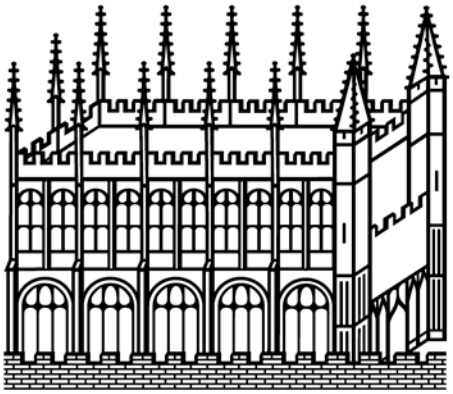


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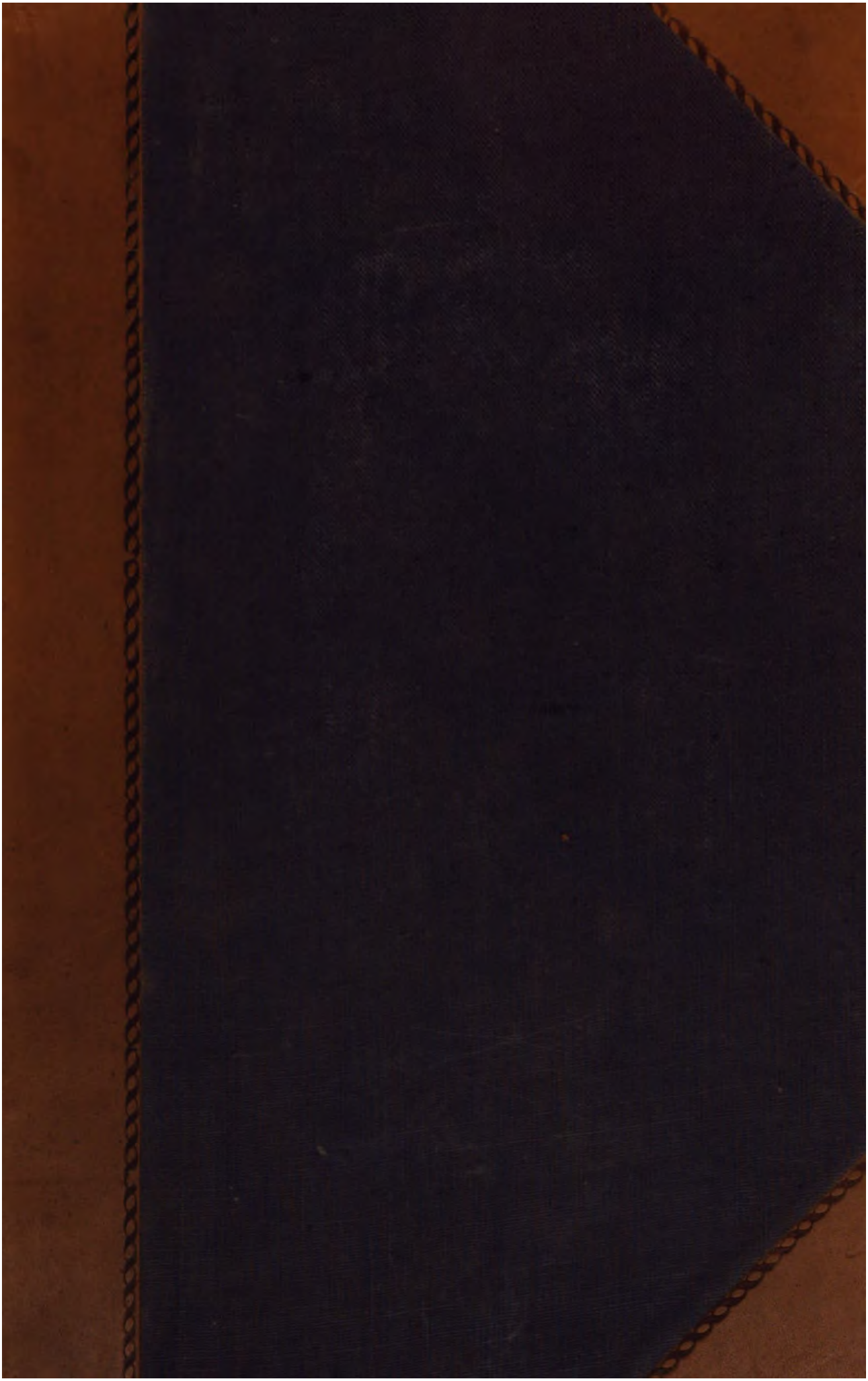
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6. *Infanticide.* (The 'Social Science Review,' July, 1862.)
7. *Infanticide and its Cause.* By a North-Country Woman.—*London*, 1862. pp. 8.

Of the several topics connected with our so-called "progress of civilization" discussed within the last few years, not one has excited more interest and attention than *prostitution*, or what has been the fashion to designate the "Social Evil" and the "Sin of Great Cities." Four years ago this deplorable accompaniment of humanity in all ages and

of all people was discussed in these pages (April, 1858), and it is therefore unnecessary to dwell now upon those aspects of it which engaged the attention in our previous article. We intend to consider upon the present occasion more particularly two of its unhappy offsprings—viz., *illegitimacy* and *infanticide;* though before doing so, we have yet something to say upon the subject of prostitution. We deem it necessary, however, to at once caution the reader that he must not regard the term illegitimacy as co-extensive with that of prostitution; for, upon the one hand, it is open to much question whether it is a fair application of the latter word to apply it in respect to the fault of every unmarried woman who has become a mother; and upon the other hand, there can be easily proved to be much prostitution where there occurs but comparatively a small amount of illegitimacy. As regards infanticide, it is evident that it may and does occur irrespective of any connexion with either prostitution or illegitimacy.

