 13.

AMEN, among the Jews, was used likewise to affirm any thing, and was a sort of affirmation used often by our Saviour; Αμην, Αμην, λεγω υμιν, i. e. 'Verily, verily, I say unto you.' It is also understood as expressing a wish; as 'amen, so be it,' Num. v. 22. In this sense, the word has been adopted into almost all the modern languages, without any alteration. It was likewise used as an affirmative, 'amen, yes, I believe it,' 1 Cor. xiv. 16. The Hebrews began the five books of Psalms, according to their way of distributing them, with the words amen, amen; which the Septuagint have translated γενοιτο, γενοιτο; and the Latins, fiat, fiat. The Greek and Latin churches have preserved this word in their prayers, as well as hallelujah and hosannah; because they observed more energy in them, than in any terms which they could use in their own languages. At the conclusion of the public prayers, the people answered with a loud voice, amen; and St. Jerome says, that at Rome when the people answered amen, the sound of their voices was like a clap of thunder: 'In similitudinem cœlestis tonitrui amen reboat.' The Jews assert, that the gates of heaven are open to him who answers amen with all his might!

AMEN'ABLE, Fr. *amener*, to bring or lead unto. Amenable may be that which may be brought; to answer enquiries, to account for actions.

Again, because the inferior sort were loose and poor, and not *amenable* to the law, he provided, by another act, that five of the best and eldest persons of every sept, should bring in all the idle persons of their surname, to be justified by the law.

Sir John Davies on Ireland.

The sovereign of this country is not *amenable* to any form of trial known to the laws.

Junius's Letters, ded.

AMENABLE, or AMAINABLE, in law, is applied to a woman who is supposed to be governable by her husband.

AMEN'AGE, *v.* } To menage or manage
AMEN'ANCE. } See MANAGE.

With her, [Occasion,] whoso will raging Furor tame,
Must first begin, and well her *amenage*.

Spenser's Faerie Queene II, act iv. sc. 11.

For he is fit to use in all assays,
Whether for arms and warlike *amenance*,
Or else for wise and civil governance. *Spenser.*

AMENANUS, in geography, a river of Sicily, now Judicello, that had its source in Mount Ætna, and a very small stream. *Ovid. Fast.* l. iv. v. 467.

Necnon Sicanias volvens Amenanus arenas
Nunc fluit, interdum suppressis fontibus aret.

AMEND'. *v.* AMENDS', AMEND'ER, *n.* AMEND'FUL, AMEND'MENT. Lat. *emendare*, *e* from and *menda*, a fault, which Vossius thinks is from the Greek μεινων; for it is properly called *menda*, when any thing is deficient. To free from deficiency, fault, or blemish; to repair, correct, improve, reform.

Bute ys wille al clene was ys lond for to *amende*,
And attur all þis to Wynchestre from Londone he wende,
For to *amande* þilke side and so and so to Salusbury
And so for to *amende* more, to be downe of Ambresbury. *R. Gloucester*, p. 144.

Sir ert þou not ferd of wreche of Gode's ire,
þat þou wilt werre bigynne, without *amendmennt*,
Ageyn God don synne ageyn holy kirke has went?
Irede þow mak *amends* of þat grete misdede. *R. Brunne*, p. 391.

And axide of hem the our in which he was *amendid*, and their seiden to him, fro yistirday in the seven the our the fuere lefte him. *Wiclif, John*, iv.

Now hit thyn kep me in pouht þat evere ich so wroughte
Lord er ich lyf lete. for loue of þy selve
Graunte me goode Lorde. grace of *amende*. *Vision of Pier's Plouhman*, p. 92.

Poverte is hateful good; and as I geese,
A ful gret bringer out of biseneese,
A gret *amender* eke of sapience,
To him that taketh it in patience. *Chaucer. The Wife of Bathe's Tale.*

It is an assured sign of a worthy and generous spirit whom honour *amends:* for honour is, or should be the place of virtue, and as in nature things move violently to their place, and calmly in their place: virtue in ambition is violent, in authority settled and calm. *Lord Bacon's Essays.*

ROL. Away with him, hence, hail him straight to execution.
AUB. Far fly such rigour your *amendful* hand.
ROL. He perishes with him that speaks for him. *Beau. and Fletch. Bloody Bro.* act iii.

Our Lord and Saviour was of opinion, that they which would not be drawn to *amendment* of life, by the testimony which Moses and the prophets have given, concerning the miseries that follow sinners after death, were not likely to be persuaded by other means, although God from the dead should have raised them up preachers. *Hooker.*

If I have too austerely punish'd you,
Your compensation makes amends. *Shaksp.*

Of the *amends* recovered, little or nothing returns to those that had suffered the wrong, but commonly all runs into the prince's coffers. *Raleigh's Essays.*

There I, a pris'ner chain'd, scarce freely draw
The air imprison'd also, close and damp,
Unwholesome draught; but here I feel *amends*,
The breath of heav'n fresh blowing, pure and sweet,
With day spring born; here leave me to respire. *Milton.*

Some little hopes I have yet remaining, that I may make the world some part *amends* for many ill plays, by an heroick poem. *Dryden.*

If our souls be immortal, this makes abundant *amends* and compensation for the frailties of life, and sufferings of this state. *Tillotson.*

There are but few pleasures that make us *amends* for the pain of repeated disappointments. *Cowper's Letters.*

AMEND, or AMENDE, in the ci-devant French customs, was a pecuniary fine, imposed by a judge for any crime, false prosecution, or groundless appeal.

AMENDE HONORABLE, was an infamous kind of punishment formerly inflicted in France, upon traitors, parricides, or sacrilegious persons. The offender being delivered into the hands of the hangman, his shirt was stripped off, a rope put about his neck, and a taper in his hand; then he was led into court, where he was obliged to ask pardon of God, the king, the court, and his country. Sometimes the punishment ended here, but sometimes it was only a prelude to banishment to the galleys, imprisonment in the Bastile, death, or torture. Amende honorable is also a term used for making recantation in open court, or in presence of the person injured.

AMENDMENT, in law, may take place, unless the error lies in giving judgment, for in that case it is not amendable, but the party must bring a writ of error. A bill may be amended on the file at any time before the plea is pleaded; but not afterwards, without motion and leave of the court.

AMENDMENT OF A BILL, in parliament, is some alteration made in the first draught of it.

AMENDMENT OF A MOTION, in public meetings, is to be proposed before the chairman puts the motion; and if seconded, is put by him before the motion.

In cases of wrong returns, so reported by the committee of privileges and elections, and voted by the house of commons, it is usually ordered that the returns be amended by the returning officer, according to the directions of the house, without issuing a new writ.

Amendments ought always to be in that house from whence the thing to be amended originally proceeded, though the directions for the amendments came from the other house. *Hakew. Mann. of Passing Bills*, p. 167.

AMENDOLARE, in geography, a town of Italy, in the kingdom of Naples, and province of Calabria Citra; fourteen miles north-east of Cassano.

AMENDUS, in ancient geography, a town of Caria, supposed by Martiniere to be Myndus.

AMENEBURG, in geography, a town of Germany, in the circle of the Lower Rhine, five miles east-south-east of Marburg, and forty-eight north-north-east of Mentz.

AMENIA, a town of Asia Minor, belonging to the Chalybes, who inhabited the eastern part of Pontus.

AMENIA, in geography, a thriving township of Duchess County, New York, in America, six miles from Sharon in Connecticut; containing 3078 inhabitants, of whom 383 are electors.

AMEN'ITY, Lat. *amœnus*, which Festus thinks so called, because it alludes to the *love* of itself, *(ad se amandum)*. Pleasantness, sweetness, agreeableness.

If the situation of Babylon were such at first, as it was in the dayes of Herodotus; it was rather a seat of *amenity* and pleasure then conducing unto this intention; it being in a very great plain, and so an improper place to provide against a general deluge by towers and eminent structures. *Brown's Vulgar Errours.*

AMENORRHOEA of *a*, priv. μενες, the menses, and ρεω, to flow; in medicine, an absence or deficiency of the menstrual excretion in women. See MENSES and CHLOROSIS.

AMENTACEOUS, in botany, a term applied to the flowers of certain trees and plants, which are composed of a vast number of apices, or antheræ, hanging down in form of a rope, such as the hazel, &c. See CATKIN.

AMENTACEÆ, in botany, one of the natural order of Linnæus, comprehending those plants whose fruit is a catkin. Linn. Philos. Botan. &c. It is also the name of a class in the system of Tournefort and others, and hence is derived the adjective, amentaceous.

AMENTIA, in medicine, from *α* priv. and mens, the mind, a weakness of intellect, as either want of the memory, or incapability of receiving mental impressions. This lamentable malady is placed, by Dr. Cullen, under nervous diseases affecting the mind; because the mental deficiency is generally the most prominent symptom. In many instances, however, the bodily defects are equally conspicuous, and we may conclude that the cause of the disease is always to be traced to some imperfect organization of the body, particularly the brain and head. Amentia is divided into three kinds: when originating in birth, it is called amentia congenita; when from accident, as from the effects of fever, it is called amentia acquisita; and when from old age, amentia senilis.

AMENTUM, in antiquity, a thong tied about the middle of a javelin or dart, and fastened to the fore-finger, in order to recover the weapon as soon as it was discharged. The ancient Romans made great use of the amentum, thinking it helped to increase the force of the stroke; for which reason, some of their great men refused to use it, as confiding wholly in the natural strength of their own arms. It also denotes a latchet that bound their sandals.

AMEN'USE, *v. minuo, imminuo*, to lessen; Fr. *ameneuser*. To lessen, make little, diminish.

> The thridde [the spice of envy] is to *amenuse* the bountee of his neighbour.
>
> *Chaucer. The Persomne's Tale*, vol. ii. p. 223.

AMERADE, a kind of officer among the Saracens, answering to the governor of a province among the Europeans.

AMERBACH (John), a learned printer of Bazil, in Switzerland, in the fifteenth century. He first made use of the Roman type instead of the Gothic and Italic: he died in 1515. His son John was professor of law at Basle, scyndic of that city, and the intimate friend of Erasmus: he died in 1562, aged 67. There were other learned ministers of this family.

AMERCE', *v.* AMERCE'MENT, or AMER'CIAMENT. Lat. *merces*, a *merando*, says Vossius, after Varro; and *mereo*, whence *merendo*, from *μερος*, a part or share. To take a portion or share of money or goods; to impose a fine or penalty; to exact a recompence.

> They ben clerkes her courts they overse,
> Her poor tenaunce fully they slite
> The hier that a man *amerced* be
> The gladlier they woll it write.
>
> *Chaucer's Ploughman's Tale*, fol. 96.

> They shall *amerce* him in an hundred shekels of silver, and give them unto the father of the damsel, because he hath brought up an evil name upon a virgin of Israel. *Deut.* xxii. 19.

> All *amercements* and fines that should be imposed upon them, shall come unto themselves.
>
> *Spenser's State of Ireland.*

> Where every one that misseth then her make
> Shall be by him *amerc'd* with penance due.
>
> *Spenser.*

> But I'll *amerce* you with so strong a fine,
> That you shall all repent the loss of mine.
>
> *Shakspeare.*

> Millions of spirits, for his fault *amerc'd*
> Of heav'n, and from eternal splendours flung
> For his revolt. *Milton.*

AMERCEMENTS, in law, differs from a fine in being imposed arbitrarily in proportion to the fault; whereas a fine is a certain punishment settled expressly by some statute. Manwood, in his Forest Law, makes another difference, and says, amercement is a more easy and merciful penalty, and a fine more heavy and severe one. A court of record can impose a fine; other courts can only amerce. By Magna Charta a freeman cannot be amerced for a small fault, but in proportion to the offence, and that by a judgment of his peers. 9 Hen. III. c. 4.

Before this period amercements were often excessive, and they were imposed on a thousand different occasions, not only for real crimes, but for trivial or imaginary offences, and on the most frivolous pretences; of course they were the sources of infinite vexations to the subjects, as well as of great riches to the sovereigns of England. They fell heavy, not only on the common people, but upon the greatest prelates and most powerful barons of the kingdom. This gave occasion to the above-mentioned article of the great charter, and to the rules founded upon it, which enacted, that no man should have a larger amercement imposed upon him that his circumstances or personal estate would bear; saving to the landholder his contenement or land, to the trader his merchandize, and to the countryman his wainage, or team and instruments of husbandry.

AMERCIAMENT ROYAL, a pecuniary punishment inflicted upon a sheriff, coroner or other officer of the king, by justices, for an abuse in his office.

AMERI, in botany, the Indigofera tinctoria of Linnæus.

AMERIA, in ancient geography, a district of Armenia, mentioned by Strabo (tom. ii. p. 835.) as situate in the vicinity of Cabira, in which was a celebrated temple of the month Pharnacus.

AMERIA, now AMELIA, a town of Italy, south-west of Spoleto, founded, according to Cato, 954 years before the Persian war, or 1135 years before Christ. Augustus established a colony in it. The celebrated Roscius is said to have been a native of this city; and its territory was assigned by Augustus to the veteran soldiers.

AMERICA.

1. AMERICA is the largest of what are termed the four grand divisions of the globe, extending through the greater part of both hemispheres, from the latitude of 55°. 30′. south of the equator to 74°. north. It stretches more than 9000 miles in length, and in its widest part 3800 miles in breadth. The average breadth may be estimated at 1500 miles, and the whole area at 12,000,000 of square miles. It lies between 35°. and 168°. of long. west from Greenwich, dividing the Atlantic from the Pacific Ocean. Its form is very irregular. On the south it has a long narrow projection, terminating in Cape Horn. On the north, it spreads to its greatest width; and stretching generally to the north-west, approaches within forty miles of the eastern extremity of Asia. Its limits on the north have not been fully examined; but the investigations of captain Parry prove that it is bounded by an arm of the sea, at least as far as long. 113°. west, from Greenwich; and, it can scarcely be doubted, that this strait is continued to the Pacific Ocean, and forms a complete separation between the continent and the arctic regions connected with Greenland. Extending through every zone, and comprising every variety of climate and soil, which are requisite for any production of the earth; distinguished for the grandeur of its natural features, and the richness and variety of its vegetables, minerals, and gems, this continent may well be entitled the New World. It is not less interesting as the birth place of all modern republics—the grand theatre on which a new series of experiments, upon the political and moral institutions of men, has been commenced. The Caribbean Sea and the Gulf of Mexico divide the continent into two great portions—North and South America. They are connected by the narrow Isthmus of Darien, in lat. 8°. north.

2. HISTORY.—It has been believed by many, that America was not unknown to the ancients; and, from certain passages in the works of some of the writers of antiquity, as well as from coincidences in the languages and customs of some of the nations of the old and new continent, plausible reasons have been advanced in favour of this theory. Whatever knowledge, however, the inhabitants of Europe possessed of America, no traces of it existed at the period of the revival of letters; and, it was generally supposed, that the Canaries, or Fortunate Islands, formed the western boundary of their world. For the correction of this error, and the discovery of a new continent, mankind are indebted to the genius and enterprise of Christoval Colon, a native of Genoa, better known to us by the name of Christopher Columbus. From a long and close application to the study of geography, this great man had obtained a knowledge of the true figure of the earth, far beyond what was common to the age in which he lived. Another continent, he conceived, necessary to complete the balance of the terraqueous globe; but he erroneously conceived it to be connected with that of India. This error arose from the construction of the maps of that period; which represented the oriental countries of Asia, as stretching vastly farther to the east, than actual observation has proved them to extend. Having fully satisfied himself with the theoretical truth of his system, his adventurous spirit made him eager to verify it by experiment. For this purpose, he applied to the senate of Genoa, developing his views, and representing the advantages which would accrue to the republic, from the possession of a new route to the great source of opulence. The Genoese, however, treated the idea as absurd and chimerical, and rejected the proposal with contempt. Although disappointed in this first attempt, Columbus was not discouraged. Through his brother, Bartholomew, he applied to Henry VII. of England; but, the cautious prudence of that monarch, deprived him of the honour of patronising a man, whose friendship would have immortalized him. The next attempt of Columbus, was at the Portuguese court; which had in that age, greatly distinguished itself by favouring the spirit of discovery along the African coast. Here he met with an additional mortification, from an attempt to anticipate him in the enterprise; which, however, proved abortive at an early period. As a last resource, he now presented his scheme to the court of Spain. After eight years of anxious solicitation and contemptuous neglect, he at last obtained a gleam of royal favour on his bold and original project.