Much as the subject of prostitution has been talked about since our previous article, and much as philanthropy and Christian charity have attempted to interfere in the matter, little real good has been effected towards the prevention of this evil in our social economy. At least, this is our honest opinion, though we are fully aware it will meet with but little approval in the judgment of many. In support of it we cannot, as is readily admitted, offer any dazzling array of statistics; but as close observers, and not having any "mission" or party purpose to fulfil, we are compelled to acknowledge the truth as we feel it. It will not be out of place, however, to direct attention to the 'Judicial Statistics of England and Wales for 1861' (compiled by order of the Secretary of State for the Home Department), and which have been just issued from the Government press. It will be found that the returns connected with the criminal classes, whilst they show a decrease of "known thieves and depredators" of 21·3 per cent., and a decrease in the number of receivers of stolen goods and suspected persons as compared with the preceding year, prove an increase in the number of prostitutes, vagrants, and tramps, both adults and juveniles—for the former, to 2·9 per cent. and 2·2 per cent. respectively; and for the latter, to 10 per cent. and 4·4 per cent. respectively. In a little book recently published, entitled 'A Home for the Homeless' (by the Hon. Mrs. Wray), we are told that it was stated by Mr. Tufnell, before the Committee of Inquiry on Education, that in one parish in London, on investigating what had become of eighty girls brought up in the workhouse, it was discovered that, without one exception, they were all upon the streets. Why, it may be asked, has not more been effected after all our interference both by word and deed? Because, we reply, our social reformers, for the most part, have regarded one side of the question only. Wherefore this? Because they have either not been able to see the other, or, having caught a sight of it, have immediately shut their eyes as unwilling to gaze upon so unpopular a phase of the matter. But thus to shirk half a duty either from ignorance or unwillingness, is to deprive the other half, however

strenuously performed, of the greater part of its value. In the first place, our philanthropists would seem to teach that prostitution—using the term in the sense of illicit intercourse—springs purely and alone from moral depravity, and that by moral teaching, upon the one hand, and punitive measures, upon the other, it may be wonderfully repressed, if not entirely put a stop to. Now while it must be admitted that a great amount of the evil does essentially arise from the cause mentioned, there is another portion into the origin of which enters a power which it has been thought proper to entirely ignore. This, we make bold to say, is the extreme uncontrollableness of a certain natural physiological desire, and this operates far more as the cause of prostitution in many instances than does the moral depravity which is so strongly insisted upon. If such natural law cannot be fulfilled in a legitimate way, it will in numberless cases irresistibly demand satisfaction in an illicit manner, despite of all moral teaching. Were all men capable of anything and everything through such education, the way of reformation proposed would be the only and sufficient path. But such is not the character of our humanity, and we must of necessity regard it as we find it.

Although acquiescence must have been given to the historic fact that prostitution has existed amongst all people from all time, the import of such fact, as proving how deeply it must be rooted in some *physiologic* and almost necessary element of man, has been either quite disregarded or unwillingly accepted. Had those social reformers who have undertaken to eradicate the blot from the page of modern history called to their aid some physiologists or physicians as well as clergymen, this could not so readily have ensued. Merely good people in a state of conventional excitement have been far from seizing the whole spirit of the case; and even cool-headed men of science have hesitated to do so, under the idea that it would be extremely injudicious as regarded their own reputation to broach any doctrines contrary to the ethical disposition of the day, or opposed to the Christian optimism now prevailing. It would appear to demand some courage to tell society that men are born with certain necessities and feelings which must be responded to, either lawfully or otherwise; that if men hunger, thirst, and need sleep, so have they likewise the sexual passion, and that as men will not starve without becoming desperate and criminal (in the eye of the law) to satisfy their hunger, so will they also, if they have not wives, seek mistresses. And society being told this, what would she reply? That man should be the master of his passions, and not the slave of them. And true it is that he should be so; and of that satisfying of hunger which has passed into excess or gluttony, of thirst into the use of strong drinks, of sleep into laziness, and of the sexual passion into sensuality, nothing too severe can be said by the moralist, or is more worthy of our disdain. But the essential question which remains is this—Is there not in all healthy people a craving necessity for these desires to be satisfied up to a certain point, which, speaking generally, cannot be overcome? With respect to hunger, thirst, and sleep, no doubt an affirmative

answer will be given. With regard to the sexual appetite, it is the fashion to put it out of the same pale. Yet, in spite of all obloquy, we maintain that this appetite, though not so overpowering as the former necessities, is yet so urgent as to compel many men, within a certain period of their lives, to satisfy it at all hazards, or else to degrade themselves to an extent, both moral and physical, in forms which we do not care to discuss. As men may become ascetics, and half starve themselves, and deprive themselves of sleep to rise to nocturnal flagellations, so may they have recourse to seclusion, mortifications, and other devices wont to damp, if not entirely to annihilate, a desire they cannot lawfully satisfy. But such perversions of nature are the death and perdition of numbers who attempt them.

We are fully aware, not only how unpleasing, but how untruthful, these views will appear to many persons, and as those of a theory which looks complacently upon the continuance of vice. Men have murdered, have stolen, and have blasphemed, from an anti-Noachian epoch; is that any reason why they should be permitted to steal, to murder, and to blaspheme at the present day? Certainly not; and it is the duty of society to endeavour to prevent such acts, and to punish the perpetrators.

But is every form of illicit intercourse to be placed in the same class with such vices as we have named, however bad and meriting such position certain kinds of it may be? If we are answered affirmatively, then we do not hesitate to reply, that in spite of all we may do—as there will be murderers, thieves, and blasphemers to the end of time, so will there be prostitution. We do not think that there will be so much murder, so much theft, nor so much prostitution as it falls to *our* lot to witness; and, moreover, we know that there will be just so much the less of these evils, according as we set about counteracting them in a complete rather than in a one-sided way. Others, it would appear, think differently; and there are fashionable theories afloat, which look to the attainment of a perfectibility in human morals undreamt of by ourselves. We believe that, as we have before said, there will be illicit intercourse until the end of the world. And why? Partly because society will never be so constituted that all rightly disposed people shall be able to satisfy sexual desire in a legitimate manner; and this, not from any faults of their own, but from the conditions of the time into which they are born. Partly, also, because there will always be some members of society who, though offered the means of lawful satisfaction, will either not accept them, or will go far beyond them—in other words, will convert a normal appetite into an abnormal one, both morally and physically considered. We must be borne patiently with when we say that the *eradication* of prostitution is a thing impossible; it may be, and we sincerely trust will be, enormously reduced; but we must confess that we cannot, in our moral blindness, conceive a state of human society in which some amount of it shall not be a necessary evil. To retort, as a late writer has done:*

* Magdalen's Friend, vol. ii.