3. The interest of queen Isabella procured him three small vessels, with which he set sail from the port of Palos, in Andalusia, on the 3d of August, 1492. He steered directly for the Canaries, whence, after having refitted, as well as he could, his crazy and ill-appointed flotilla, he again sailed, on the 6th of September, keeping a due western course over an unknown ocean. Several days passed without a sight of land, and the anxieties of the sailors, arising from this circumstance, were heightened by the variation of the compass, then first perceived. An open mutiny took place, which required all the courage and address of the great navigator, to quell it. They pursued their course; but when thirty days had elapsed, without any indication of an approach to land, both officers and men joined in a second revolt. Columbus was forced partially to give way to their remonstrances. He consented to return, if, after proceeding three days longer, nothing appeared to confirm his expectations. With these assurances, they again proceeded, and about midnight, on the 11th of October, Columbus, who was standing on the forecastle, discovered a light a-head.

4. Morning displayed the joyful sight of land; and the sailors were now as ardent, in their expressions of repentance and admiration, as they had before been insolent and ungovernable. The island of St. Salvador, one of the Bahamas, was

the first part of America trodden by the feet of Europeans. From the rude poverty of the inhabitants, Columbus soon perceived that he was still at a distance from the shores of India. The island of Cuba was next discovered, and although no gold was found, the natives pointed to the east, where, in an island, which they called Hayti, this metal was said to abound. Columbus proceeded in that direction, and discovered Hayti on the sixth of December. Here he found some specimens of gold; and, leaving some men to form a colony, he returned to Spain. On his arrival, he immediately proceeded to court, where he was received with admiration and respect. The glory and benefit which promised to result from the discovery, rendered the government eager to forward his design. A fleet of seventeen sail was prepared; and Columbus, who was now appointed viceroy of all the countries he should discover, departed on his second voyage, accompanied by many persons of rank and distinction. During the progress of this voyage, he discovered the islands of Dominica, Marigalante, Guadaloupe, Montserrat, Antigua, Porto Rico, and Jamaica. The success of this great man did not fail to excite envy and intrigue against him at the court of Spain. An officer was sent to act as a spy over his actions: and Columbus soon found it necessary to return to Europe, for the purpose of defeating the machinations of his enemies. After great difficulty, he obtained leave to set out on a third expedition, in 1498. Sailing south from Spain, as far as the equator, he then directed his course to the west, and steered with the trade winds across the Atlantic. At the end of seventeen days, the island of Trinidad was discovered; and, on the first of August, he reached the mouth of the great river Orinoco. From the magnitude of this stream, he concluded that he had discovered the continent; and, the continuance of land to the west, confirmed the belief. He then coasted along westward, to Cape Vela, from which he crossed over to Hispaniola. The new glory, which Columbus had now acquired, excited fresh intrigues against him, which prevailed so far, that he was superseded in his government, and sent home in irons. He justified himself, however, to the court; and, in 1502, was allowed to depart on a fourth voyage, in the course of which, he discovered the harbour of Porto Bello, and a considerable part of the continent. He then returned to Europe, and died at Valladolid, in the year 1506, in the 59th year of his age.

5. The honour of having made known to mankind the existence of North America, and, indeed, the first discovery of the continent was acquired by the family of Cabots, residents of Bristol, in England. The fame which Columbus had gained by his discoveries, spread through Europe, and inspired many with a similar spirit of enterprise. As early as the year 1495, John Cabot, a Venetian, obtained from Henry VII. of England, a commission for himself, and his three sons, 'to navigate all parts of the ocean, for the purpose of discovering islands, countries, regions, or provinces, either of Gentiles, or Infidels, which have been hitherto unknown to all Christian people; with power to set up his standard, and take possession of the same, as vassals of the crown of England.' Such were the terms of this grant, which rivalled the bulls of the papal see, in the extent of the power and authority it professed to confer. In pursuance of this commission, John Cabot sailed from England, in 1497, carrying with him his three sons. On the 24th of June, 1497, he discovered a large island, to which he gave the name of Prima Vista, or the First Seen, now called Newfoundland. A few days after, he discovered a smaller island, to which he gave the name of St. John's; and, continuing his course westwardly, he soon fell in with the continent, and sailed along the coast of Labrador, as far as the latitude of 67°. 30′. north. But, not meeting with the expected north-west passage, he changed his course to the south, and sailed along the whole coast, as far as Florida, having made the first and most extended discoveries of the *main land* of the New World.

6. A spirit of discovery was now universally excited. In 1499, Amerigo Vespucci, a Florentine, a man of science and genius, sailed with a small squadron to the New World, but made very little addition to the former discoveries. He, however, published, on his return, the first description of the new countries that had appeared, and the injustice of mankind has given his name to the whole continent, an honour to which Columbus was so much more justly entitled. In the year 1500, the coast of Brazil was accidentally discovered by Alvarez de Cabral, a Portuguese admiral, in consequence of having been driven too far to the west, on a voyage round the Cape of Good Hope. The idea entertained originally by Columbus, that America was part of the continent of Asia, was generally received until 1513, when the Pacific Ocean being descried from the mountains of the Isthmus of Darien, this delusion was dissipated. In 1512, Ponce de Leon, a Spaniard, sailed from Porto Rico, northwardly, and discovered the continent in 30°. 8′. north lat. He landed on Easter-day, whence, according to some, Florida derives its name; but, according to others, it was so called from the verdure and bloom, with which, at that season, the country was covered. For many years the name was applied to the whole of the continent.

In 1517, Hernandez Cordova sailed from Havannah, with three barks, and 110 men, on a voyage of discovery. Steering a westerly course, the first land he saw was Cape Catoche, the eastern point of the peninsula, now called Yucatan. The Spaniards were here astonished to meet with natives, clothed in cotton garments, and exhibiting other traces of civilization and wealth. They attempted to land, but were repulsed, with great loss; and Cordova himself died soon after his return to Cuba. In the following year, Velasquez, the governor of Cuba, excited by the accounts given of the country, dispatched a second armament, under the command of Juan de Gryalva, consisting of four ships, and 200 Spanish soldiers. This expedition sailed on the fifth of April, 1518, and completed those discoveries which led to the sub-

gation of Mexico. They first touched at the island of Cozumel, and then at another, which they called the Island of Sacrifices, from its being the first place where they had observed human sacrifices. They terminated their voyage at St. Juan de Ullua, and returned in triumph to Cuba, having examined a considerable extent of the coast, and ascertained the existence of the rich and extensive empire of Montezuma. From them this country received the name of New Spain. The success of this expedition, and the reports of the wealth to be found in New Spain, induced Velasquez to send out another armament of ten ships, and 550 soldiers, under the command of Hernando Cortez; and with this small force, aided by treachery and cruelty, that celebrated adventurer commenced the war in which he completely subdued the empire of Mexico.

8. Several years now elapsed without any further progress being made in the discovery of North America. The French, who had not displayed the same spirit of enterprise as their neighbours, entered the lists in 1524. In that year Francis I. sent John Verrazani, a Florentine, to America, for the purpose of making discoveries. He traversed the coast from lat. 28°. to 50°. north; but in a second voyage, some time after, was unfortunately lost. In 1525, Stephen Gomez, the first Spaniard who came upon the North American coast, with a view to discovery, sailed from Groyn in Spain to Cuba and Florida, thence northward to Cape Razo, in lat. 46°. north, in search of a northern passage to the East Indies. In the spring of 1534, a fleet was fitted out at St. Maloes, in France, by direction of Francis I. with the design of attempting discoveries. The command of the fleet was given to James Cartier. He arrived at Newfoundland in May of this year. Thence he sailed northwardly, and on the day of the festival of St. Lawrence he found himself in the midst of a broad gulf, which he named the St. Lawrence. He gave the same name to the river which empties into it. In this voyage he sailed as far north as lat. 51°., expecting in vain to find a passage to China. In the following year he sailed up the river St. Lawrence as far as the Falls. He called the country New France; built a fort, in which he spent the winter, and returned the following spring to France. On the 12th of May, 1539, Ferdinand de Soto, with 900 men, besides sailors, sailed from Cuba, having for his object the conquest of Florida. On the 30th of May he arrived at Spirito Santo, from whence he travelled in various directions, and, after exploring a vast extent of country, and even reaching, as it is supposed by some, the river Susquehannah, died on the bank of the Mississippi, aged forty-two years. Cartier, in the next year, made a third voyage to Canada, built a fort, and began a settlement in 1541 or 1542, which he called Charlebourg, four leagues above Port St. Croix. He soon afterwards broke up the settlement, and sailed for Newfoundland. In 1542 Francis La Roche was sent to Canada by the French king, with 200 men, women, and children, but returned with his colony the next spring. In 1550 a number of adventurers sailed for Canada, but were not afterwards heard of. No other attempt appears to have been made to settle Canada during this century. In 1562, a French squadron under the command of John Rebalt, arrived on the coast of Florida, and discovered a river, which is supposed to be the St. Mary's. As he coasted northwards, he discovered several other rivers, one of which he called Port Royal.

9. The attempts to find out a north-east passage to India having failed, the English sent out, in 1576, Captain Frobisher, to find a north-west passage. The first land which he made was a cape, which he named Queen Elizabeth's Foreland. In coasting northerly, he discovered the straits which bear his name The two following years he made a second and a third voyage, which produced no material discovery. In the same year, Sir Francis Drake, being on a cruise against the Spaniards in the Pacific ocean, landed on the continent of North America, northward of California, took possession of a harbour, and called the surrounding country New Albion. In 1583, Sir Humphrey Gilbert obtained a patent from Queen Elizabeth for lands not yet possessed by any christian prince, provided he would take possession within six years. In 1583, he sailed to Newfoundland, and took formal possession of the continent of North America, in the name of the crown of England. In pursuing his discoveries, he lost one of his ships on the shoals of Sable, and, on his return home, a storm overtook him, in which he was unfortunately lost. In 1584, a patent was granted by Elizabeth to Sir Walter Raleigh, by the authority of which, he sent out a colony the next year. They arrived on the coast, and anchored a few leagues west of the Roanoke. Here they landed, and took possession of the country on behalf of Queen Elizabeth, calling it, in honour of her, Virginia. In 1585, a colony was planted, but became so disheartened, that they returned to England in 1586, with Sir Francis Drake. Another attempt was made, in the year last mentioned, to establish a colony in Virginia, but with similar ill success.

10 A third attempt, made in 1587, also failed; the colonists perished miserably, having either died of famine or been massacred by the Indians. In 1585, an English expedition, under the command of Davis, discovered Davis's straits; and examined the adjoining coasts as far as 72°. north latitude in 1587. In 1602, Bartholomew Gosnold with thirty-two persons, made a voyage to North Virginia, as it was then called, and discovered and gave names to Cape Cod, Martha's Vineyard, and Elizabeth Islands. Attempts were made to form a settlement in the vicinity, but without success; and it is believed that, at the beginning of the seventeenth century, there was not one European family settled on all the vast extent of coast from Greenland to Florida. In 1603, Bartholomew Gilbert, in a voyage to South Virginia, in search of the colony which was left there in 1587, landed near Chesapeake bay, where, in a skirmish with the Indians he was unfortunately slain. In the same year, the king of France granted by patent to M. de Mons all the country from the fortieth to the

xth degree of north latitude, under the f Acadia. In 1605, George's islands and ost harbour were discovered by captain outh, who soon afterwards entered a large now supposed to be the Kennebeck or scot. In 1606, James I. divided Virginia vo colonies, the northern and southern, were granted to different companies. The rear, M. de Champlain sailed up the St. nce, and founded Quebec. In 1607, the ermanent settlement was effected in the t state of Virginia, at James-town, the nglish town in America.

Henry Hudson, a native of England, but time in the service of the Dutch East Company, discovered, in 1609, and sailed river which has since borne his name. Setnts were soon after made here by the Dutch. 614, captain Smith explored the coast of achusetts, and thence southerly; and on his n home to London drew a map of the try, which he called New England, a name n has superseded that of North Virginia. 616, William Baffin discovered the great ern bay which bears his name. In 1620, the first permanent settlement was effected at Plymouth, in New England. In 1627, a colony of Swedes and Fins came over, and made the first settlement on the Delaware river. In the reign of Charles I. Lord Baltimore, a Roman Catholic, obtained a grant of land upon Chesapeake Bay, and soon after came with a number of Catholics, and settled Maryland. Connecticut and Rhode island were next settled from Massachusetts. New Jersey was granted to the Duke of York, by Charles II. In 1669, the settlement of the Carolinas began. In 1682, William Penn, with a colony of Quakers, arrived in Pennsylvania. Louisiana was colonized by the French in the beginning of the next century, and in 1732, Georgia was settled by general Oglethorpe.

12. Following its great geographical features, we divide the present article on America, into two parts; i.e. NORTH and SOUTH AMERICA; and again subdivide them into chapters, suggested by the great physical peculiarities, and political divisions of these two important portions of the globe.

PART I.—NORTH AMERICA.

CHAP. I.

GENERAL PHYSICAL DESCRIPTION.

RTH AMERICA is the largest of the two great isions of the American Continent, extending m the isthmus of Darien, in latitude 8°.; Barrow's straits, in latitude 71°. north; and n Davis's to Behring's straits. Its greatest gth from north-east to south-west, is 3000 es, and its greatest breadth from east to west, 00 miles.

13. SEAS, BAYS, AND GULFS.—The waters ich intersect the American Continent, may be nsidered in connection with the three great eans around it, of which they are branches—e Atlantic, the Pacific, and the Arctic oceans. ne Pacific ocean has few branches of much portance, extending into the Western Conti-nt—Cook's inlet, Norfolk Sound, Queen Charttes, and Nootka Sounds, and the Straits of t. Juan de Fuca, are the only considerable inentations in the coast until we reach the gulf f California. This gulf extends towards the orth, between the peninsula of California, and ne main, to the distance of 800 miles, varying rom 20 to 120 miles in breadth. Its entrance s between Cape St. Lucas, and Cape Corrientes. t is full of islands, and shoals, and its navigation is difficult. The harbour of Acapulco is he principal port on the peninsula; and the gulfs of Tehuantepee and Panama, are the two principal points proposed for opening a communication between the oceans.—The gulf of Guayaquil is the principal indentation in the coast of South America, until we reach the gulf or Archipelago of Chiloe. The gulf is studded with numerous islands, and bears a striking resemblance to the Grecian Archipelago, in the liveliness and enterprise of its inhabitants, as well as in its natural features.

14. The straits of Magellan present the first opening from the Pacific to the Atlantic Ocean, extending 340 miles in a winding course, between California, and Terra del Fuego. The western current, from the Atlantic, passes through these straits into the Pacific, with great rapidity, and the navigation is very difficult.

15. The Atlantic Ocean makes but few encroachments upon the eastern coast of South America; and some parts of it are even destitute of convenient harbours. The principal openings are those formed by the two great rivers, the Amazon, and the Paraguay. These vast expanses of fresh water resemble ordinary gulfs, or bays, in size, the former being fifty, and the latter 180 miles in breadth. The La Plata is not safe as a place of anchorage, on account of the force of its current, and the sand banks with which it abounds. The best harbours on the eastern coast of South America, are those of Pernambuco, Bahia, and Rio Janeiro, the last of which is remarkably defended from the agitations of the ocean by an extensive reef resembling an artificial mole, and is considered one of the finest ports in the world.

16. In proceeding northward, from the river Amazon, we soon reach the extensive sea which

separate the two portions of the continent. They are separated from the main ocean, by the chain of the West India islands, and the appearance of the whole at once suggests the idea that they have been formed by the gradual encroachments of the current from the east, produced or aided by the trade winds; and that the islands are the relics of an extensive tract of land which formerly united North and South America. The principal divisions of this branch of the Atlantic are the Carribbean sea on the south, and the gulf of Mexico on the north. The island of Cuba, and the other large islands, often called the greater Antilles, form the northern limit of the Carribbean sea: it is separated from the ocean by the smaller chain, or Carribbee islands, and extending 1400 miles in length, and washes the coast of Colombia and Guatimala. The bay of Honduras, and gulf of Darien are its principal large divisions, and the harbour of Porto Bello, Carthagena, and Laguira are its best ports.

17. The gulf of Mexico washes the coast of Mexico and the United States, separated from the ocean by the sandy peninsula of Florida. It extends about 1000 miles in length, and 700 or 800 in breadth. The passage to the ocean is rendered easy by a rapid current, termed the gulf stream, which continually flows through the straits or gulf of Florida. The entrance is, for the same reason, very difficult, and requires a circuitous and dangerous navigation through the shoals and keys of the Bahama isles.