"Falsehood is sufficiently patent upon the face of this foolish and monstrous assertion. Could the Creator have pronounced his work 'very good,' with such an inseparable appendage to social life," is simply to lay oneself open to the rejoinder—"Woe unto the world because of offences, for it must needs be that offences come."

The writer referred to goes on to say—"We are not afraid, however, to meet the argument in question on philosophical grounds; and we affirm confidently, that the rescue of every fallen woman is a social boon. Admitting the *possibility* that eventually her place will be supplied by another—for we can approach no nearer to the truth—is it not better to remove present evil than to provide for a remote contingency?" We cordially agree in all this, and believe it to be the duty of society to effect it if they can, or hourly to endeavour to accomplish it. But the same holds good as regards perjury, cruelty, theft, and murder, and every form of crime and dishonour. But this is not equivalent to affirming that therefore illicit intercourse, and all the other crimes, will be—nay, must be—entirely eradicated. There are those who would assure us that they look forward to a social condition without a moral flaw in it—at least, we are forced to this conclusion from conducting their premises to a logical end. If such be possible, not any form of prostitution will then prevail. But we do not believe in any such Utopia. It is true each man often looks upon only one aspect of humanity. The clergyman sees one side, the lawyer another side, and the man of science yet a third. It is not at all to be wondered at that the modern theory of "Christian optimism" should prevail among a large body of philanthropic but superficial thinkers of the first-mentioned class. But there are others—the cooler heads, perhaps also the colder hearts, of the same profession—who think, and cannot help thinking, differently. Although this be not the place for the controversy considered in a theologic aspect, we must be excused making the following quotation from a very suggestive volume recently published :*

"A man who seriously maintains that the New Testament is an optimist book, and that its characteristic feature is faith in human progress, is beyond the reach of argument. Imagine such a sentence as the following put before the writer of the Apocalypse :—'The same law of progressive improvement is in operation with respect to the mental, material, moral and religious condition of mankind.' This *may* be quite true; but what is to be said about the second death and the lake burning for ever with fire and brimstone, which form such conspicuous features in St. John's view of the law of progressive improvement? So long as the Christian creed includes belief in a day of judgment, with the sheep on the right hand and the goats on the left, the wheat gathered into the barn and the tares cast into the fire, we may make as many comfortable theories as we like about the world, but we had better not say too much about their Christianity." (p. 118, op. cit.)

If there be any truth in what we have ventured to say, it must be evident that our social reformers have imperfectly performed their duty in thus viewing prostitution only from one side. Say what we

* Essays by a Barrister. (Reprinted from the Saturday Review.) London, 1862.

like, physical necessity as well as moral depravity plays its part. It is not our intention to allot to these elements of causation their relative force; we simply maintain that both causes exist, and if their effects —i.e., the totality of illicit intercourse—are to be removed, both causes must be dealt with.

If it be granted that a particular form and amount of prostitution take place only because sexual intercourse cannot be enjoyed legitimately, and that so soon as it can, those who have hitherto contributed to crime "go and sin no more," surely the great prevention of such error must lie in the furtherance of the lawful means of satisfaction. For the reader must remember that, according to our particular view, it is useless to say, "No, we cannot permit you to satisfy your desire at all—in fine, you must not have any desire to satisfy." Need we say that the lawful way is only through *marriage?* If this be so, then let society ask itself whether the power of all its members to avail themselves of it be such as should fairly be able to banish the particular cause of prostitution we have dwelt upon from amongst us. What answer could it give? Is it not the case that every year, as the race of life becomes more intense and the conventional requirements of our times more urgent, marriage to a vast class both of males and females is increasing in difficulty, or rather impossibility? We do not mean to labourers nor to humble artisans, nor do we here include that immense body of sailors and soldiers whose members must be supposed, we presume, not to possess any desires at all. But we refer to that multitude known as gentlemen—the most dangerously fascinating, it should be remembered, of all to the females just below it. Mr. Whitehorne is one of the few writers who has not allowed himself to be deceived or to mislead others as to a truthful view of this important matter. He eloquently writes:

"Some philosopher has remarked with an appreciable quantity of truth, that all evil is only exaggerated or distorted good, and that the better the good the worse the evil. I think the rule is true here. We know that the lawful love of man for woman is the best and holiest affection in our nature, as it is the oldest. . . . . We have forbidden this blessing to exist for ourselves and our fellows, unless within certain stringent limits yearly drawn closer and enclosing a narrower field. Outside that field its place is usurped, as was to be expected, by a ghastly and destructive phantom of it. We forbid a wife except to very few gentlemen, and to the very many gentlemen the harlot has taken her place. Thousands of legal and medical students, and the junior members in both professions, are living in sin more or less systematic. To a great extent it is they and their fellows in other professions and trades who, I firmly believe, pay and keep going the harlotry that meets us in the streets of London, flaunting and defiant. And I believe that dared they marry without losing caste, many (no one can even guess how many) would, and leave their sin." (p. 20.)

In ranks much higher than those here alluded to, the same principle is at work, to quote from a correspondent in the *Times* newspaper—

"The son must not marry until he can maintain an establishment on much the same footing as his father's. If he dare to set the law at defiance, his family lose caste, and he and his wife are quietly dropped out of the circle in

which they have hitherto moved. . . . . I know that there are thousands living in sin chiefly in consequence of the impossibility (as the world says) of their marrying. Some go quietly with the stream, and do as others do around them, almost without a thought of the misery they are causing and the curse they are laying up for themselves. But many—perhaps most of them—are wretched under the convictions of their conscience. Living in the midst of temptation, they have not sufficient principle to resist its fascination, and although they know where God intends that they shall find their safety, yet they dare not offend their family, alienate their friends, and lose their social position, by making what the world calls an imprudent marriage. The very feeling which Heaven has given us as a chief purifier of man's nature, is darkening their consciences and hardening their hearts, because the *law of society contradicts the law of God.*"

We maintain, then, that so long as this great truth be ignored *quoad* the causation of a certain amount of prostitution, the question can only be considered as being but most imperfectly dealt with. We ask our social reformers, therefore, to weigh unprejudicedly to what extent we may be simply experiencing the bitter fruit of man's law, and to let us see whether God's law would not work better.

Further, there is another reason why the labours of our philanthropists must be held to be fallaciously performed. This is seen in their spending nearly all their reformatory efforts in connexion with the opposite sex. Their "midnight meetings" and "moonlight missions" perform a part, and possibly a very proper part, of the work which must be done, but too much has been expected from them, and more permanent result looked for than will eventually be found to have accrued. And why so? Because few are the women who join the throng through a love of wickedness or a natural propensity to sin. As a well-known writer (Mr. Acton) has remarked, "uncontrollable sexual desires of her own play but a little part in inducing profligacy in the female." We shall afterwards see, indeed, that when woman is to blame as much as the man, her fall is based upon much the same cause as keeps up the account of man's degradation. Where female life is in excess, and many women cannot marry though they would, there also is illegitimacy rampant. But we must not forestall this illustration of our argument. It is, no doubt, the case that the stronger passions of man form the morbid potency which operates in so injurious a way, because they are not permitted a lawful satisfaction, or because of his greater innate depravity. Whilst, upon the one hand, more facility to marriage must be permitted to the male, we must look for more result in the due chastisement of *his* passions, to *his* higher schooling in virtue, rather than in so prominent an interference with the female. But not only has there been an error committed as respects the sex, but also as regards the class. To quote from Mr. Seton—"In the earnestness of their efforts on behalf of the poor, modern philanthropists sometimes appear to forget that their superiors in worldly station are beset by temptations of no ordinary kind." (p. 19.) And if they are beset by allurements, they are likewise those who present them more dazzlingly to others. The able author of 'Friends in Council' has stated one cause of the frailty of women in the lower ranks to lie in the com-

parative inelegance and uncleanliness of the men of their own station. All women have a fondness for merit, or what they suppose to be such, their love following what is in any way distinguished. This throws the women of any class cruelly open to the seductions of the men in the class above them. The truth we would here insist upon, is well suggested in the following remarks by Dr. Norman Macleod, of Glasgow—

"Every consideration is now bestowed upon the working man; almost every paper read at the late Social Science meeting had reference to working men in questions of sewerage, ventilation, education, and so on. That is a great thing; but is it only the poor man that needs this consideration? Is it only Lazarus who needs this? and does not Dives stand in equal need of it? I should have no difficulty in going into the houses of the poor, and it is wonderful how glad they are to see ministers of the gospel. Ministers do not feel it at all awkward to ask them about their religious views, and about their children and their education, but who thinks of going in the same way to the house of the rich man and asking him about his knowledge of religion? How are they to come in contact with the rich and fashionable young men and ladies?"

A remarkable result of Dr. Stark's investigation concerning Scotland is that—

"The counties which show the highest proportion of illegitimate births are the counties which are in the highest condition as to education; and, on the other hand, the counties which produce the fewest illegitimate births are those whose education is at the lowest ebb."

He offers this explanation—

"That while the counties in which illegitimacy was at a low ebb abounded in improvident marriages, the superior educational acquirements, and consequent more thoughtful habits engendered thereby, prevented these improvident marriages in the counties where illegitimacy was high, but that unfortunately the moral training had not been carried so far as to enable them to master their natural passions."*

But we must bring to a conclusion this division of our subject. In doing so we would observe that we have dealt broadly with the latter, because we are satisfied that the physical cannot be disassociated from the moral aspect of the question. The time surely has arrived when we should refuse to permit the sarcasm of Diderot to be still applicable to us—"*Nous parlerons contre les lois insensées jusqu'à ce qu'on les reforme, et en attendant nous nous y soumettrons aveuglément.*" He who wrote from Ephesus to his brethren at Corinth—"Καλόν ανθρώπω γυναικος μη απτεσθαι," wrote also, "διὰ δε τας πορνειας εκαστος την εαυτοῦ γυναικα εχετω." And if this was necessary in relation to such persons as were then addressed, what have *we* to say now to soldiers, sailors, and such like men, to whom society cannot allow wives, and to our civil *célibats*, who cannot afford them? Alas, how weak is our humanity; how we strain at the gnat but swallow the camel!

A prominent result of the illicit intercourse of the sexes is *illegitimacy*, or the bastardization in law, and degradation in social character, of such children as are born from it. But while in England all children

* Quoted by Mr. Lumley, p. 260.

born "out of wedlock" are held to be permanently illegitimate, their bastardy still remaining though their parents may afterwards marry, in Scotland a subsequent marriage, with its assumed repentance of the parents, can legitimate the offspring born before the marriage of the former. So far, then, as certain disabilities arising from the provisions of the law determine illegitimacy, they are in particular places conditionally removeable, but such cannot alter the question viewed in respect to the anterior chastity of the parents. Nor, indeed, is the latter more favourably effected even when the parents are married before the birth of the child, though posterior to its procreation. As relates to chastity, then, all children begotten by parents not having the legal right to have intercourse with each other, are not only illegitimate, but are a result of prostitution. As respects the peculiarity of the Scottish law we need not say anything further, because for the purposes of registration it is now the practice in the North to enter all children as illegitimate upon the register who are born before the marriage of their parents, even although such entry should not be made till after the marriage ensue. Using the word "prostitution" in a very wide sense, it must be allowed that wherever illegitimacy exists, there also is prostitution, and of course where the latter prevails there likewise may be illegitimacy. But in respect to the first statement, it must be borne in mind that "prostitution" is here regarded as co-extensive with "illicit intercourse." Yet it is clear that there exists a conventional feeling relative to the former term, which pleads that all illicit intercourse is not, speaking logically, prostitution, and that although all children begotten before wedlock are illegitimate, their mothers are not all necessarily prostitutes, nor the surrender of their virtue necessarily prostitution. Take Mary Newell, for instance, and let us say whether we could call her a prostitute or her error prostitution. Her history is thus condensed by "a North-Country Woman"—