18. The gulf stream is one of the most remarkable permanent currents on the globe. It appears to be formed by the accumulation of water which the trade winds throw into the Carribbean sea, from the wide Atlantic; or striking the shores of the Isthmus of Darien, they are turned northward into the gulf of Mexico, and thence pass out by the most unobstructed passage between Cuba and the Bahamas, and the peninsula of Florida. It issues from the gulf with a velocity of four or five miles an hour, and sweeps along the American coast nearly parallel to it, at the distance of thirty to fifty miles from Cape Hatteras. The coast then taking a more northerly direction, the line of the gulf stream recedes from it until it reaches the banks of Newfoundland. Here it is turned towards the east, and would appear sometimes to reach the north-eastern coast of Europe. Tropical productions are frequently thrown up on the coast of Scotland and Norway, which could only find their way by this current; and in one instance the mast of a vessel burned in the West Indies, was cast upon the shore of the Hebrides. The current appears to pass in an immense curve to the Azores, where it is also traced by the American productions it throws up, and seems then to pass on, and be lost in the great western current from which it originated. Humboldt estimates that two years are occupied in the whole circuit. The gulf stream is readily distinguished from the surrounding ocean, by its greater temperature, produced by the tropical sun in the gulf of Mexico, and which it retains to the banks of Newfoundland, even in the winter season. The colour of its water, and the sea-weed with which it abounds, are also very obvious indications. The vapours which rise from it render the atmosphere above it, and the winds which blow from it peculiarly damp. From the difference of temperature between it and the surrounding ocean, it is the theatre of frequent gales and thunder-storms. It diminishes in velocity, and increases in width, as it proceeds; and both circumstances are affected by the state of the wind. It is found that the current which runs through the gulf of Mexico, and ultimately forms this stream, throws up sand on the coast of Mexico, which renders its harbours shallow, and the coast difficult of navigation. The beds of sand, filled with sea shells, which have been discovered at ten leagues from the present shore, indicate that in this way the land is encroaching upon the sea, and the basin of the gulf gradually contracting. No good port is found along the coast; and the harbours of Cuba are the nearest places of safe rendezvous for the armed ships of Spain. That of the Havannah is the best.

19. A large part of the coast of the United States is also low and alluvial, like that of Mexico, and presents a succession of sand banks, separated from the shore by a series of shallow passages and sounds, which afford great facilities for the coasting trade, but none for foreign commerce. The harbours of Charleston, and the Savannah river, are almost exclusively the seat of foreign trade, until we reach the fine openings of the Chesapeake and Delaware bays. The Chesapeake bay resembles an inland sea, in the extent of its surface, the number of its tributary streams, and the character of its navigation. Its length is 180 miles, and its average breadth from ten to twenty miles. It receives several large rivers, and numberless small streams; and is the medium of extensive trade in itself.

20. Delaware bay is much less extensive, and must rather be considered as the prolonged estuary of the river of the same name. Its length is about sixty miles, and its breadth increases from three to thirty miles, in going towards the entrance. It is navigable for large vessels, but obstructed by shoals. At New York we enter on the primitive region of the United States, and find a corresponding change in the coast. The shores become bold, and indented with many harbours of great depth. The port of New York is one of the finest in the world, and the principal seat of foreign trade in the United States.

21. The larger branches of the ocean on the New England coast, are Long-island sound, about fourteen miles long, and three to twenty-five wide, dividing Long-island from the state of Connecticut. Naragannot bay, which penetrates the small state of Rhode island, and gives it every part of a coast. Buzzards bay, on the south side of the peninsula of Barnstable, and Massachusetts bay, in which is the harbour of Boston, on the north side, bounded by cape Cod and cape Ann

22. The bay of Fundy divides the state of Maine from the British province of Nova Scotia. It is remarkable for the height of its tides, which sometimes flow from forty to sixty feet, with a rapidity which is scarcely credible, and which

sometimes renders them destructive to the cattle feeding on the shores.

23. The river St. Lawrence forms an extensive gulf at its mouth, which bears the same name. It is divided from the ocean by the islands of Newfoundland and Cape Breton, stretching about 400 miles from east to west, and an equal distance from north to south.

24. The seas and bays of the northern extremity of America must be considered as branches of the Arctic ocean, although the limits of this ocean are not yet ascertained.—Davis's straits is a passage 450 miles wide, by which we approach the division of the waters of the globe from the Atlantic ocean. In pursuing a direct course, we enter Baffin's bay, whose existence was for some time doubted; but which has been fully examined and surveyed in the recent voyages undertaken by order of the British government. It stretches between the coast of Greenland and Labrador, as far as lat. 80°. north. Its outlets or connections on the north have not been traced; nor is it known that there is any direct communication to the Atlantic on the east, except by the strait which insulates the point on which cape Farewell is situated.

25. At the entrance of Davis's straits are the straits of Hudson and Cumberland, leading into Hudson's bay, a large inland sea, extending from lat. 51°. to 68°. north, and from lon. 75°. to 95°. west. Its navigation is difficult, on account of the ice, which completely closes it during a large part of the year; and renders it dangerous during the period of its formation and destruction. It exceeds the Baltic in size. It does not abound in fish; but two species of the whale are taken here.

26. North of Hudson's straits, a strait was discovered by the British expedition under capt. Ross, and penetrated by captain Parry to Melville island, in the lon. of 113°. west, to which the name of Barrow's straits has been given. The land on the northern side was called North Georgia, but it was not ascertained whether it consisted merely of a group of islands, or formed a part of an extended tract of land. The difficulties and dangers attending the exploring tour, from the long winter period of darkness, and the short summer of light, with the consequent accumulation of ice, prevented captain Parry from ascertaining the connections of the southern land; and from determining whether any communication existed with Hudson's bay. An expedition sent into this bay during the following season was equally unsuccessful; but captain Parry approached so near to the situation in which the sea was seen by Hearn and Franklin, as to leave little doubt that there is a continued passage along the northern coast of North America, to the mouth of Mackenzie's river, and thence to the straits of Behring.

27. Another expedition has been sent to attempt farther discoveries; and a land party, under captain Franklin, with a second squadron sent by Behring's straits, will attempt to prosecute the same object in their mode, with the hope of forming a junction, or approaching so near to each other, that the geography of these unknown regions may be in some measure settled, even if no practical result should follow. It is, indeed, quite improbable that a channel which could not be passed in two years of labour and suffering, by the best appointed ships, entirely appropriated to the conveyance of the men, fuel, and provisions, necessary for navigating in these cold and desolate regions, should ever become a regular channel of lucrative commerce, while the passage round cape Horn can be made with far more ease and safety in a shorter period.

28. Mountains.—North America is unrivalled for the magnitude of its lakes, and yields only to South America in the size of its rivers and basins. Its mountains are generally inferior in height to those of the other quarters of the world, but in the length of its chains it surpasses the eastern continent. It is traversed by two great chains of primitive mountains; the Rocky, or Chippewan mountains on the west, and the Apalachian chain, embracing the Allegany ridge, and the White mountains on the east.

29 The great western chain of North America may be considered as a prolongation of the Andes. Its origin may be traced to the Isthmus of Darien, where it is connected with the Andes by a low, but uninterrupted ridge. It increases in height as it advances north, pursuing an irregular course, sometimes in the centre, and sometimes on one side of the peninsula, until it reaches the eighteenth degree of latitude, where it stretches from south to north, and approaches the eastern coast.

30. In the Mexican division, there is a group of mountains which rivals the most elevated of the new continent; the principal are Popocatapetl, and the Pic de Oruciba, above 17,000 feet in height; and Irtaccihuatl, 15,000 feet high; all of them volcanic summits, unlike the South American Andes. The ridge of the chain here spreads into one extensive table land; and the most elevated summits, instead of forming a continued crest of peaks, are either dispersed upon this extended mountain top, or ranged in lines, which preserve no regular course. As far as the nineteenth degree of latitude, this chain is termed the Cordillera of Anahuac, or Mexico. Here it takes the name of the Sierra Madre, and runs north-west to Guanaxuato, where it sends off a branch to the east and another to the west. The principal chain extends northward to the sources of the Rio del Norte and Rio Gila, and on entering the United States receives the name of the Rocky, or Chippewan mountains. Only four of the summits in the southern part of the chain are covered with perpetual snow. The general aspect of that part is volcanic; and the country is subject to earthquakes and fiery eruptions, although they are less frequent than in South America.

31. In its middle course, between the latitudes of 35°. or 40°. and 55°. north, the great western chain has been called by various names; among which the most common are the Rocky, Shining, and Chippewan mountains; the last being derived from the Indian, and the only one which seems applicable as a distinctive title. This part of the range was quite unexplored, until it was traversed by Lewes and Clark, and more recently

by Major Long, under the direction of the government of the United States. To the latter we are particularly indebted for the most detailed and interesting accounts of these mountains, and the adjoining regions, which has yet been given. The general course of the Chippewan range is north-north-east. Its breadth varies from 50 to 100 and 200 miles. They rise abruptly from the elevated plains at their eastern base, towering into peaks of great height, which renders them visible at the distance of more than 100 miles on the east, and in some states of the air 140 miles. At this distance the view is that of several conic summits, unconnected at their base. At a nearer approach an uninterrupted chain is discovered, crowned with sharp conical peaks. The body of the range consists of ridges and peaks variously disposed, and interspersed with many broad and fertile valleys. The more elevated parts are covered with perpetual snows, which contribute to give them a luminous, and at a great distance even a brilliant appearance, from which they have derived their name of the Shining Mountains. They are chiefly primitive in their geological character, but covered for some distance on the eastern declivity with a crust of secondary rocks. The base of these mountains is skirted by a range of naked and almost perpendicular rocks of sandstone, visible at the distance of several miles, and resembling a vast rampart, erected to guard the approaches and intercept the view of the main ridge. The whole appears as if it had been broken off from the mass, and thrown into its present position, by some great convulsion of nature. These, and other ridges of sandstone found in the neighbouring plains, often assume the form of ruined towers and castles; and like similar objects in the plains of Russia and Africa, might be mistaken by a careless traveller for the remnants of ancient works of art.

32. The lower portions of these mountains are covered with a scattered growth of dwarf pines, cedar, and oak, and exhibit a very rugged and broken aspect. Above the limit of woody plants it is almost wholly naked; the soil is very scanty, and on the highest, or Long's Peak scarcely a lichen or moss is to be seen. Here the limit of snow was found in midsummer. It has been already observed, that the summits of the chain are generally covered with snow in latitude 42°. and of course cannot be less than 8000 feet in elevation. Some which were observed farther north, seemed to be snow-clad almost to their bases. The highest points ascertained in this part of the chain are Long's or Highest Peak, 12,500 feet; and James's Peak, 11,500 feet above the level of the sea, situated near the sources of the Arkansaw and Platte rivers, in latitude 41°. 30′.

33. North of the sources of the Missouri we have no account of these mountains, except from the tour of that accurate and intelligent traveller, Sir Alexander Mackenzie. From him we learn that in his route to the Arctic Ocean, he found them extending northward in the same direction, until they terminated near the mouth of Mackenzie's river, beyond 65°. north latitude. They appear, in this part of their course, to diminish in elevation, but still rise to the limits of perpetual snow, which is lower in these latitudes, and retain the other characteristic appearances of the range. Their structure is not known; but there is no reason to doubt that they are still composed of primitive rocks.

34. In reviewing the whole course and character of this great range of mountains, we shall find it surpassing most chains of the old continent in dimensions and grandeur. It extends without interruption for the distance of 7000 miles, and seems like the spire of the continent it traverses. Commencing with moderate elevation at the south, it soon spreads into so wide and elevated a plain, that cities and empires may be founded on its expanded mountain tops; and this is again crowned with lofty summits, which, if they were placed even on the ordinary level of the earth, would be deemed vast mountains. The grandeur of this part of the chain is increased by the volcanic character of its peaks. Popocatapetl, the loftiest, is continually burning; Orcraba, Turtla, and Colima, have occasional eruptions; and this region was the scene of one of the most remarkable events in the natural history of the earth which is upon record, the formation of the large volcano of Jorullo. During a series of earthquakes and other convulsions, which occurred in 1759, at the distance of 180 miles from any active volcano, this new volcano was thrown up by the heavings of the earth upon a plain to the height of 1500 feet, surrounded by five less elevated cones, and thousands of small ones, all of which threw forth fiery eruptions. Jorullo is still burning, and throws out large quantites of lava from its sides. The Mexican Cordillera is not less distinguished for its mines of gold and silver, the proverbial standard of immense wealth, which have recently given new energy to enterprise, and new violence to the mania of speculation in Great Britain. In going northward we still find the singular combination of a level country at a mountainous height; and travel with the same ease at two miles above the level of the sea, as on the sands of its shores. On passing the parallel of 30°. the table-land extends in breadth as it diminishes in height. In place of a fertile cultivated country, we find a dry and barren desert; and the mountains, rising in a more obvious and regular manner from its level, pursue their course to the north with more of the rugged and dreary character which we associate with a chain. Being uninhabited it forms an almost insurmountable barrier between the two portions of the continent. We know nothing of its mineral treasures beyond the Mexican peninsula; but its snows and springs supply those vast rivers and chains of lakes which water and fertilize more than two-thirds of North America, and confer more certain and permanent wealth than the mines of Mexico.

35. Along the coast of the Pacific Ocean there is another chain of mountains nearly parallel to the Chippewan, and forming a kind of secondary range or step between these and the ocean. It extends from the cape of California across the Columbia river near its mouth, about 3000 miles, as far north as the coast has been examined

In the southern part it attains no great elevation, being only 4500 feet high in California. La Perouse states that the northern part rises to the height of 10,000 feet, and is covered with snow and glaciers. At the northern extremity is mount Elias, one of the loftiest peaks of North America, rising nearly 18,000 feet above the level of the sea. This portion of the chain has a volcanic character. At Port Bucarelli, in latitude 55°. a Spanish voyager saw seven volcanoes, whose summits were crowned with snow, throwing out flames and ashes; and at Prince William's Sound, in latitude 60°. volcanic eruptions were also witnessed. Mount Fairweather is next to mount Elias in height, being nearly 15,000 feet above the level of the sea. Between 40°. and 50°. of latitude, several prominent points are laid down by Lewis and Clark, two of which, on the south of the Columbia river are called Mount Jefferson and Mount Hood; and three on the north, Mount St. Helens, Mount Regniere, and Mount Baker, the last being near the straits of St. Juan de Fuca. The two former are covered with perpetual snow, and therefore cannot be less than 7000 feet in height.

36. There are no considerable branches proceeding from the great western chain, except those which pass off from it to the east and west in Mexico. It is obvious that there must be an elevated tract or ridge of land proceeding from it on the north, and dividing the waters of the northern declivity from those of the United States. It has been supposed that there is a chain of mountains passing across to Hudson's Bay, and thence around its southern extremity, until it unites with the chain which passes through the middle of Labrador; but of this we have no good evidence. The high lands in the basin of the Mississippi are too little connected with this great range to be considered as branches. It appears to be flanked on the western, as well as the eastern side, by an elevated table-land of a desert and dreary character.

37. The Apalachian chain stretches the distance of 900 miles from south-west to north-east, along the eastern coast of North America, generally at the distance of 50 to 100 miles. It may be considered as rising on a confused group of mountains on the borders of the Alluvion, or the southern coast of the United States, in the north-eastern part of the state of Georgia. It proceeds in a series of parallel ridges through the states of Carolina, Virginia, Maryland, and Pennsylvania. In New York and New Jersey, the chain appears somewhat broken, but still may be traced by a series of groups and ridges, of similar structure to the ranges of New England; and thence to the White Mountains, and the mountains of Mame, which divide the waters of the Atlantic and the St. Lawrence.

38. The principal or central ridge of the southern portion is the Allegany; and sometimes its name is employed to indicate the whole chain. It commences in the northern part of Georgia, under the local names of the White, Smoky, Bald, Iron, and Yellow Mountains. On entering Virginia it assumes the name of the Allegany Ridge, which it retains during its passage through this state and Maryland, to its apparent termination in the interior of Pennsylvania. A range of high lands may, however, be traced through the northern parts of Pennsylvania and the state of New York, to the mountains lying on the west of lake Champlain. The western portions of Virginia and Pennsylvania are occupied by several secondary ridges, of which the principal are the Laurel and Chesnut ridge. Two considerable branches from the west unite with the Allegany ridge in Virginia; the Clinch mountain from the southern side of the Tennessee river, and the Cumberland mountains, which commence near the entrance of the Tennessee and Kentucky rivers, into the Ohio, separate their stream through their whole course.

39. The Blue ridge is a lower and subordinate portion of the Apalachian chain, but longer than the Allegany. It lies between the Allegany ridge and the ocean, and forms the first step from the low and alluvial, to the elevated and primitive country. It commences near the same spot with the Allegany ridge, and traverses the Atlantic states in a direction verging more to the east, until it terminates in the high lands of the Hudson river, of which the most remarkable point is the precipitous bluff, on which the strong fortress of West Point is situated. During a part of its course through Pennsylvania, it is called the north mountain, but again assumes the name of the Blue ridge on the north-east; and is known by no other but local designations in its passage through the states of New Jersey and New York. In crossing the Hudson river the direction and name of the Blue ridge is lost; but it is still connected by the Taghonnui and Saddle mountains with the masses of primitive mountains which traverse the New-England states.

40. The various ridges of mountains which form the continuation of the Appalachian chain east of the Hudson river, run more directly from north to south than other portions of the chain; but they are still connected by lateral spurs and ridges in a series of steps, tending on the whole toward the north-east, in a direction parallel to the coast. They may be reduced to two principal portions, the Green mountain and the White mountain ranges.

41. The Green Mountain range commences on the northern shore of Long Island Sound, and passes directly north on the eastern side of the Connecticut river, until it unites with the height of land which bounds the basin of the river St. Lawrence. The White Mountain range originates on the same coast, in several ridges connected with the former by lateral spurs, which centre in the principal group of the White Mountains in the State of New Hampshire Branches proceed with a gradual diminution of height from these to the mountains of Maine, and in several directions towards the highlands, which separate the waters of the United States from those of the St. Lawrence, and which have been recently surveyed, with a view to the final settlement of the boundary between the United States and the British possessions.

42. The breadth of the Apalachian chain is, according to computation, from 100 to 150 miles; its general course, as already observed, is parallel

to the coast. It ranks among the longest mountain chains; but is surpassed by most others in height. None of its summits rise to the limit of perpetual frost; and few attain the elevation which prevents the growth of forests. South of the Hudson River, the average height does not exceed 1000 to 2000 feet. The highest peaks in this part of the chain are, the Table Mountain in South Carolina. Otter Peak in Virginia, and Round Top, in the subordinate chain of the Catskill mountain, which do not exceed 4000 feet in height. Table Mountain has a lofty perpendicular front of granite, 900 feet in height, extending a mile in length: viewed from the valley, it appears like an immense wall rising up to heaven; and the involuntary awe it inspires is increased by the bones of animals destroyed in falling from the precipice, which are strewed at its base.

43. The general aspect of these mountains is not of that bold and rugged character which is found in most of the ranges of Europe. The summits are generally rounded, the declivities are not steep, nor are the passes rugged and difficult; instead of conic peaks and a sharp serrated outline, they present long and level ridges. The sides furnish many fertile spots; and the ridges are frequently separated by broad and fertile valleys, or flanked by level table lands. Some of the richest districts of Virginia and the Carolinas are situated among the mountains; and in consequence of the elevation, the coolness and salubrity of the northern states are extended into the southern. The most elevated ranges are composed of primitive rocks; others are of secondary origin. They furnish a variety of valuable building stones, but no extensive mineral treasures. Some of the mountains of New England are composed of trap, and exhibit the perpendicular precipices with a columnar structure which belong to the formation, and are finely exemplified in the Calton Hill at Edinburgh. But they are generally primitive, and exhibit something of that ruggedness which is peculiar to the older rocks. The loftiest points of the Green Mountains are Mansfield Mountain, and Camel's Rump, in Vermont, about 4000 feet in height. Saddle Mountain in Massachusetts is a spur of the same chain, and about the same height. It is six miles in length, and forms the highest point in Massachusetts, visible at a great distance from the neighbouring states.

44. The White Mountains of New Hampshire contain the loftiest summits of the Apalachian chain, and exhibit more of the Alpine character than any others in the western portion of North America. They comprise a long range of proud eminences, of which Mount Washington, the commanding peak, is 6634 feet in height. During nine, ten, and sometimes eleven months in the year, their summits are covered with snow; and in clear weather they are surrounded or capped with white fleecy clouds. These circumstances have given them their name; and render them visible at a great distance at sea, when the weather is fine. The base of the mountains is covered with forests. At the height of 4000 feet, and above the region of cultivation, it is surrounded with a zone of shrubby evergreens, so thickly set as almost to furnish a passage to their tops. A succeeding zone extends a distance, which furnishes no vegetation. The upper region is a mass of naked The various peaks are separated by deep sometimes winding for a great distance perpendicular walls of naked rock. The remarkable of these is termed the Notch. It is a deep narrow defile on the western extending nearly two miles in length, tween lofty precipices in one part only two feet wide. The mountain appears cloven at its base, with a perpendicular one side, and on the other a declivity of five degrees. The scene is rendered peculiarly sublime by the great depth of the chasm, the striking assemblage of rocky ruins scattered through every part of it. The streams which descend from their summits fall in many cascades from their precipices, and various positions of the group present the most romantic sublime mountain scenery.

45. It will be useful to present at one view the height of the most elevated mountains yet known in North America, in connection with those of corresponding elevation on the old continent. The number is small whose height has been accurately ascertained.

Western or Chippewan Chain.

The loftiest are exceeded only by the Himaleh Mountains of Asia, and the Andes of South America

Mount St. Elias 17,

Vol. Popocatepetl, or Smoking Mountain 17,

Vol. Pic de Ouraba, also called Cittapetl., or Star Mountain 17,

Iztaccihuatl, or White Woman . . . 15,

(*Mont Blanc, highest of the Alps*, 15,662.)

Nevada de Toluca 15,

Limit of perpetual snow, lat. 20°. . . 15,

Mount Fairweather (North-west coast) . 14,

Cofre de Perote, or Nacihcampatepetl . 13,

Long's, or Highest Peak (United States) 12,

James's Peak (United States) . . . 11,

Mine of Real del Monte 8,

(*St. Gothard, a summit of the Alps*, 8,930)

City of Mexico and surrounding tableland 7,

(*Hospital of St. Gothard in the Alps*, 6,807.)

46. Eastern or Apalachian Chain.

Mount Washington, New Hampshire, highest peak of the White Mountain 6,

(*Mount Olympus in Turkey*, 6,500.)

Limit of forest trees on the White Mountain 4,

Moose hillock (New Hampshire) . . 4,

(*Benesevis, highest in Great Britain*, 4387.)

Mansfield Mountain, Green Mountains, Vermont 4,

Camel's Rump, Green Mountains, Vermont 4,

Killington Peak, Green Mountains, Vermont 3,

Saddleback, highest in Massachusetts . 3,

(*Snowdon, highest peak in Wales*, 3,571.)

Ascutney, detached peak, Vermont . .	3,806
(*Sea Fell, highest peak in England*, 3,166.)	
Round Top, Catskill Mountains, New York	3,804
High Peak, Catskill Mountains, New York	3,708
Table Mountain, South Carolina . .	4,000
Otter Peak, Blue Ridge, Virginia . .	3,950
Highlands on the Hudson River, New York	1,385
(*Rock of Gibraltar*, 1,500.)	
Blue Mountains, Connecticut) . . .	1,000

47. Physical Divisions.—The great mountain chains of North America, and their connecting highlands, divide it into four principal portions, intimately connected with the water-courses we have described: 1. The eastern, or Atlantic declivity of the Apalachian chain, between these mountains and the ocean. 2. The great central basin of the Mississippi, or the southern declivity, pouring its waters into the gulf of Mexico. 3. The western declivity of the Chippewan mountains, lying between that chain and the Pacific Ocean; and 4. The northern, or Arctic declivity, lying between the Arctic ocean and the highlands which give rise to the waters which flow into it. The basin of the St. Lawrence, which lies between that of the Mississippi, and the northern declivity, and the table-land of Mexico on the south also require distinct consideration, on account of their peculiar features and individual importance. The two great chains of mountains, as we have already noticed, are chiefly composed of primitive rocks. The primitive ridges of the Apalachian chain spread in its northern part, and form an extensive tract of rugged primitive country, covering the whole of the states east of the Hudson and a part of New York. The coast of the Atlantic is bordered with an alluvial tract which extends westward to the foot of the Apalachian chain, and passes round the whole coast of the gulf of Mexico. The great central basin is entirely secondary. The structure of the northern and western declivities is not so well known; but there is some reason to suppose that the secondary region extends northward from the gulf of Mexico to the Arctic Ocean.

48. The eastern or Atlantic declivity of North America is occupied exclusively by the maritime portions of the United States, and the small British provinces of Nova Scotia and New Brunswick. It comprises a primitive region between the Hudson River and the Atlantic, including the eastern, or New England States, and the British provinces; and an alluvial region stretching south of that river to Cape Florida. The Eastern States, which comprise nearly all the extended primitive country of the United States, present the usual irregularity of surface in their formation. A small portion only in the states of New Hampshire and Maine exhibit the rugged and dreary aspect of the Alpine regions of Europe. Some districts are crossed by ridges of mountains, which give them a bold and picturesque character, without rendering them unproductive, or presenting insurmountable obstacles to cultivation; as in the state of Vermont, and the range of country south of it, connected with the Green Mountains. The greater part of this region presents a surface continually undulating, and agreeably diversified with hill and dale. In approaching the coast it becomes more level, but rarely spreads into a plain of any extent. The country is finely watered by springs and rivulets, which flow from numerous hills, and wind through almost every valley. It abounds also in lakes, which an American writer, who has travelled over most parts of the region, estimates to exceed 1000 in number, or a surface of 70,000 square miles; and, as there are no stagnant waters in so uneven a country, they contribute to the salubrity of the air, as well as the fertility of the soil. The largest lakes are St. Winnipisiogee in New Hampshire, twenty-seven miles long, and ten broad; Lake Umbagog, about the same size; Moose Head Lake in Maine, sixty miles in diameter; and Memphremagog in Vermont, forty miles in length. Most of the lakes and streams are termed small, from their vicinity to others of unusual magnitude; but they are large when compared with those of Great Britain. The borders of the lakes are commonly distinguished by the wilder beauties of scenery, and are free from the aquatic vegetables which often deform and corrupt the stagnant waters of alluvial countries. The streams usually have a rapid descent, which renders them valuable for mechanical purposes, while it obstructs their navigation. They abound with interesting falls and beautiful cascades; and there are a few cataracts of considerable grandeur, although far inferior to that sublime object which is here the standard for this species of scenery—the Falls of Niagara.

49. The soil of the eastern states is productive, but from the unevenness of the country it is better adapted to pasturage than tillage; and laborious and skilful husbandry is necessary to render agriculture profitable. The vales of the rivers and streams are usually overflowed once or twice a year; and the alluvions thus formed and fertilized, which are termed in America intervale or bottom-lands, are cultivated year after year with scarcely any manure, and present a luxuriance of vegetation, and a richness of crops, which is no where surpassed in temperate climates. The vale of the Connecticut River, which accompanies it almost through its whole course, is distinguished for the beauty of its scenery. The banks are frequently bordered with a fringe of trees or shrubs. The intervales, or portions of the vale, divided by highlands or mountains, which touch upon the river, are fields of various extent, from 500 to 5000 acres, rising in terraces as they recede, and presenting every species of vegetation. A large portion is occupied by natural meadows, interspersed with lofty and beautiful forest trees, and occasionally diversified with orchards. Another division is covered with the various crops of the climate, with no visible lines of separation except the diversity of hue. Not a spot of waste or neglected ground is seen. When viewed in connection with the majestic river and its numerous tributaries, the villages scattered on its banks, and to gradual change from the rich cultivated valley of the rough declivities and forested summits the

the hills and mountains which bound it, nothing seems to be wanting to the completeness and beauty of the landscape.

It ought to be mentioned, to prevent any confusion concerning the geology of this region, that it contains several tracts of secondary formation. A strip of what is usually called transition rocks is found east of Lake Champlain; another extends from Rhode Island to Boston; and another narrow strip, from the Delaware to the Yadkin River. A secondary region extends from New-Haven, along the Connecticut River, to Vermont; and another from the Hudson to the Rappahannock, which covers the primitive in New Jersey. Richmond has a secondary coal formation. The banks of streams, lakes, &c., of course present many examples of limited alluvions.

50. The alluvion of the eastern declivity commences on the southern shore of Long Island, and extends between the Atlantic Ocean and the primary ridges of the Apalachian Chain, until it passes round the southern extremity of these mountains, and unites with the basin of the Mississippi on the shores of the Gulf of Mexico. A remarkable granite, or gneiss ridge, forms the boundary between the primitive and alluvial formation, which is believed by some to have been the ancient line of the sea coast. It crosses Long Island Sound at Hurlgate near New York; the Delaware at Trenton; the Susquehannah at the rapids near its mouth; the Potomac at Georgetown; the Rephannock at Fredericksburg; James River at Richmond; and the Roanoke at Halifax; producing rapids or falls in all these streams, except the Potomac, which obstruct navigation. The boundary continues by Raleigh and Columbia, nearly parallel to the coast, to Augusta on the Savannah River, and thence to Natchez on the Mississippi.

51. The shore is low and sandy. Its elevation gradually increases in proceeding south. The tide extends through the alluvion to the foot of the mountains, on all the rivers north of the Roanoke; but, below this, it does not reach the western boundary. Through the whole region there is very little that deserves the name of rock. The great mass below the soil is composed of sand, gravel, pebbles, shells, clay, and marl; the last of which sometimes forms extensive beds.

52. A bed of shells, sometimes cemented into shell-limestone, extends from Eutaw Springs on the Santee River, to the Savannah River, and the Chickasaw Bluffs, on the Mississippi. It is 600 miles long; from 10 to 100 broad; and in some parts 300 feet thick. In other parts, the gravel and sand are converted into a loose, friable sandstone. Remains of vegetables are found at the depth of 100 feet in various places. The character of the alluvion varies according to the nature of the countries lying at the head of its streams. The portion north of the Potomac, including Delaware and a part of Virginia, is also watered by streams which flow from secondary mountains and render the alluvion very fertile. The streams south of the Potomac flow from the primitive portions of the Allegany Ridge, and bring down only sand, or gravel, or the hard materials of primitive rocks, which produce a more steril soil in Virginia, North and South Carolina and a part of Georgia.

53. In these states, the tracts which are low and moist are soon covered with vegetation by the heat of the climate; and the accumulation of vegetable soil renders them peculiarly unhealthy. The same heat renders the dry tracts more sterile, and there is a greater contrast between fertile and poor soils in this region than in colder climates.

54. The borders of the streams are often [illegible] swamps, extremely rich and well adapted to the cultivation of rice, but productive of the most noxious effluvia. The more elevated tracts are too sandy and arid to permit the growth of forest trees except the pine.

55. The central portion of the continent, extending from the Apalachian mountains on the east, to the Chippewan range on the west, and from the gulf of Mexico on the south, to the sources of the streams which flow into the Arctic Ocean on the north, is occupied by a vast region almost uniform in its geological character and general features. It extends through more than twenty degrees of latitude, and thirty of longitude, covering a surface of 1,300,000 square miles. The northern part is occupied by the great chain of lakes and rivers which form the St. Lawrence; but nearly all the waters of this immense region are poured into the single river of the Mississippi, and find their way to the ocean by its outlet, giving just ground for calling it the basin of the Mississippi. By means of this great stream and its branches, one of the largest upon the globe, it enjoys an extent of inland navigation, emanating from a single river which is almost peculiar. It is entirely a region of secondary rocks, and therefore a large part of it is characterized by peculiar fertility; while the extent of latitude it embraces renders it capable of furnishing most of the productions of both hot and cold climates. The barriers, which separate it from surrounding countries, seem to designate it as the seat of a great empire, while they invite the inhabitants to attempt foreign conquest. The vast internal resources, and the easy communication through every part, will render it particularly independent of foreign aid; and the small extent of sea coast will almost secure it from the dread of a foreign invasion. It is rapidly filling with emigrants from the maritime United States, and has been traversed in several directions by men of intelligence; but we are still imperfectly acquainted with a large part of it, especially in the north and north-west.

56. For the sake of greater accuracy we shall describe this extensive tract in three principal divisions. The Delta of the Mississippi, and the neighbouring alluvion of the gulf of Mexico; the eastern section lying between the Mississippi and the Apalachian chain; and the western section, extending from the river to the Chippewan mountains. Before we proceed to the description it will be necessary to explain one of the great natural features of this continent, those extensive grassed plains, termed prairies. The eastern section of the continent, from the gulf of Mexico to the 55° north latitude between the Al-

lantic, and to lake Erie; the Ohio and the lower part of the Mississippi was originally, with few exceptions, covered by a dense forest; it was the largest probably upon the globe, and only a small part of it is yet destroyed. It extends fifty or one hundred miles beyond the lower Mississippi, and into a part of the state of Ohio; but here the whole aspect and character of the country is changed: it would seem as if some extensive conflagration had not only swept away every vestige of a forest, but had even exterminated its seeds, and destroyed the capacity of the soil to rear trees. The eye traverses extended plains where not a shrub is to be seen, usually waving with long grass, and presenting not a single object to interrupt the view or diversify the scene, except the birds and animals which may be feeding upon them; they furnish no marks by which to estimate the distance or size of any thing which may be visible, and the inexperienced traveller is often deceived in the most ludicrous manner. A series of these prairies of various extent, continues to the foot of the Chippewan mountains, interrupted occasionally by streams and hills, or studded with mountains, but generally presenting the most striking and dreary uniformity of scene. Many of them are entirely destitute of stones, and scarcely any wood is to be found, except in narrow strips on the borders of the streams.