"Mary Newell was seduced by a man named Francis, who till lately was a poulterer in Reading. He refused to marry her, but promised to keep the child. He, however, broke his word, and gave her no help in her time of sorrow. She left her service, and on the 11th of January was admitted into the Henley Workhouse, where, on the 7th of May last, she was delivered of a male child. On the evening of the 9th of August, she reached the shop of Francis, being then utterly destitute. Her entreaties for money and her threats of taking legal means to obtain support for his child were unheeded. He refused to give her anything, and with a scowl, said, 'He did not care what she did.' He then put on his coat and left the shop. The poor creature was stunned, because, as she expressed it, 'he so frowned upon her and the dear baby.' Till midnight she walked the streets of Reading, looking for him, and in the vain hope of obtaining some relief. She did not meet him. Delirious from hunger and despair, she walked into the King's Meadow, undressed the baby, laid it on the bank, weighted it with a bag of stones, and let it roll into the water. Mr. Walford, the surgeon of Reading, said that 'the curd in the stomach showed that the child had been suckled a short time before it had been put into the water.' Mrs. Winter, the girl's former mistress, spoke of her as of a kind and humane disposition. The unfortunate convict in this case was only twenty-two years of age. The other and (in the public feeling) the

guiltier party of the two, and who can be regarded no otherwise than as accessory before the fact—Mr. William Francis—was, on leaving the court, overtaken—and undertaken—by the rough justice in aid of the populace, immersed in mud breast-deep for a quarter of an hour, and then dismissed from the town of Reading with a sound kicking. Mary Newell was placed in the Lunatic Asylum of Salisbury on the 5th of February following." (p. 3.)

So far from illegitimacy being co-extensive with prostitution, it is considered exactly the reverse by a well-known statistician, M. A. Moreau de Jonnés. After forming an estimate of the probable number of persons in Europe whose parents have not been legally married, which he sets down at not less than twenty millions, he remarks:—

"On ne saurait raisonnablement attribuer au libertinage l'origine d'une telle masse d'hommes, car l'expérience de tous les temps et de tous les pays nous enseigne que le débauche est frappée de stérilité. Ce sont précisement les filles les plus innocentes qui deviennent mères; et l'histoire d'Annette et Lubin n'est pas un conte fait à plaisir."*

Mr. Seton also writes:—

"If illegitimacy were to be taken as the gauge of morals, it is to be feared that very false inferences would in many instances be drawn, and guided by its statistics alone, the most casual observer would surely hesitate to conclude that in purity of manners Palermo, Hamburg, and Amsterdam are fully three, and London fully eight times, better than Paris, Berlin, and Vienna." (p. 24.)

Speaking of the different rates of illegitimacy, Mr. Lumley observes:—

"Is any explanation to be derived from the extent of public and private prostitution? Of course this social evil may be reasonably expected to stay the progress of population, and consequently would have an effect upon the illegitimate as well as the legitimate births. But it does not account for the great disproportion which exists between the English metropolis and large towns and the Continental cities. Dr. Stark, in his report to the Registrar-General for Scotland (Second Report, p. 14), remarks:—'The fact stares us in the face, that in the Continental towns where illegitimacy attains a dimension which it is to be hoped will never be witnessed in this country, the so-called social evil exists to an extent quite unknown in this country, and instead of tending to lower the proportion of illegitimate births greatly increases it." (p. 273.)

In reference to the above remarks of Dr. Stark, we would observe, first, that although certain data may lead to the conclusion that there is more illegitimacy in those countries which possess foundling hospitals than in those which do not, yet in drawing a comparison between them, we must not rely upon the data of the great towns, but must take the given illegitimacy of entire countries and compare that. These hospitals are situated in such towns, and to them women flock from all parts to receive their help, and thus augment the local rate of illegitimacy. Secondly, Dr. Stark appears to think too favourably of the extent of the "social evil" in this country as compared with the Continent. There is a difference, no doubt, and the excess may belong to our neighbours, but whether it be so vast as some persons choose to imagine is another question. At any rate, if it be so, it is probably

* Eléments de Statistique, p. 215.

the case chiefly at those seasons and at those localities where idle and wealthy travellers from Britain and elsewhere are amusing themselves at the risk of the native population. We suspect that the secretaries of the "Society for the Protection of Young Females," of the "Society for the Rescue of Young Women and Children," of the "Female Mission," &c., hold different opinions to Dr. Stark.

It can be readily conceived that the data upon which the rates of illegitimacy are based are necessarily open to much criticism, whichever country be involved. A great number of bastard children are born who are never registered, others who are adulterine bastards are registered as legitimate, while many who are the offspring of parents living together as married are registered in such a way as to appear to be legitimate.

To Mr. Lumley, to Mr. Seton, and to Mr. Thomson we are indebted for the establishment of two important facts relative to the illegitimacy of Great Britain. From the investigations of the former the inference is to be drawn that, "though in almost all other countries where an opportunity is given of tracing the rate for successive years there appears to be a gradual increase of illegitimacy, that rate has remained stationary, or rather with a slight decline, in England for the last twenty years" (p. 274); whilst from those of the latter two gentlemen we are forced to the melancholy conclusion that in Scotland illegitimacy is rampant, and still increasing; "that in more than one county of Scotland, out of every *seven* persons you may meet *one* is probably illegitimate, while in the lower classes of society, in certain districts, female chastity is scarcely known, and certainly not appreciated." (p. 2.) The data placed before us are too sure to allow of our questioning these latter conclusions. To refer to those made use of by Mr. Lumley, we may state that the total births in Scotland for 1858 were 104,195; of this number, 9260 were illegitimate, so that the per-centage of illegitimacy was 8·8. In 1859 it was 9·0. In 1860 the total births were 105,704; the illegitimate, 9631: per-centage of illegitimacy, 9·2. According to the return lately published by the Registrar-General for 1861, the total births were 107,636; of these, 9865 were illegitimate, and the per-centage was 9·2. Hence we have the following result:

1856	8·5	1860	9·1
1858	8·8	1861	9·2
1859	9·0		

Mr. Seton writes:

"During the two years 1858-59, the average annual number of illegitimate births registered in Scotland amounted as nearly as possible to 9 per cent. (8·9), or 1 illegitimate child in every 11 births, as set forth in Appendix No. 1. It appears that in England, Belgium, Norway, and Sweden, the illegitimate births constitute only about 6·6 per cent.; in France and Prussia, 7·1 per cent.; in Denmark, 9·3 per cent.; in Hanover, 9·8 per cent.; and in Austria, 11·3 per cent. In other words, in six of these nine kingdoms the per-centage is very considerably lower than in Scotland; in two of them it is nearly the same, while only in one—and that Austria—does it decidedly exceed the Scotch ratio." (p. 6.)

Dr. Stark candidly admits also that many illegitimate births escaped registration during the commencement of the working of the Act, and remarks that—

"the proportion of illegitimate births in the several counties varied very much; for while those included in the northern and north-western divisions of Scotland only furnished 4·6 per cent. of the births as illegitimate, the proportion of the latter was 11·9 per cent. in the counties included in the southern division, and 13 per cent. in those included in the north-eastern division. These proportions are lower than those shown by the tables of 1859. (Lumley, p. 259.)

When we take the rates of the different counties in the North instead of the mean of the whole country, we find a remarkable difference in the former.

"Taking the counties separately, (1) Orkney, (2) Ross and Cromarty, and (3) Sutherland exhibited the smallest proportions of illegitimate births, ranging from 3·3 to 3·8 per cent.; while in Dumfries the proportion rose to 14 per cent.; in Aberdeen, to 15·3 per cent.; and in Banff, to the alarming figure of 16·3 per cent., or 1 illegitimate child in every 6 births." (Seton, p. 9.)

An analogous difference is seen also when towns are compared. The inquiries of Dr. Stark go to prove that the illegitimate births are very much confined to the labouring classes, the mothers consisting chiefly of women employed in farm or agricultural labour, of factory girls, domestic servants, and persons engaged in needlework. Few or no illegitimate births occur among the fishing villages—a fact which is scarcely corroborated by the returns for England, though the latter are in accord with those for Scotland in showing a greater tendency to illegitimacy in the north-eastern and southern divisions than in the manufacturing and mining counties constituting the south-western division. To pass, however, to England. It is to Mr. Lumley, as we before stated, that we are indebted for the correction of a popular opinion—viz., that the amount of illegitimacy south of the Tweed is very large. Having a very strong suspicion that this opinion was an erroneous one, the Assistant-Secretary of the Poor-Law Board entered into a close investigation of all the reliable evidence which he could command. In the memoir now before us he has brought together as much information as could be obtained upon the subject, showing what is the real extent of the social disorder in this country, how it varies in the different portions of the kingdom, and how, in respect to illegitimacy, England can bear a comparison with other countries. The result appears to be undoubtedly satisfactory. Although the registration of births and deaths commenced in 1838, no distinct analysis of the births as regards legitimacy was made until the latter half-year of 1841. From that time down to 1859 (the last published returns—that is, for a period of nineteen years), complete and distinct returns of the two classes of births have been given. From the table compiled by Mr. Lumley from the Reports of the Registrar-General, it appears that the number of illegitimate births has fluctuated during the whole of the period between the ratios 6 and 7 per cent. with an uniformity which seems almost incredible. In the year 1842, 67 out

of every 1000 births were illegitimate. In 1852, the number was 68 out of every 1000, and in 1859 the number was 65. (Lumley, p. 221.) Some Continental nations show in their statistical tables the numbers of children who are "still-born" or born dead. No such returns are obtained in Great Britain, and there are no means of ascertaining what are the numbers of such births, nor consequently their effect in this country upon the relative proportions of illegitimate and legitimate children. It is alleged by some that here is a serious default, and that if such returns were obtainable, the result would be very unfavourable to the illegitimate class. This, according to Mr. Lumley, is a purely speculative opinion with reference to England:

"It is easy to understand that in those countries where the relief to the destitute is organized with so much less care than in England, and where it is alleged pregnant women betake themselves to the towns for their delivery, many circumstances and accidents will occur to destroy life before parturition. But in England the administration of the Poor-laws is so prompt, and, as a general rule, medical relief is supplied to the destitute (however faulty may have been the conduct which led to the destitution) so readily, either at the habitation of the destitute person or in the well-appointed, comfortable workhouse, that there is much less ground for the distinction as regards still-birth between those two classes in this country." (p. 224.)

When we compare one English county with another, differences are seen equally remarkable to those found in Scotland. Some counties show a constantly high rate of illegitimacy, and some have constantly a low one, whilst in others there are great fluctuations. What is curious is, that those counties which are most crowded in their dwellings do not exhibit the highest rate of illegitimacy.

"Durham, Devonshire, Lancashire, Monmouthshire, Kent, and Surrey, in which the houses are most filled, are low in the scale; while in Norfolk, Herefordshire, Westmoreland, and the North Riding, where the illegitimacy is high, the houses are but scantily occupied. At the same time, it must be admitted that some of the closely-packed counties, such as Suffolk and Salop, are in the upper branch of the scale.

"It is, however, to be remarked that the highest rate of illegitimacy is to be found chiefly in those counties where the population is most sparse. Thus, again, Cumberland, Hereford, Norfolk, Shropshire, Westmoreland, and the North Riding of Yorkshire, which stand highest in the illegitimacy columns, stand lowest in the column for the density of the population. On the other hand, Lancashire, Middlesex, including the metropolis, Staffordshire, Warwickshire, and the West Riding of Yorkshire, stand among the lowest in respect of illegitimacy, though the population is densest there." (p. 232.)