57. The district east of the Mississippi which borders immediately on the Delta, embracing the greater part of the state of Mississippi, and Alabama, has a large portion of the most fertile land, and is adapted by its climate to furnish the richest products of agriculture. A part of it consists of river alluvion, but the greater part of the elevated or hilly tracts are termed bluffs. Agreeably to the usual characteristics of hot countries, there is scarcely any soil which holds a middle place between the best and the worst; the climate rendering those tracts quite sterile which are not sufficiently supplied with moisture. The greater part of this district is hence covered with that light soil which produces forests of dwarfish pines. Still the fertility of the remainder, and the importance of the staple production, cotton, renders it one of the most valuable tracts in the United States.

58. In the middle of this part of the basin is a mountainous section, connected with the Cumberland mountains, already described, embracing the greater part of Kentucky and Tennessee, and the western parts of Virginia and Pennsylvania, between the Ohio and the Allegany mountains. It abounds in hills, elevated near the Ohio, from 400 to 1000 feet above the river, and higher in the neighbourhood of the mountains. It is based upon limestone, which gives great fertility to its soil; but is so much broken by fissures and caves, that it is liable to extreme drought in the summer by the sinking of the water. It is in some degree rugged; but enjoys a temperate, healthy climate, and is capable of a high degree of cultivation.

59. The northern section of this part of the basin, between the Ohio, the Mississippi, and the lakes, embraces the states of Ohio, Indiana, Illinois and the North Western Territory. It may be divided into three portions; the hilly country, the plain country, and the valley country, besid the peninsular territories of Michigan and Wisconsin. The hilly country occupies about one-third of the surface, extending from the Allegany Ridge, and the hilly country of New York and Pennsylvania, to the ridge running from the mouth of the Wabash to the eastern part of Lake Erie, which divides their waters from the branches of the Ohio. Its surface is uneven, and in many places rugged and broken; but a large part of it is susceptible of cultivation. No high mountains are to be seen. The hills usually rise from 600 to 800 feet above the common level, which is about 1000 feet above the level of the streams, or the water-table of the country They invariably present rounded summits; and the soil is generally productive. Numerous fine tracts are interspersed among the hills, and the valleys of the streams are extremely fertile. The banks of the streams are usually abrupt and precipitous, and the channels deep.

60. The plain, or undulating country, extends from the hilly region to Lakes Erie and Michigan, and the Fox and Wisconsin rivers. On entering this section, the land gradually changes from a rough, to an undulating surface; not entirely destitute of hills, but rising into broad and gentle swells in some parts; and subsiding into extensive plains in others. Three-fourths of this region is occupied by prairies or savannahs, remarkable for the richness of their soil, yielding a spontaneous and luxuriant growth of herbage; but only skirted with trees. It is so nearly level that the streams flow sluggishly; the water of rains stagnates on the surface, and the exhalations render the air moist and unhealthy. Extensive tracts are well adapted for settlement; but many parts of the country must remain uninhabited for many years, on account of the scarcity of timber, and the deficiency of mill-seats and springs.

61. The valley country embraces the alluvial tracts in the river-vales of the preceding divisions, usually called bottoms. They are composed of alternate layers of sand and soil, deposited by the streams; and vary in fertility, according to the nature of the formation from which the streams originated. In the vale of the Ohio, the quality of the soil appears to improve from its source downward. The climate of the valley country is, almost without exception, unhealthy; but cultivation will gradually diminish, and perhaps remove, the causes of disease, by clearing the land of putrefying vegetation. The most extensive tract of valley country east of the Mississippi, is the American Bottom, extending about 81 miles on the Mississippi, from the Kaskaskias, to the Missouri. Its average breadth is four miles; and it is considerably elevated above the present level of freshets. It is generally very rich; and is destitute of timber, except on the margin of the river. Other bottoms of great extent are found below the junction of the Missouri. The Ohio bottoms are uniformly covered with deep forests, and have no prairies of importance. The valley of the St. Lawrence seems, from its geological character and general aspect, to be only a branch or portion of the basin of the Mississippi, and may at

least be advantageously considered in connection with it.

62. The general characteristics of the peninsular territories of Michigan and Wisconsin, are similar to those which have been described. The land appears to be more elevated and less abundant in streams. The Wisconsin, or north-west territory, is crossed by a wide range of hilly or broken country, commencing on the Wisconsin river and extending to Lake Superior; and called by Major Long the Wisconsin Hills. In geological character and metallic production they appear to resemble the Ozark mountains, which will soon be described, and probably belong to the same formation. The remainder of this basin is a narrow tract, lying on the lakes and the St. Lawrence; bounded on both sides by ranges of highlands which separate its waters from those of the surrounding declivities. It resembles the vale of the Mississippi to a considerable extent, in its geology and soil, from Lake St. Clair to Montreal. The northern parts of the state of Illinois, Indiana, Ohio, and New York, and the north-eastern part of Pennsylvania, which belong to this basin, are generally level, and equal any part of the United States of the same extent in fertility.

63. The western section of the great central basin, lying between the Mississippi and the Chippewan mountains, form the greater part of the territory formerly purchased by the United States, under the name of Louisiana, comprising the state of Missouri, and the territories of Arkansaw and Missouri. The southern portion is traversed by a range of mountainous country, recently surveyed, which are called the Ozark Mountains, and the northern is divided by the Missouri.

64. The country lying between the Mississippi and the Missouri, above their junction, contains no mountains of any magnitude. It is not destitute of abrupt hills and precipices; but is characterised by a rolling, undulating surface, variegated by broad river vales, and tracts of upland. It is generally destitute of forests, and only chequered with stripes of woodland on the borders of the streams. The bottoms on the Mississippi and Missouri are very rich, and generally covered with timber; but prairies become more numerous on going upward from their junction. The soil of this region is probably equal, if not superior, to that of any other tract of upland in the United States; but the scarcity of timber, mill-seats, and springs, must for a long time impede its settlement.

65. The tract extending south of the Missouri, to the Red River, between the Mississippi and longitude 96° west, has a surface much diversified. An extensive bottom lies on the Mississippi, extending from the Ohio to the Red River, which contains large swamps of cyprus trees, almost impenetrable from the undergrowth of shrubs. The Great Swamp, the most considerable, commences near the head of this tract, and stretches about 200 miles in length, and from five to thirty in width. The lowlands lying immediately on the Mississippi, are bounded by a chain of heights, corresponding in some degree to the bluffs on the river, which form the commencement of a tract of broken and hilly country, extending from 300 to 400 miles west. The vales on the Missouri and Arkansaw, and their branches resemble the country north of the Missouri, in the prevalence of prairies and the undulations of its surface. With these exceptions, the whole tract is very rough, presenting numerous peaks and cliffs of considerable height. The central portion forming a mountainous district, and resembling many portions of the Apalachian chain in appearance, has received the name of the Ozark Mountains, from the late expedition.

66. The Ozark Mountains extend from the Spanish province of Texas, across the Red and Arkansaw rivers, in a north-easterly direction towards the confluence of the Mississippi and Missouri; and thence are continued on a low range of hills to the Wisconsin Hills, and Lake Superior. The lead and copper with which they abound, is found throughout the whole distance; and the continuance of the same peculiar geological character indicates that both are parts of a single district formation. The range consists of low ridges, irregularly placed, interspersed with detached hills, and rarely rising more than 1500 or 2000 feet in height. The general course is the same with that of the Apalachian chain. Like them they have a basis of primitive, covered, and often crowned, with secondary rocks, usually forming rounded summits, and sometimes presenting perpendicular cliffs and abrupt precipices. They are covered with pines and dwarfish trees of other kinds, and have a dreary aspect compared with the surrounding country. The whole breadth of the range is from 100 to 150 miles. They give rise to a number of considerable streams, which flow into the Mississippi, Missouri, and Arkansaw. They may be considered as extending on the west, to a line drawn from the confluence of the Canadian with the Arkansaw river on the south-west, to the north of the Wisconsin river on the north-east.

67. From the base of the Ozark mountains, just described, an immense sterile desolate plain extends for twelve degrees of longitude, to the foot of the Chippewan range; which, from its being the first example of this kind found upon the continent, has been called the Great American Desert. The hilly country gradually subsides to a level but undulating surface, with nothing to limit or variegate the prospect but here and there an insulated hill or tract of table-land. The latter sometimes rise 600 or 800 feet above the common level, surrounded in many instances by rugged precipices, and add to the singular appearance of the region; their surface is usually waving, often nearly bare, but sometimes covered with stunted trees. The soil consists of fine granite sand, intermixed with the remains of organized beings, and sometimes not furnishing a rock or stone for hundreds of miles. It is almost entirely destitute of timber: a scanty growth of grass is the only covering, and large tracts are often met with which exhibit scarcely a trace of vegetation

68. The streams are broad and shallow; and, running through a bed of sand, are liable to become dry in the hot season. The valleys of the

rivers and creeks are usually sunk 150 or 200 feet below the common level of the country; they are bounded in some places by perpendicular precipices; and in others by bluffs or banks of gentle slope. Many of them are rich, especially near the mouths of the rivers; but towards the sources become sterile; and the salts and magnesia mingled with the soil are often so abundant as to destroy vegetation entirely. The waters are to a great extent impure, and frequently too brackish for use. The valley of the Canadian river is incrusted to a great extent with salt nearly pure, resembling ice or snow in its appearance. The waters of the river are so impregnated with salt as to be unfit for use; and this is the case with other tributaries of the Arkansaw and the Red River. These streams are also tinged with a deep red, from the soil over which they grow. On approaching within 100 miles of the Chippewan mountains, their snow-capped summits become visible. Here the hills become more frequent, elevated rocks more abundant, and the soil more sterile; until we reach the abrupt chain of peaks which divides it from the western declivity of North America. Not a thousandth part can be said to have any timber growth, and the surface is generally quite naked.

69. The region we have been describing approaches more nearly to the steppes of Tartary than any portion of North America. Scorched in summer by the reverberation of the rays of the sun, and chilled in winter by the freezing winds which blow over it without interruption, it presents no shelter or attractions to civilized man, and is occupied entirely by herds of bisons and wild horses, and a few roving bands of Indians, who subsist upon the game it supports. In regard to this extensive 'section of country,' says Major Long, 'we do not hesitate in giving the opinion that it is almost wholly unfit for cultivation, and of course uninhabitable by a people dependent upon agriculture for their subsistence. Although tracts of fertile land, considerably extensive, are occasionally to be met with, yet the scarcity of wood and water, almost uniformly prevalent, will prove an insuperable obstacle in the way of settling the country. Agreeably to the best intelligence which can be had, the vast region commencing near the sources of the Sabine Trinity, Brasis and Colorado, and extending northwardly to the forty-ninth degree of north latitude, by which the United States territory is limited in that direction, is throughout of a similar character. This region however, viewed as a frontier, may prove of infinite importance to the United States, inasmuch as it is calculated to serve as a barrier to prevent too great an extension of our population westward, and to secure us against the machinations or incursions of any enemy that might otherwise attack us from that quarter.

70. The waters of the vast basins we have been describing, are all discharged into the gulf of Mexico, through a tract of 700 miles in extent, consisting of alluvions formed by their deposits; and which, from the importance of the principal stream, may be designated the Delta of the Mississippi. This singular Delta, with its adjoining alluvion, contains perhaps as great diversity and extremes of soil as any portion of the globe of equal extent, from the most sterile to the most productive. The Gulf is bordered by an extensive marsh or swamp, which forbids all settlements immediately upon the shore. It extends to the distance of twenty or thirty miles, is destitute of trees, and covered with a coarse species of reed, four or five feet high, presenting the most dreary prospect to the ships which pass through it on their way to the ports upon the rivers; and forming not merely a barrier to improvement, but a source of pestilence. The south-western portion of the state is occupied by extensive prairies, bordering upon the sea-marsh, admirably adapted to the rearing of cattle. Thousands are fed here continually, and the district is almost exclusively inhabited by the herdsmen. Beyond the prairies, with the exception of the river alluvions, the greater part of the country is occupied by pine forests, which indicate a soil difficult of cultivation, and only likely to be occupied when there shall be an overflow of population. In some parts east of the Mississippi they descend to the water's edge. The remainder of the region is occupied by river alluvions, which, from the structure of the country, are divided into two portions, river-borders and the interior plains. In their annual inundations, the streams deposit their coarser and heavier portion of the alluvion immediately upon the banks, and have produced a loose but fertile soil, elevated above the level of the surrounding country, and ultimately above the common floods. In passing into the interior only the finer and argillaceous particles are left, forming a hard and stiff surface, which is annually overflowed, and continues covered with water after the river has subsided; and when laid dry is almost as solid as stone, and ill adapted for cultivation. These interior tracts, usually but erroneously called swamps, are equally unfit for habitation or cultivation; and the only lands which can strictly be called arable in this region are the alluvial river borders. Their extent is comparatively small; and in this respect the Delta of the Mississippi is essentially different from the continuous region of fertility at the mouth of the Nile. But the richness of their soil in the luxuriance of their natural products, and the value of their crops, seem to be a sufficient balance for their united extent, and place this region among the most productive of North America. It is constantly extending into the Gulf of Mexico, from the alluvion brought down by the ordinary current and annual floods; and its importance must be greatly enhanced, as population increases in the great basin, of whose products it must be the chief market, and whose wants it must in a great measure supply.

71. The northern or arctic declivity of North America has been examined by few travellers, and our knowledge of it is very imperfect. We are ignorant, particularly, of the nature of the boundary on the south. Many have supposed that a range of mountains divide the waters of the Mississippi from those of the northern streams; but the best information leads us rather to rely on the old statement, derived from

the natives, that four of the largest rivers of the continent, the Mississippi, St. Lawrence, Sascatchawine, and Columbia, have their sources in the same plain. According to the statements of Col. Dixon, and others who have traversed the country between the Missouri and the Arsinibon River of Hudson's Bay, no elevated ridge is to be seen; but, on the contrary, tributaries to both these streams rise in the same champaign country. The general appearance of the country near the sources, and of these great streams, and north of the great lakes, favours this idea. The water-courses are generally chains of lakes; and stagnant pools and lakes are scattered in every direction, without any indications of the declivity produced by a chain of mountains, and afford strong evidence that it is an extensive plain, little inclined on any direction. Hence, it has been inferred, that it is merely a portion of an immense region of flat country, embracing the central basin, and extending northwardly from the Gulf of Mexico, between the two great ranges of mountains, and spreading, as they diverge, to the Atlantic, on the east, and the Arctic Ocean on the north. The same geological formation may be traced from the St. Lawrence to the sources of the northern streams. The extensive division north of these great lakes, as far as it has been examined, has a dreary level surface—a sterile, and generally arid soil; and an inhospitable climate, which gives it a striking resemblance to the frozen wastes of Siberia. Its only products of value are the furred animals; and the few Indians that wander over it obtain but a scanty and precarious support.

72. The western declivity of North America is among the least-explored portions. A few travellers have crossed it in the Spanish territory two centuries ago; and a single expedition, under the command of Lewis and Clarke, examined the Missouri, and the country between its source and the mouth of the Columbia River; and a few hunters and fur-traders have occasionally travelled over the northern portion.

73. We have reason to believe that the southern part of the declivity, above thirty degrees of latitude, contains an arid sterile region of the same character with that on the eastern side of the mountains; but we have no means of estimating its extent. The Mexican provinces below this latitude are productive countries, well adapted for cultivation, but very thinly settled, and imperfectly described. The peninsula of California is a sterile tract, traversed by a chain of mountains, and presenting only an arid sandy soil at their base; but the province of New California, extending north of this to the territory of the United States, is a well-watered, fertile, and picturesque country; but, like other portions of the western declivity, has never been fully described. The basin of the Columbia River, which lies north of the Spanish territory, is also a well-watered and productive tract. On descending the mountains towards this river we enter on a high level plain of fifty miles in breadth, which is rather sterile. In advancing, the soil gradually becomes more fertile, and a productive country, most of which is level, extends from 400 to 500 miles to the mountains nearest the coast. It is generally distitute of woods; but there are broad stripes of forests on the banks of the streams which furnish an ample supply. The same valley, or level tract, seems to extend northward, and was observed by Mackenzie to be 200 miles in width, in latitude 53°. This region contains a large number of Indian tribes, and is capable of supporting a considerable population.