The towns in which the rate is highest are Norwich, Nottingham, Macclesfield, and Carmarthen, while it is lowest in Portsmouth, Sunderland, Swansea, Merthyr Tidvil, and the metropolis. The seats of the two universities stand in a very fair position, whilst the gay resorts of Brighton and Scarborough are very unfavourably distinguished.

Concerning the illegitimacy of Ireland, Mr. Lumley cannot give us any trustworthy account. There is not as yet in that country any registration of births, and no attempt has been made to compare the bap-

tismal registers in the Protestant churches and in the Catholic chapels. Some information as to the mothers of illegitimate children relieved in the workhouses is to be found in the reports of the Irish Commissioners, yet statistical use cannot be made of it. There is, however, it is well known, a very general belief in the superior chastity of the Irish females, and so far as mere hap-hazard inquiries go, they tend to confirm the popular opinion. The revered founder and former editor of this Review thus touches upon the subject in his memorandums made in Ireland in 1852:

"In more than one page in the preceding narrative I have adverted to opinions generally prevalent in Ireland respecting the very correct behaviour of the women of the lower classes of society, and I have in more than one place avowed my belief in the accuracy of the statements which place the chastity of the unmarried women of Ireland on a much higher level than that of the women of England and Scotland in the same class of society. A reference to the unquestionable evidence supplied by the records of the workhouses proves that these statements, when taken in a relative point of view, are strictly true; but the same evidence, when regarded absolutely, likewise proves that the purity of female life in Ireland falls not a little below the standard which common opinion has set up. While our stern statistics unquestionably show that the proportion of illegitimate children among the workhouse population in Ireland is greatly less than in England and Wales, I fear they will hardly justify the belief formerly expressed by me as the result of my general inquiries, that 'unmarried mothers are quite a rarity in Ireland.' Still I think the statistical details which follow will be allowed to justify to a considerable extent the proud position usually accorded to the young women of the labouring classes in Ireland." (p. 240.)

In comparing the illegitimacy of the Continent with that of our country, it is necessary to bear in mind that the Continental returns are open to some objections in reference to their data. But notwithstanding the uncertainty which must attend the result, the following *résumé* is worthy of acceptance. From the tables given by Mr. Lumley, the rate of illegitimacy is found to fluctuate abroad between the low rate of 2·091 per cent. of the total births, as in Sardinia, and the high one of more than 20 per cent., as in Bavaria. Taking the returns for the different countries, the following is the order of the latter in a series which begins with the lowest rate of illegitimacy:

1. Sardinia.
2. Holland.
3. Spain.
4. Switzerland.
5. Tuscany.

— England stands here in the comparison.

6. Finland.
7. Belgium.
8. Sicily.
9. France.
10. Prussia.
11. Austria.
12. Norway.

— Scotland stands here in the comparison.

13. Denmark.
14. Sweden.
15. Hanover.
16. Iceland.
17. Saxony.
18. Wurtembürg.
19. Bavaria.

If London be compared with Edinburgh and some large towns upon the Continent, a remarkable contrast will be found. In the metro-

polis the rate of illegitimacy is only 3·7 per cent., in Edinburgh it is 7·6, in Madrid 21·1, and in Paris 26·35 per cent. Whilst in England and Scotland it is raised by the state of the rural population against the metropolis and large towns, upon the Continent the opposite holds good. There for the most part the general rate is greatly affected by the high rate of the hospitals and principal cities. The rates of Vienna, Lemberg, and Prague are so high as to show that one half of the children born in them are illegitimate. Where the state of the population is such, little effect, as Mr. Lumley properly remarks, can be produced by the operation of moral sentiment. "The mothers cannot be influenced by shame, and the children cannot be affected by any sense of degradation."

In looking to the causes of illegitimacy, a first recognition must be given, of course, to those of prostitution. But apart from such of these causes as spring from the vice and sensuality of the man, and desire of pecuniary gain upon the part of the woman, that form of unchastity due to forced celibacy either upon the side of one or of both parents must be held to be a most important element in the increase of illegitimacy. It is very true, as Mr. Lumley points out—and we willingly admit whatever force there may be in the argument—that on taking the Continent along with Great Britain, no very definite result is to be obtained on comparing the rate of illegitimacy with the state of the marriages and the density of the population. In Saxony, for example, the population is very dense, the number of marriages is considerable, yet the illegitimacy is very great. In Holland, the illegitimacy is very low; the population is, however, very dense, the marriage rate is moderate. In Bavaria, the marriage rate is the lowest, the density of the population is moderate, the illegitimacy is, however, very high. In Scotland, the density is very low, the marriage rate is only not so low as in Bavaria, and the rate of illegitimacy is high. In England, the density is very great, the marriage rate is high, and the illegitimacy is low.*

"In some Continental states marriages are either directly or indirectly prohibited until the parties can establish to the satisfaction of a proper functionary that they have obtained for themselves the means of maintaining their offspring. This frequently fails, concubinage follows instead of marriage, and the offspring is illegitimate." (p. 270.)

When we view Great Britian alone, we see far more clearly the connexion between forced celibacy and illegitimacy, and this relation the labours of Messrs. Seton, Lumley, Valentine, and Stark amply confirm. We will hear, first, Mr. Seton, who, in alluding to the paucity and postponement of marriage as affecting the increase of illegitimacy, observes:

"While the marriage ratio (for four years) in the case of Greenock was 1 in every 101, and in Aberdeen only 1 in every 154 persons, the illegitimate births (for eighteen months) in the former town only amounted to 4·8 per cent., and in the latter to no less than 15·2 per cent. It further appears, that in Greenock,

* Lumley, p. 269.

at the census of 1851, the excess of females over males constituted only 4·2 per cent., while in Aberdeen it reached 11·8 per cent. In like manner, the proportion of illegitimate is higher both in England and France than in Italy, notwithstanding the comparative freedom of manners in that country; and this circumstance is attributed to the early age at which marriage usually takes place in the south of Europe." (p. 21.)