74. Between the central basin, and the western declivity of the continent, lies the table-land of Mexico, one of the most extraordinary elevations on the globe. In Europe, Switzerland, and some of the neighbouring regions, and the interior of Spain, are considered very elevated countries. But this opinion is founded merely on the aspect of groups of summits, and collections of parallel chains of mountains. None of the plains on which they rest, or by which they are separated, of any extent, are more than from 1500 to 2500 feet in elevation. The Desert of Cobe is stated to be 5500 feet in height. But the whole interior of Mexico, extending from 18 to 40 degrees of north latitude, or more than 1500 miles in length, forms an immense plain, elevated from 6000 to 9000 feet above the sea. It appears to decline towards the north, but so gradually, that from the city of Mexico to Durango, a distance of 140 leagues, the surface maintains an elevation equal to that of Mount Cenis and St. Gothard. Beyond this place, which is 6500 feet above the ocean, the height is not ascertained; but the continuation of the same highlands, forming the base of the Chippewan mountains, in the United States, presents a surface about 3000 feet above the level of the sea. The surface is so uniform that carriages travel with great ease as far north as Santa Fe.

75. This singular table-land presents a succession of extended plains, separated by hills which present scarcely any obstacles to be surmounted by art in the construction of a road. The ease of communication and transportation, comoined with the fertility of the soil, and the richness of the mines, confer on this extensive region advantages which are almost singular; but, in common with other elevated tracts, it suffers for want of water and navigable streams. The quantity of rain is small, and there are few mountain summits which reach the line of perpetual snow, and thus furnish a reservoir for supplies of moisture. The narrowness of the continent in this part prevents the collection of a great mass of water. The lakes which abound seem to be merely the remains of extensive basins of water which formerly existed, and these appear to be annually diminishing. Springs are not frequent; and streams are seldom found, except on the declivity, or at the foot of the table land. This aridity has been increased since the arrival of Europeans; by the destruction of trees, and the draining of moist lands. Hence, many of the most elevated portions are covered with saline incrustations, and bear a great resemblance to the steppes of Asia. The declivities are exposed to humid winds, and frequent fogs, which produce vegetation of an uncommon beauty and strength; and a great

part of the region is very productive in ordinary years; and from the peculiarity of its climate furnishes the most valuable plants of different zones.

76. Rivers and Lakes.—In describing the rivers and lakes of North America, the first place is due to that noble stream which was called by the Indians the Mississippi, or mother of waters. It is the great outlet for the waters of central North America, and the longest river in the world, except the Amazon. Its origin must be traced to the source of the Missouri, which is the largest of the two branches composing it, and which gives its character to the stream. The Missouri rises in the Chippewan mountains, by three branches—Jefferson, Maddison, and Gallation rivers, between forty-two and forty-eight degrees north latitude. Its course is very circuitous, first bending in a curve to the north, then descending nearly south, and turning suddenly to the south-east, before its junction with the upper Mississippi. At the distance of 400 miles from the thread of navigation, it rushes through the pass which is called the gates of the rocky mountain, presenting a scene of uncommon grandeur. It is confined to a channel 450 feet broad, and runs nearly six miles between precipitous rocks, 1200 feet in height, which often overhang the stream with the most threatening aspect. After a course of more than 3000 miles, in which it drains a tract of 400,000 square miles, it is about half a mile broad, and very deep, running with a rapid and turbid current.

77. Here it is joined by the upper Mississippi, which is a broad stream, only 1300 miles in length, with clear but shallow waters. The supply it furnishes to the main stream is small compared with that brought in by the Missouri; and it does not drain more than one-third of the extent of country. The united streams of the Missouri and Mississippi, or the lower Mississippi, receives most of its waters from the Missouri, and with them its turbid appearance and rapid current. After a course of 1400 miles they are discharged into the gulf of Mexico, below New Orleans, making the whole length of the stream from the source of the Missouri, 4500 miles. There are six outlets to the Mississippi, two of which have twelve feet of water on their bars in ordinary seasons. The north-eastern passage is principally used. Below the mouth of the Red river, the stream is generally about 3000 feet in width, and twenty feet deep, flowing three miles an hour. The waters are distinguished from those of the gulf of Mexico, for some distance from the mouth. The quantity discharged is estimated at 230 millions of gallons per minute—twice the quantity discharged by the St. Lawrence, and seven times that which flows from the Ganges.

78. This great river forms the chief outlets for the waters of the interior of the continent, and contains a surface of 1,300,000 square miles, or two-thirds of the United States' territory, equal in extent to the Russian empire in Europe.

79. Of its numerous branches, the Arkansaw ranks with the first rivers of the eastern continent, and the Red river and La Platte exceed any in Europe, except the Volga. The Tennessee, the Ohio, the Kansas, and the Yellowstone, hold the fourth rank among the rivers of the world, and many other branches rival some of the most celebrated in Europe. The banks of the Mississippi, in the lower part of its course, are annually overflowed from the effect of the rains and the melting of the snows, and large tracts of the country are covered with water.

80. Next to the Mississippi itself, the Arkansaw is the most important river of the central basin. Assuming the Missouri as the principal stream, the Arkansaw is its chief branch, ranking even before the upper Mississippi. The sources are not well ascertained, but are probably near the line of 420. It winds through eight degrees of latitude, and twenty of longitude, a distance of 2000 miles, before it reaches the Mississippi. Its channel, from longitude 100°. W. of London, is the boundary between the United States and the Spanish possessions. This river is more impeded by falls and cataracts than most others in the basin. In the last 600 miles of its course, it flows in a deep and rapid channel 600 yards wide. The Canadian is a very large branch of the Arkansaw, nearly 1000 miles in length, which from its red colour has been hitherto supposed to be a branch of the Red river. It is remarkable that a large part of its channel is perfectly dry during the summer season, in consequence of the aridity of its basin. Red river is next in magnitude and length to the Arkansaw. It rises in the mountain prairies of New Mexico, about ten degrees south of the source of the Arkansaw, and not far to the east of Santa Fe. It pursues a winding course of 1500 miles, and enters the Mississippi near its mouth, dividing the branches of the Mississippi from the streams which flow into the gulf of Mexico. In its progress it receives a number of branches. In the lower part of its course it presents a striking peculiarity by which it is distinguished from most other streams. For a distance of 100 miles it is skirted by a series of lakes from five to thirty miles long, and a quarter to three quarters of a mile wide, which serves as a kind of reservoir to regulate the height of the water. When the stream is highest, they receive the surplus water, and when it is again depressed, they discharge it slowly, to prevent the destructive effects of an excessive flood. In some parts it is also divided into several channels, each confined within high and steep banks. Its navigation is also obstructed by an extensive and singular collection of trees and brush, called the great raft, which covers its waters, and is considered impassable by boats. This river takes its name from the colour of its water, which in times of flood is of a bright red, and partakes more or less of this colour through the year. It is doubtless derived from the red argillaceous sandstone of the Chippewan mountains, and the neighbouring region. The White, St. Francis, and several other considerable streams, empty into the Mississippi on the west, below the mouth of the Missouri; but none claiming particular notice in connexion with these great streams. Above the Missouri, the principal branch on the west is St. Peter's river: but following the Missouri as the main

stream above the junction, we find a great number of considerable branches, of which the Platte and Yellowstone are the largest.

81. The Platte, as its name imports, is almost uniformly a broad and shallow stream, fordable almost every where except when swollen by freshets. The banks are low, and yet, from the breadth of the channel, and the rapidity of the current, are seldom overflowed. Its valley is a wide plain, terminated by gravelly hills. The whole length of its course is 750 miles; and the influx of its waters gives a new character to the Missouri, which is more rapid and turbid, and more difficult of navigation, below its mouth. The principal remaining branch of the Missouri, is the Yellowstone, which joins it 680 miles below its source. Its own course is about the same; and the volume of water appears to be as great as that of the Missouri. It is 800 yards wide at its outlet, and materially increases the size of the main stream below.

82. On the eastern banks, a little above the mouth of the Missouri, the Mississippi receives the Illinois, a stream 400 yards wide at its mouth, and 400 miles in length. It rises by two branches so near the waters of lake Michigan, that it forms one of the proposed channels of communication to the lakes which will be described hereafter. It flows in a gentle current unbroken by rapids, and is bordered by a fertile country. But the great eastern branch of the Mississippi, and indeed one of the most interesting rivers of the basin, is the Ohio. It rises in the Allegany ridge, in the western parts of Pennsylvania and New York, by two branches, the Allegany and Monongahela. They unite at Pittsburg; and after an entire course of more than 1000 miles, empty into the Mississippi 160 miles below the mouth of the Missouri. It descends with a rapid but smooth and transparent current, which is not broken by any considerable falls, except at Louisville. It varies in breadth from 400 to 1400 yards. At Cincinnati it is about 800 yards, which may be regarded as the mean breadth. The floods of this stream rise from thirty to sixty feet above the level of low water. It has sufficient depth at these periods to float a vessel of 300 tons to Cincinnati. This stream has been admired from the period of its discovery, for its beautiful scenery, especially in the first 200 or 300 miles of its course. The gradual slope and luxuriant fertility of its banks, the gentle swells, and deep forests, which are interspersed with cultivated grounds, and rising villages and cities, combine to form a landscape perpetually varying and eminently beautiful.

83. The Ohio receives several considerable branches in its progress. The largest on the north is the Wabash, 500 miles in length; but the principal are the Cumberland and Tennessee, on the south, both of which rise in the Allegany mountains; and, pursuing a circuitous course, enter the Ohio about thirty miles from its mouth. They are both fine streams: the Cumberland about 600, and the Tennessee more than 1000 miles in length. The basin of the Ohio is nearly as large as that of the upper Mississippi, and far more interesting and valuable. It is probable that no portion of the United States contains so large a proportion of fertile land so well [illegible] for settlement.

84. The remaining rivers of North [illegible] are found almost entirely in the [illegible] a few emptying into the gulf of Mexico, most of them descending from the [illegible] chain into the Atlantic Ocean. Of the [illegible] Pearl and Pascagoula are not more [illegible] miles in length, and present no features of interest. The Mobile is rather the estuary of considerable streams, the Tombigbee and Alabama, rising in the mountainous region [illegible] ing on Tennessee, which forms a branch of the Apalachian chain. The Apalachicola a stream of some magnitude. In the peninsula of Florida, the only river of magnitude is the St. Johns; which runs from south to north, parallel to the eastern coast, and sometimes 100 miles from it. It rises in a swamp [illegible] called Lake Mayar, and expanding in its course into several lakes, of which Lake George is the principal, empties into the Atlantic, above St. Augustine, at the distance of 300 miles from its source. The St. Marys, which enters a little above this, is a small stream, only remarkable as the boundary between the State of Georgia and Florida.

85. The Altamaha is the first river of magnitude which belongs to the Apalachian chain on the Atlantic coast. It is formed by two principal branches, the Oconee and Oakmulgee, and empties into the Atlantic by several mouths after an entire course of 500 miles. The Savannah is a smaller stream, whose mouth is the principal port in this part of the [illegible] However in the eastern boundary of the [illegible] in North and South Carolina, the chief rivers are the Pedee and Santee, which are also of the size of the Savannah, or 450 miles in length, and the Cape Fear River which is only [illegible] Their branches are numerous, and extend over a large part of these states, but present no feature of particular interest. After passing the Cape Fear River, there are no streams of magnitude until we reach the Chesapeake Bay. The James is a noble stream, the principal river and channel of commerce in Virginia. It rises in the interior among the mountains; receives the tide at the distance of 100 miles from its mouth, and empties into the southern extremity of Chesapeake Bay, by a broad estuary, called Hampton Roads, after an entire course of more than 500 miles. The Potomac is the last considerable stream of the Alluvial regions, rising in the Allegany Ridge, and pursuing a winding course of 500 miles, enters the Chesapeake at the middle point of its length. It is the boundary between the states of Virginia and Maryland, through its whole course. At the head of tide waters, 300 miles from its mouth, is the city of Washington, the seat of government of the United States, which is accessible to ships of the largest size. The course of all the streams of the Atlantic alluvion, which have been described, is nearly south-east. The remaining streams of importance run from north to south. The most in order is the Susquehannah, which empties at the head of the Chesapeake Bay; and indeed may almost be considered as forming this great estu-

It is a large and beautiful stream, rising by several branches in the state of New York, and pursuing a rapid uninterrupted course through a fertile country extending the whole breadth of Pennsylvania. Its length is about four hundred and fifty miles

86. The Delaware is a more tranquil silent stream, of about 300 miles in length, and rising not far from the sources of the Susquehannah, it empties by the fine estuary called Delaware Bay, exclusively supplied by its waters. The Delaware forms the boundary between the States of Pennsylvania and New Jersey through its whole course. Its banks are rich and populous; and at the head of ship navigation is Philadelphia, one of the two largest cities of the United States. The Hudson, which is the next in order, is inferior to the Delaware and Susquehannah in length, but more important. It is a broad deep stream, in which the tide flows 160 miles, and seems rather like an arm of the sea than a river. The streams south of this have usually low and level banks, with none but the softer beauties of scenery. The Hudson pursues its course for some distance among the precipitous cliffs and lofty peaks of the Highlands, and along the Catskill mountains, presenting on this part some of the most magnificent and sublime scenery; and in other parts, winding through a rich and level country, which is uniformly more elevated than the banks of the more southern streams. The Hudson rises in the mountainous region between Lake Ontario and Lake Champlain; and, running nearly south into the noble estuary and harbour of New York, is discharged into the Atlantic. Throughout its whole course the banks are lined with large villages and towns, and the city of New York, at its mouth, is not only the most populous in the United States, but is rendered by its situation the great commercial capital of the country; and is gradually becoming the great centre of trade for all the region east of the Apalachian chain, and north of the Ohio. The only considerable branch of the Hudson is the Mohawk, which flows in from the west a little above the head of tide-water. It is precipitated from a bed seventy feet above the level of the Hudson over the falls of the Cohoes. The whole course of these streams is within the state of New York. The valley of the Mohawk is the first passage around the Apalachian chain between the waters of the Atlantic and the upper lakes, and contains the great canal of communication.

87. The Connecticut is the principal stream of the primitive country east of the Hudson, which comprises all the eastern states. It rises on the highlands which bound the valley of the St. Lawrence, a little beyond the forty-fifth degree of north latitude, and pursues a southerly course of 400 miles to Long Island Sound, separating Vermont from New Hampshire, and crossing the states of Massachusetts and Connecticut. The former part of its course presents some bold features, but none of the grandeur belonging to the Hudson. The lower portion flows through a rough uneven country, but is bordered by an alluvial valley of great fertility and exquisite beauty. It is a broad, transparent, rapid stream, generally tranquil, but diversified with a few rapids and falls; its banks are populous, and thickly set with towns and villages, and connected by numerous bridges. We find only a few small streams, such as the Charles, Taunton, &c., east of the Connecticut, until we reach the coast of New Hampshire and Maine. This rugged country has a number of fine streams of considerable length, but flowing chiefly through a wilderness, and only imperfectly described. The Merrimach belongs to this region, although it empties in the state of Massachusetts. Its course does not exceed 200 miles; and it is chiefly remarkable as having its navigation more improved by art than any other river in North America; and, indeed, as being the first example of this kind upon the continent. The Piscataqua is a small stream only forty miles in length. The Kennebeck is much larger, and more important The Penobscot is the largest stream of Maine exceeding 250 miles in length; and the St. Croix, or Scoodre River, expands to a considerable breadth near its mouth, but is chiefly interesting as the north-eastern boundary of the United States. The St. John's River is the most important stream of this region, rising in the northern part of Maine, and flowing first to the north-east and east in this state, and then bending to the south, discharges itself in New Brunswick into the Bay of Fundy, after a course of not less than 400 miles, and forming the largest and one of the most navigable streams of the northern section of the coast. The tide flows up eighty miles. The highlands at the head of this stream are a kind of centre of waters, resembling, in miniature, those at the head of the Mississippi. Giving rise on the south-east to this river and the Penobscot, they send off, within twenty miles, the Chaudesere branch of the St. Lawrence to the north; and at no great distance the Connecticut flows to the south, and the St. Francis to the north-west. The heads of these streams, and the direction of the highlands from which they rise, have been recently examined by joint commissioners from Great Britain and the United States, in order to settle the boundary which passes along their summits; and we may therefore hope for a more complete account than we have yet received.

88. We have now reached the boundary which divides the waters we have been describing, from the second great river of North America in the order we have followed, the St. Lawrence, which absorbs all the waters of a tract of country extending from the ocean to the sources of the Mississippi. It is here that we find, in a connected chain, the five principal lakes of North America, whose outlet only has received a distinct name, but which should be considered as one immense stream of various widths, from Lake Superior to the Gulf of St. Lawrence. Viewed in this light, the St. Lawrence exceeds any other river on the globe, as a channel of inland commerce; and surpasses any of the old continent in grandeur. Its length is 2000 miles, and its waters are estimated to cover a surface of 90,000 square miles.

89. Lake Superior, the first important division of the chain, is the largest body of fresh water on the globe; stretching about 350 miles in length, and 100 in mean breadth. Its waters

are drained from other streams of a surrounding basin, probably 60,000 square miles. They cover 35,000 square miles, an extent greater than the whole of Scotland or Ireland; and its islands exceed in size the lakes which are scattered over the surface of these kingdoms. Isle Royal, the largest, is 100 miles in length, and in some parts 40 in breadth. The waters of Lake Superior are every where of sufficient depth for the navigation of the largest ships. The shores are rocky, and often rise perpendicularly from 300 to 1500 feet in height; and the principal harbours of safety are found in the islands. The lake is also subject to violent storms, which, with the want of harbour, renders the navigation very dangerous. The soil of the basin is generally so sterile, and the climate so severe, that this extensive sheet of water will probably be of little importance in the promotion of commerce or civilization. It is now only employed as the thoroughfare of the fur trade, which passes by the Grand Portage River on the west, to the sources of the Assinoboin, Red, and other rivers of the northern declivity.

90. Lake Superior is 600 feet below the level of the sources of the Mississippi, and about the same height above the surface of the Atlantic. Its waters issue at the east end in a rapid, interrupted by huge masses of rock, called the Falls of St. Mary. These are an effectual bar to navigation, except for boats and canoes, although the fall is only 23 feet in half a mile. On passing the tracts of St. Mary, we enter the second great division of the basin of the St. Lawrence, comprising Lakes Huron, Michigan, St. Clair, and Erie. The whole surface drained is about 400,000 square miles, of which the lakes occupy 50,000.

91. Lake Huron is next to lake superior, the largest in North America. It resembles that lake in its triangular form, and the purity and depth of its waters. It is about 220 miles long, and 90 in mean breadth, covering about 20,000 square miles, an extent greater than the whole of Switzerland. It is almost divided into two parts by a chain of islands, called by their Indian name of Monatoulin, or Islands of the Evil Spirits, whose residence they were supposed to be.

92. On the west of lake Huron, is lake Michigan, a singular cul de sac appended to this mass of waters, which seems as if it were intended, like the regulating receiver of some hydraulic construction, to receive the occasional surplus and supply the deficiencies of the main stream. It is situated entirely in the territory of the United States, between forty-two and forty-six degrees north latitude. It stretches from north to south in an elliptical form about 300 miles in length, and 50 in average breadth, covering a surface of 15,000 square miles, or half the extent of Ireland Green bay is a considerable branch on its western side, 120 miles in length, connected with it by a passage, 75 miles in width. Lake Michigan extends nearly parallel to the shores of lake Huron and its outlets, as far south as the latitude of lake Erie, at the distance of less than 200 miles from its nearest point, inclosing the peninsular territory of Michigan. The communication across the isthmus might easily be completed by a short canal between the rivers of each lake. The straits of Michulmackinare or Mackinaro form the outlet from lake Michigan to lake Huron on the north-east. The strait is navigable for vessels drawing twelve feet of water, and the lake itself for ships any size.

93. Pursuing the direct course of the waters, the river St. Clair conducts us from lake Huron to lake St. Clair, a beautiful but comparatively small sheet of water, about 30 miles in diameter, and 900 square miles in area. The waters are again confined in the channel of the deep broad river of Detroit, which issues from the southern extremity of lake St. Clair, after a course of twenty-seven miles, again expands into the large lake Erie. Lake Erie is the fourth in extent, of the great chain, and forms a beautiful and transparent sheet of water. It has not the great depth of the upper lakes, but still is navigable for sloops of considerable burthen, and was the scene of an important naval engagement during the late war. It is about 230 miles long, 45 broad, and 10,000 square miles in extent. The northern shore is generally high and rocky; the southern more sandy and shelving. The rocky bottom renders anchorage insecure; and there are not many harbours in which vessels can take refuge from the violence of its storms. The waters of this lake are discharged at the eastern extremity by the river and falls of Niagara, over a precipice 160 feet high and with rapids above and below the great falls, which render the whole descent to lake Ontario, 450 feet. In consequence of this the discharge of its waters is much increased or diminished by the winds, and there is occasionally considerable change in its level during a long prevalence of wind from the same quarter

94. Lake Ontario, like Erie and Michigan, has an oval form, but is inferior to both in size. Its length is 180 miles, its breadth about 40, and its contents about 7000 square miles. Its average depth is estimated at eighty fathoms. There are several good harbours, and it is the channel of valuable commerce; but its navigation is liable to much danger from the storms which prevail over the whole of this chain of inland waters. At the eastern end of lake Ontario it empties itself by numberless passages through a group of islands termed the Thousand Isles, into the channel of the St. Lawrence, and, with some inconsiderable expansions, the form and current of a river is preserved to the ocean.—After passing the island of Montreal, the St. Lawrence receives the waters of two other connected lakes, lake Champlain, and lake George, which are situated within the United States. Lake George is the source of these waters; a small but interesting lake, remarkable for the purity of its water, and the beauty of its islands and scenery. It flows with a rapid current into Lake Champlain, which extends 160 miles in length, and one to sixteen miles in breadth. Its shores are generally bold and rocky, and often precipitous; and its scenery, especially on the eastern shore, is often very fine. These lakes form the principal passage between the United States and Canada, and have been at different

periods of the history of North America, the scenes of sanguinary battles, and naval engagements.

95. Several smaller lakes are connected with the great chain which has been described. Some of the most interesting are the small lakes of the state of New York, emptying into Lake Ontario. Cayngo lake, the largest, is forty miles long, and twelve broad, about the same extent with the lakes of Constance and Geneva, in Switzerland. It is here interesting to notice also, that Lake Ontario, the smallest of the great chain, except St. Clair, is larger than any body of fresh water yet discovered on the eastern Continent. Lake Nepining, which empties into lake Huron, is the most considerable on the north of the great chain, being about equal to lake St. Clair in extent.

96. The river St. Lawrence, which forms the outlet of this vast mass of waters, after a course of 400 miles from lake Ontario, forms an estuary called the gulf of St. Lawrence of about the same length, and 250 miles in breadth, which is separated from the ocean by the island of Newfoundland, and communicates with it by two openings between the island and the main. The quantity of water which flows through this channel to the ocean, after all the waste of evaporation, may be estimated by the dimension of the channel below the falls of Nyagara. The river is here half a mile broad, twenty-five feet in average depth, and flows about three miles an hour. In one hour, therefore, it discharges a column of water, which would fill the channel for three miles, or 1,111,000,000 cubic feet; being 8,000,000 cubic feet, or 113,000,000 gallons each minute.

97. On the northern declivity of North America we find rivers of a similar character to the St. Lawrence, but inferior in magnitude, including several lakes in their course. The most remarkable is Mackenzie's river, which is called the Unyah or peace river at its source. It passes through lake Athapescow, and assumes the name of Place river; expands into the Slave lake, and from the northern extremity of this lake pursues its course to the Arctic ocean, under the name of Mackenzie's river; the whole length of this stream exceeds 2000 miles. The Athapescow lake which discharges its waters through the same outlet, is also supplied by the Athapescow or Elk river, which rises not far from Peace river. Havi lake lies between latitude 60° and 62° north. It is twenty-seven miles in length from east to west, and about forty in average breadth, and equal to lakes Michigan and Erie in size.

98. The Sascatchawine river rises in the Chippewan mountains, and passing through lake Winnipee, empties by Nelson's river into Hudson's Bay. A number of other lakes are connected with these waters, and with each other, by a variety of inosculations which indicate the level character of the country. The water course which rises near lake Superior in the Long lake, and lake of the Woods, also passes through lake Winnipic, and finds its way by a different outlet to Hudson's Bay.

99. Lake Winnipic appears to be the largest of the northern lakes, and Slave lake is next in size; both are less than lake Huron, and approach to lake Erie in extent. The Athapescow lake is among the largest of the others. The lake of the Woods which forms a part of the boundary of the United States, is among the small lakes of this continent, but is larger than those of Switzerland. The nature of the country, and the climate, will probably prevent the employment of these extensive water courses in commerce, except in the portage of cannon, for the conveyance of the hunters and their provisions, and furs, and the few articles which the natives are able to purchase.

100. In the southern peninsulas portion of North America, the largest lake is Nicaragua, about 200 miles in circumference. It is of such depth as to be navigable for the largest vessels. It communicates with Lake Leon, and its waters empty into the Carribbean Sea, by the River St. Juan: it is only twenty or thirty miles from the Pacific Ocean. The valley, in which is the city of Mexico, contains five lakes, of which Tetruca, which formerly flowed around the capital, is the largest. It is eighty square miles in extent, and is only remarkable on account of its situation, and saltness. All these lakes communicate with each other, and the superfluous water of the valley is discharged by the river Tula, at the harbour of Sampico. Lake Chapala, which lies west of these, is the largest in Mexico, thirty miles in length, and twenty in width. It communicates with the river St. Jago, which empties into the Pacific Ocean.

101. The only large river of the western declivity which has been fully described is the Columbia, which rises in the Chippewan Mountains. It has three principal branches, Clark's River, Lewis's River, and the Multnomah; the most northern of which rises near the sources of the Missouri, while the main stream rises near the head waters of Mackenzie's River: it empties into the Pacific, in the forty-sixth degree of north latitude, after a course of 1500 miles. The stream is remarkably large in proportion to its length. At the junction of Lewis's River, 400 miles from the sea, it is 960 yards wide, and below the head of tide-water, 159 miles from its mouth, it expands to four or five miles, and is capable of receiving vessels of considerable burthen. The greater part of its basin is considerably elevated above the ocean, and it is, therefore, precipitated over a series of ledges which obstruct its navigation, but add to the beauty of the scenery: the banks are generally productive, and the appearance of the country interesting. The Colorada, the principal remaining river of the western declivity, rises in the Mexican Cordellera, or Sierra Madre, and empties into the gulf of California after a course of 1000 miles. It has been too imperfectly examined to permit any correct description. On passing to the western side of the mountains, we find the Rio del Norte, which rises near the sources of the Arkansaw, about 300 miles north-west of Santa Fe. It is peculiarly an independent river, and pursues a course of 1500 to 2000 miles to the gulf of Mexico almost without receiving a single branch. The stream can be forded with great difficulty during the summer; but it is subject, like other

rivers of this region, to annual floods, which continue two or three months, and raise it far above the ordinary level. Its waters are remarkably turbid. The Colorado of Texas is the only considerable river before reaching the Sabine, which forms the western boundary of the United States for 250 miles from the gulf of Mexico to its source, and empties only a short distance from the mouth of the Mississippi.

102. Inland Navigation.—North America is penetrated by four great rivers, the Mississippi, the St. Lawrence, the Columbia and Mackenzie's River, by which navigation is extended to a great distance into the interior. The Mississippi and its branches, drain the great central basin which lies between the Allegany and Chippewan Mountains. On the Mississippi, the navigation for boats of considerable burthen extends to the Falls of St. Anthony. On the Missouri, which is the largest, and in fact the principal stream, it extends to the Gates of the Rocky Mountains. From the secondary character of the country, the numerous branches of these great rivers are generally navigable, and afford a passage from almost every part of the western states, and the vast regions at the base of the Rocky Mountains, to the Gulf of Mexico and the ocean, at least during the season of high water, from the spring to the middle of summer. The current of the principal streams is so rapid, that although their depth would admit vessels of considerable size, the navigation is chiefly by means of steam-boats. Even the ascent from the mouth of the Mississippi to New Orleans is so difficult that vessels are sometimes delayed thirty days.

103. The navigation of the Mississippi is attended with some danger, from the numerous trees fixed in its bed, which are called by the boatmen planters and sawyers, and are as fatal to the boats as reefs of rocks. Below Natchez these dangers are obviated by the depth of the water. Above this they become more and more numerous and difficult to pass; but the main channel, though intricate, affords depth of water in all stages sufficient for boats of five or six feet draft, to the mouth of the Ohio. From this point to the mouth of the Missouri, 220 miles, the navigation is obstructed by shoals at low water, which will not admit boats drawing more than three feet. Its current probably averages 3¾ miles an hour. The obstructions to the navigation of the Missouri resemble those in Mississippi but are much greater. This stream is rapid and turbulent. No part of it is exempt from rafts, bars, snags, or other obstructions, and the channel is very intricate. From March to July or August, it is raised by freshets to such a height as to admit boats of any burden; but during the remainder of the year, it can scarcely be called navigable, except for boats drawing two to two and a half feet of water. Its velocity in a middle stage of water is four miles and a half; in freshets five and a half per hour. It is usually blocked up with ice during the winter.

104. The Ohio is navigable for boats of considerable burden, from the middle of February to the latter part of June, and again a few weeks during the freshet in the autumn. The falls of Louisville can be passed by large boats, only in the highest water. During low water, boats of small burden cannot pass some other rapids and shoals, and the river is fordable in many places.

105. The Arkansaw is the next branch to the Missouri in size. It has only short periods of flood, and will not admit boats of considerable burden. A part of its channel is sometimes dry. The Canadian, a branch of the Arkansaw, 1000 miles in length, leaves its channel dry a large part of the summer. The Red River is navigable most of the year to the Great Raft, a collection of timber which closes the passage, 500 miles from its mouth. The river St. Francis is blocked up at its mouth by rafts of logs and drift wood, which prevent the passage of boats entirely.

106. The branches of the Missouri are usually blocked up at their mouths after the freshets in July, until the next spring, with mud brought down by the Missouri. They are of course navigable only during the freshets. The Platte is a broad shallow stream, fordable in almost every part, and navigable only for canoes of skins.—The Yellowstone is nearly as large as the branch which takes the name of the Missouri, and is navigable through the greater part of its course

107. The St. Lawrence is navigable nearly to Montreal, for vessels of 600 tons burthen, where it is obstructed by rapids. The boat navigation continues above them to Ogdensburg, whence sloops and large vessels may be navigated 170 miles, through Lake Ontario, to the River Niagara. At the falls is a portage of seven miles, after which there is a navigation of 231 miles through Lake Erie, for vessels of sixty or seventy tons. The navigation continues by the straits of Detroit twenty-eight miles; Lake St. Clair twenty miles; and the River St. Clair sixty miles, to Lakes Huron and Lake Michigan. Between Lakes Huron and Superior, are the rapids of St. Mary's Straits; along a part of which a canal has been formed by the British North West Fur Company, for the convenience of their traders.

108. The River St. Lawrence above Quebec, and a great part of the lakes are frozen over from the beginning of December till April; but an easy and rapid conveyance is afforded over the ice by means of sledges. The common route of the fur traders in their bark canoes, is from the Saint Lawrence, through the Ottawa or Grand River, and thence by a short passage to Lake Nipissing, and down the French River, into Lake Huron. This route is one-third shorter than through the great lake. From Lake Huron they proceed through the straits of Saint Mary, and Lake Superior, to the Grand Portage, nine miles in length, which brings them to the great northern chain of Lakes, beginning with the lake of the Woods, at the distance of 1100 miles, from the place of their departure.

109. Lake Champlain is a branch of the Saint Lawrence, emptying into it by the River Sorel, or Richelieu. Vessels of 150 tons may ascend twelve or fourteen miles; and boats to Chambly or St. John's. From this place there is a ship navigation of 160 miles on the lake, to the shores of Vermont and New York. The River St. Francis, one of whose branches rises in Lake St. Francis, and another in Lake Memphrema-

gog, is also a channel of navigation to the St. Lawrence.

110. The Columbia River is from one to three miles wide in the lower part of its course. Vessels of 300 tons may ascend to the mouth of the Multomah, 125 miles; and sloops, to the head of the tide waters, sixty miles further. At the distance of 200 miles from the mouth, there are two rapids which require a short portage; but except these, the boat navigation is uninterrupted as far as the great falls, 260 miles from the sea. The numerous rivers on the eastern declivity of the Apalachian Chain, afford the advantages of a good inland navigation to most parts of the Atlantic states. In all those streams which flow through the alluvial region, from the Mississippi to the Roanoke, the tide waters of the ocean terminate at some distance from the foot of the mountains, varying from 30 to 120 miles. From the Roanoke to the floods, they extend through the alluvial region to the base of the primitive hills; but in no rivers south of the Hudson do they pass beyond the alluvial region. As far as the tide flows the streams are generally navigable for sloops.

111. In passing from the hilly and primitive, to the flat and alluvial region, the streams are almost uniformly precipitated over ledges of rocks, by rapids which obstruct their navigation. Indeed the line of alluvion marks the line of navigation from the sea, which passes through Milledgeville on the Altamaha, Augusta on the Savannah, Columbia and Camden on the Santee, Richmond on the James, Fredericksburg on the Rappahannock, Georgetown on the Potomac, and Trenton on the Delaware. Above the rapids, navigation is performed entirely by boats propelled by oars or poles, or drawn up by ropes, or by means of the bushes growing on their banks.

112. The Savannah River is navigable for ships to Savannah, and for boats 350 miles to Augusta. The rivers of South Carolina are navigable nearly through the alluvial region, and there are some good harbours at their mouths; that of Charleston, which is formed by the Ashley and Cooper Rivers and the Santee Canal, with the Santee River.

113. The coast of North Carolina is lined with a range of low, sandy islands, enclosing a chain of sounds. Their entrances are generally obstructed by bars, and no vessels of considerable size can enter. But the streams are navigable for sloops, some distance into the interior.

114. The Chesapeake bay is of itself an inland sea of considerable size; and, with the numerous streams and inlets on its borders, forms an important channel to the ocean, for a large extent of country, covering the whole of Maryland and the eastern declivity of Virginia; and extending through the middle section of Pennsylvania, nearly to the small lakes of New York. The largest ships have access to its shores, and proceed to some distance, in several of its streams. Not far from the entrance of the bay are Hampton Roads, which is the first anchoring ground for vessels from the ocean. The James river is navigable for large ships to James town, and for sloops to Richmond. Canals are formed around the falls at this place, and several obstructions above, which extend the boat navigation 227 miles above Richmond. The Potomac is navigable for ships of any burden to the navy yard at Washington; and this is the most inland point in the United States, to which the largest vessels have access. Above Washington, there are five falls on this stream, which are rendered passable by canals. A boat navigation is thus opened to its sources, which are connected with the waters of the Mississippi by the great Cumberland road. The Susquehannah is obstructed at its entrance into Chesapeake bay by a series of rapids, extending forty miles, to Columbia, which can scarcely be ascended by boats. Attempts have been made to remove these obstructions, at great expense; and a canal of one mile in length has been cut around the Conewago falls, twenty miles above Columbia. But the navigation of this river is still so difficult, that the trade is principally confined to the conveyance of timber in rafts, and of produce in large flat boats, termed arks, from the interior to the bay. Above the falls of Conewago, there are few obstructions in the Susquehannah to the boundaries of New York; and batteaux may ascend to its very sources.

115. The Delaware bay and river are navigable for the largest ships as far as Philadelphia; but the ascent is often much retarded by the current. Sloops ascend to the falls at Trenton; and boats of eight or ten tons, 100 miles farther, to Easton. By means of the Schuylkill and Lehigh, it affords inland navigation to a long though narrow section of country, comprising the eastern part of Pennsylvania, and the western part of New Jersey. A canal is now forming to connect the Schuylkill with the Susquehannah, and thus open a direct navigation from the basin of the Susquehannah to Philadelphia and the ocean. The Lehigh, one of its branches, has been rendered navigable for a part of its course, to open a conveyance from the extensive beds of coal upon its banks.

116. The Raritan river, in the northern part of New Jersey, is navigable for sloops to Brunswick, within twenty-eight miles of the head of sloop navigation on the Delaware; and the Passaick and the Hackinsack afford a short inland navigation. But the dry sandy region of New Jersey on the south, and the mountainous portion on the north, have no navigation except from their borders; and there are few harbours on the eastern coast.

117. The Hudson is the only river in the United States where the tide passes through the alluvial, primitive, and transition formations. It is navigable for ships to the city of Hudson, and sloops of considerable burden pass through all the formations, to the falls of the secondary country, above Troy, which is 165 miles from the ocean. This is the most distant point to which the tides flow, and sea-vessels can approach in a direct line, in the United States. At its mouth this river forms the harbour of New York, which is considered one of the finest in the world. The Northern Canal connects the Hudson with the borders of Lake Champlain and the St. Lawrence; and the Western Canal with the

upper lakes, and the rich secondary region which occupies the centre of the state. This river is thus made the grand artery of an inland navigation, by which the wealth of this tract of country will flow to the city of New York.

118. In the rivers of the United States, east of the Hudson, the tide extends only a small distance, and the navigation is obstructed by the falls and rapids which are common in primitive countries. The Connecticut river is navigable for vessels of considerable size, fifty miles to Hartford. Several canals and locks have been constructed on this river at South Hadley, Hanover, and some intermediate rapids, which extend the boat navigation to Averhill, in New Hampshire. In the eastern part of Connecticut, the Thames is navigable for sloops to Norwich, and forms the fine harbour of New London, at its mouth. Narraganset Bay, and the streams which empty into it, afford easy access from the ocean to every district of Rhode Island. A canal is contemplated, to extend from Providence into the interior of Massachusetts, to furnish an easy conveyance for fuel and produce to this flourishing seaport.

119. The Marimac of New Hampshire, is much obstructed by rapids; but its upper waters are connected with Boston Harbour by the Middlesex canal. The rivers of Maine are generally obstructed. The Penobscot, the St. Johns, and the western branch of the Kennebec, afford a boat navigation nearly to their sources. The heads of these rivers approach within no great distance of the waters of the St. Lawrence; and the portage from the head of the Kennebec to that of the Chaudiere River is only five miles. The basins of the river St. Lawrence, and the Mississippi, and the Atlantic declivity are so intimately connected, that it would not be difficult to unite them by an inland navigation; and much progress has been made in accomplishing this important object. The waters of the St. Lawrence, or the great lakes, have two natural communications with the branches of the Mississippi at particular seasons. The Fox river, which flows into the branch of Lake Michigan, called Green Bay, rises near the Ouisconsin branch of the Mississippi, and afterwards flows within a mile and half of its channel, separated from it only by a short portage, over a prairie. During the season of high water, this river is easily navigable, and the intervening ground is overflowed, so that loaded boats may pass to the Ouisconsin, which affords a rapid but unobstructed navigation to the Mississippi. A short canal would render the communication permanent.

120. Another communication is stated to exist from the Chicago River, emptying into the south-western corner of Lake Michigan, to the Illinois. It is passed by boats of fifty tons, engaged in the fur trade, and is open at all seasons, except about three months. The Atlantic waters are united with Lake Ontario, and the lower portion of the St. Lawrence, by the Northern Canal of New York, from Whitehall, on Lake Champlain, to Fort Edward, on the Hudson. It passes in part through the channels of small streams; and the navigation is extended around the obstructions in the Hudson River, to Albany, the channel of considerable trade.

121. The most important canal in the [United] States, and the longest in the world, [except] Imperial Canal of China, is the Grand [Western] Canal of New York. It passes from the [Hud]son River along the Mohawk, generally [on] its level, to Rome; and thence westward [to] the head of the small lakes, and over [the Ge]nessee River, to lake Erie, at Buffalo, [form]ing the Atlantic with the great Ameri[can] the falls of Niagara; in different parts [it] about 526 feet, and contains in the whole eighty locks, with several considerable [aq]ments and aqueducts. It was commenced 1817, and in 1823 it was finished from [Utica] to Rochester. It is expected that the canal will be completed in 1826. The [cost] is estimated at about five millions of [dollars]. The canal will be the property of the state, is likely to afford an immense revenue for [public] purposes. Since the commencement of this work, an effort has been made by the [people] Canada, to prevent the diversion of trade [to] Montreal, by cutting a canal along the [Canadian] shore of the falls of Niagara, and thus [securing] the chain of communication by the lakes. It is said that the project is ready for execution, many of the preparations made for commencing the work.

122. Two routes have been proposed to connect the Atlantic and western waters, by means of the Grand cana. of New York. The most obvious is by a Canal from lake Erie to the branches of the Ohio, which will probably be overtaken by the state of Ohio. The other route is by a canal from lake Erie to lake Michigan, and another from Chicago river to the Illinois. The latter route is but little shorter than the former; and the navigation would probably be less obstructed. It is also proposed to connect the Ohio with the Atlantic, by a canal from the head waters of the Monongahela to those of the Potomac, which will pass under the principal ridge of the Allegany, by a tunnel [four] miles in length. There is now a portage communication, by means of the Cumberland Road. The state of Virginia proposes another portage communication, from the head waters of the Kanhawa to those of the Great Kanhawa; and a third has been proposed in Pennsylvania, from the west branch of the Susquehannah to the Alleghany river, and also to lake Erie.

123. Great facilities also exist for the establishment of an inland navigation along the coast of the United States, from New Hampshire to Georgia. The Middlesex canal connects the Merrimac river above the falls, and the waters of New Hampshire, with the harbour of Boston. From this harbour and Massachusett's bay a canal across the isthmus which unites Cape Cod to the main, would form a communication through Narraganset bay, and Long Island Sound, to New-York. The Raritan river could be connected with the Delaware by a canal twenty-eight miles, requiring only an ascent of thirty feet to the summit level. The Delaware bay will soon be united with the Chesa-

peake by another, of twenty-two miles, between Christiana and Elk river, which is commenced. All these canals would pass through a flat country; and might be constructed without very great labour. It is somewhat doubtful, however, whether the canal across the isthmus of Cape Cod would not be liable to obstructions, by the accumulation of sand; and another route has been thought more likely to be useful, connecting Boston Harbour with Taunton River, which empties into Narraganset Bay, by a canal twenty-six miles in length, rising 133 feet. After descending the Chesapeake Bay to Norfolk, on the Elizabeth River, there is a canal passing through the Great Dismal Swamp, which extends the navigation to Albemarle Sound. From this sound, a range of low islands extends along the coast to Florida, which forms an inland passage nearly the whole distance. A part of this distance may be traversed by the canal which connects the Santee River with the harbour of Charleston.

124. The following table shows the size and extent of the canals of the United States, in comparison with the principal works of the same kind on the eastern continent, from which it appears that the Grand Canal exceeds all works of the kind in length, except the Imperial Canal of China, which passes, for a considerable part of its course, through the channels of rivers.

Canals.	Connecting.	Long.	Broad.	Deep.	Elevation.	Locks.
		Miles.	Feet.	Feet.	Feet.	
Imperial, Chinese	Pekin and Canton . . .	500	—	—	—	—
Western, New York	Hudson and Erie	360	40	4	526	80
Languedoc . . .	Garonne and Mediterranean	140	64	6	207	103
Grand Trunk . .	Mersey and Trent . . .	140	30	—	326	80
Leeds and Liverpool	L. and L.—England . . .	140	—	4½	483	—
Ladoga, Russia . .	Along L. Ladoga . . .	67½	70	7	level.	—
Caledonian . . .	Atlantic and Murray Frith .	59	110	20	94	—
Middlesex . . .	Merrimac and Boston . .	31	34	4	107	16
Kiel	Baltic and North Sea . .	22	100	10	27	3
Santee	Santee and Cooper River .	22	35	4	68	13
Champlain . . .	Champlain and Hudson .	22	40	4	140	42
Chesapeake . . .	Chesapeake and Delaware .	22	—	—	—	—

125. The extensive channels of navigation which we have described are fully estimated, and diligently employed, by the Americans. The Mississippi and Ohio are continually traversed by 50 to 100 steam boats of very large size. They are found in great numbers on the rivers of the Atlantic states; and the chain of communication along the coast is almost completed by the union of these with regular conveyances across the short portages. They are also found upon the great lakes, furnishing regular conveyance along this immense channel of navigation. The great canals of communication from the Atlantic to the northern and western waters are crowded with boats, and yield a revenue which exceeds all previous calculation. In short, the country is capable of an internal commerce, whose importance is only beginning to be developed.

126. The table-land of Mexico, as has been already remarked, is too dry to permit internal navigation, except for very short distances. The Rio del Norte, although a stream of considerable size, is so interrupted by sand bars in the low country, and rapids above, that it is not navigable except for short distances. The other rivers, and the adjoining country are too little known to admit of description, except a few short streams which descend from the table-land, and are in connexion with the coast. Mackenzie's river, and other streams of the northern declivity permit an extensive navigation by canoes, with some interruption by rapids; and the nature of the country renders it a question of little interest, whether any other navigation is practicable.

127. The most interesting topic connected with the inland navigation of the peninsular portion of North America, is, the possibility of establishing a water communication between the Atlantic and Pacific Ocean. Their close approximation, and the immense advantages which would result to commerce, by shortening the distance to the East Indies, has made this a constant subject of discussion; but still the common intercourse between the places on the coasts, and the table-land, is carried on entirely by mules, over the immense heights of the table-land, or by long and difficult portages. Nine points have been suggested in different parts of the continent for the object.

128. In the northern and widest portion of the continent, the sources of several great rivers approach very near, and we have reason to suppose that the Columbia rises not far from the head waters of the Missouri, Nelson's river, and Mackenzie's river. This route would be only important on account of the fur trade, which would be secured to the nation that should complete and control such a communication. 2. In latitude 40°. the sources of the Rio del Norte are separated from those of the Colorado, by a mountainous tract of only twelve or thirteen leagues in breadth, but presenting too circuitous a route, and too great an ascent, to furnish an

useful communication. 3. The isthmus of Tehuantepee offers the first eligible spot, and perhaps the most advantageous of all. The river Thiarualeo, which empties into the gulf of Mexico, has a branch called the Rio del Passo, which rises in the central highlands at the distance of only six leagues from the head of the Chimalpa river, which empties into the Pacific at Tehuantepee. It is said by one of the engineers, who was employed to survey the ground, that the central ridge was crossed by transverse valleys, and that a canal might be cut from one stream to another, without deviating from a level or employing a single lock. If this be the case, the only remaining difficulties are to remove some obstructions in the upper part of the Passo, and to deepen the harbour of Tehuantepee, which has been for a century past neglected and filling up with sand. This was at one period the principal rout between the oceans. It is stated, in a recent official report to the Mexican congress, that in 1814 the Cortes of Spain decreed the opening of the canal at this point, and committed the execution of the plan to the local authorities. Their inability to attempt so great a work, and the subsequent war of independence, entirely prevented even the preparation for it. But since the establishment of the new government, this report states, that application has been made by foreigners for permission to execute it, which offers much hope of its completion. 4. The Lake of Nicaragua communicates with the Carribean sea, by the river St. Juan, and is separated by a narrow isthmus from the Gulf of Papagayo. Several volcanic summits are found in the interval, but the nature of the country is little known; the distance does not exceed twenty or thirty miles, and it is even a matter of doubt, whether any chain of mountains exists here; but we have no accounts more recent than the voyage of Dampier, which speaks of it as only a little hilly, and for the greatest part level. The most serious obstacle to the utility of this, will probably be found in the dangerous storms which rage upon the coast during several months in the year, and extend also to Tehuantepee.

129. The Isthmus of Panama has been the spot generally selected for a canal, as being the narrowest part of the continent. The River Chagres, which empties into the Carribean Sea, to the west of Porto Bello, affords good navigation to Cruces, and obstructs it only by the rapidity of its current. This point is attained in four or five days in ordinary times; and a journey of five leagues only remains to the port of Panama. This was for a long time the only route for transportation from Peru and Chili to the Atlantic, and is still much used in time of war; but the passage round Cape Horn is now preferred in time of peace. With regard to the construction of a ship canal across the Isthmus, Humboldt expresses his decided opinion that it ought to be abandoned; that no passage can be opened which would admit any thing larger than flat boats, which might transport merchandize from sea to sea; and, as the passage would be entirely under the control of the owners of the country, there would still be difficulties in this channel of commerce, which would lead the greater number of merchants to send their vessels round Cape Horn. Its principal value would be in reference to the commerce of the western coast of South America, and would be very great in time of war. The thin population of this region, and the indolence and ignorance of the inhabitants, almost precludes the possibility of effecting so great an object by the labour of the natives; and the pestilential character of the climate would probably render it impracticable to accomplish by the aid of foreigners. The country must be materially improved, from its present neglected unproductive condition, before it could support the necessary labourers and animals; and, when these objects were effected, the great number of foreigners who perish in the mere passage across the isthmus, or in the intervals before embarkation, indicate the danger there would be in making it the commercial route between the oceans.—With regard to the whole extent of the labour requisite either here or at any other point of the isthmus, we are quite ignorant. From the republic of Columbia to the environs of Mexico there is not a single mountain, or city, or station, whose elevation is known; and even the longitude and relative positions of Panama and Porto Bello, have never been accurately ascertained.

130. Should any effort of art, or convulsion of nature, open an entire passage from sea to sea, great changes must follow on the coast of the Atlantic. The ocean is probably elevated twenty feet above the level of the Pacific; of course the extent of the land would be increased, and the shores be extended; sea-ports would be removed inland; many shoals and rocks would become dry, and new ones probably arise. The waters of the Gulf-stream would doubtless be diverted into the new opening, and the effects would thus extend along the whole coast of North America, and effect great changes in the relative situation and commercial relations of its harbours and sea-ports. The desertion of low grounds by the tides would probably produce pestilential diseases in many instances; and a generation might pass before the effects of this great revolution would be fully developed. Its effects on the state of the world are more difficult to estimate. We can only say, that the greatest obstacles to the invaluable trade of Western America and the East Indies would be removed, and the bulwark of the independence of China and Japan would be broken down.

END OF VOL. I