It has been already shown that those counties which afford the highest proportion of illegitimate births have the better educated people, whilst those which produce the fewest illegitimate births are those where education is at the lowest ebb. How does this bear, however, upon the question of marriage in relation to illegitimacy? By —as Dr. Stark tells us—proving that whilst education makes men too prudent to contract what are called improvident marriages, it fails to make them able to master their natural passions. In the ill-educated county of Lanark only 6·5 per cent. of the births are illegitimate, whilst the marriages rise to 85· per 10,000. It may be said, then, that here relatively there is scarcely any check upon marriage, so that "improvident" ones are common, and the natural consequence follows, that the proportion of illegitimate births is small indeed.

"From this it will be seen," says Dr. Stark, "that we feel inclined to attribute no small proportion of the illegitimacy to the incontinence of youth, which in some counties finds its legitimate channel in marriage, though it may be in improvident marriage; while in others the prudential check operates so strongly that it results in illegitimacy."*

This is corroborated to a great extent by the tables of Mr. Lumley, which show the state of illegitimacy in Lancashire, the West Riding of Yorkshire, and in Cornwall. Mr. Thomson must receive due credit for so clearly pointing out the all-important influence played by the forced celibacy of the females in Scotland in augmenting the rate of illegitimacy in that kingdom. Taking Scotland, with its very high rate, he asks what can be the cause of this anomaly? England is low, Ireland still lower. But here is the North, where one out of every seven persons you meet is probably illegitimate! The chief cause, replies Mr. Thomson, is the *excess of females*. Our author's statistics amply prove the fact, that female life is very greatly in excess of male life proportionally as compared with England; that the unmarried females and widows are in much larger proportion, and that illegitimacy prevails to a wider extent. His tables do not, it is true, prove in detail that in every county where there is an excess of females there is an excess of bastardy; but taking a wide view, and dealing with the comparative effects as a whole, we cannot help having confidence in his general conclusions. We know it to be the natural law, that more males are born than females—say roughly 105 of the former to 100 of the latter. But the contingencies of life and society tend to reduce the disproportion, and sometimes—as in the case of Scotland—to increase it so terrifically the other way as to give rise to the most unhappy results. At the census of 1851 there were about 4·2 per cent. more females than males in England, 10 per cent. more females

* Quoted by Mr. Lumley, p. 261.

than males in Scotland, and nearly 15 per cent. more females than males in the islands in the British Seas. But in 1861 the per-centage had increased to 5·57 more females than males in England, and 11·56 per cent. more females in Scotland. Mr. Seton writes:

"The marked excess of females over males is pointed out as another cause of illegitimacy by M. Valentine, of Aberdeen, in the able paper which he read at the meeting of the British Association held in that city in September, 1859. It is obvious, as he observes, that such a condition of society, especially when accompanied by scarcity or uncertainty of employment, and limited wages, must have a great tendency to prove a prolific source of female licentiousness. The excess in question of course greatly varies in different localities. Thus, it appears, that while it only amounted to 4·2 per cent. in Greenock at the census of 1851, it reached the enormous ratio of 11·8 per cent. in the city of Aberdeen, which, in common with the county (as already stated), maintains a most unenviable pre-eminence in the matter under consideration. In Scotland generally, the 'lords of the creation' were at the same period in a very decided minority, there being no fewer than 110 females to every 100 males, while the proportion in England was only 105 to 100." (p. 17.)

The following table, which we take from Mr. Thomson (p. 14), will exhibit to the reader some strange contrasts—

		In England and Wales.	In Scotland.
Total females to 100 males	Census 1851 ...	108·11 ...	121·00
„ spinsters to 100 bachelors . .	„ ...	101·13 ...	123·63
„ wives to 100 husbands . . .	„ ...	101·31 ...	102·26
„ widows to 100 widowers . . .	„ ...	198·18 ...	271·13
„ births to 100 persons living .	years stated ...	3·399 ...	3·417
„ marriages to 100 inhabitants .	„ ...	·824 ...	·676
„ deaths to 100 persons living .	„ ...	2·175 ...	1·977
„ children born out of wedlock to 100 births	„ ...	·650 ...	·900

To what conclusions, asks Mr. Thomson, do these figures lead?

"To many, indeed, of a kind disastrous to Scotland. I need scarcely trouble you by pointing them out. They are evident by simple comparison. We are altogether in an abnormal state, our young men have left us, our maidens are unmarried, our widows are in excess, our wives are deserted, our marriages deficient, illegitimacy is rampant, and from all this flow many crimes." (p. 14.)

"After carefully considering these sad figures, and having given much attention to the Report of the Registrar-General of Scotland, my strong conviction is that the excess of female life is mainly at the root of that great evil—illegitimacy. I have no doubt that local customs and habits increase it, and that race has something more or less to do with its extent in particular counties, but the root of all is our abnormal position already explained." (p. 19.)

Taking Mr. Thomson's data, let us ask how stands Scotland in respect to marriage? As compared to England, at an enormous discount; for while in the latter the marriages in 1857 were as ·824 to 100 persons, the proportion in the former place in 1859 was only ·676 to the same number. Moreover, the Scotch marriages were contracted later in life, and were therefore less favourable to that moral condition which early marriage both creates and fosters. Alluding to his tables referring to marriage, our author remarks—

"I would deduce from these figures and from observations made otherwise, the benefits of *early marriages*. The young married man is generally, if not always, more successful than the bachelor, and the beautiful illustration of our Saviour, as too much care for to-morrow, can never be more fitly applied, if it is ever applicable, than to young people entering life with industrious habits and pure aspirations. A true faith of this nature is required of every man, and if he be true to himself he will not fail." (p. 20.)

"And what is the true position of women?

"'I will,' says Timothy, 'that the younger women marry, bear children, guide the house, give none occasion to the adversary to speak reproachfully.'"

"Marriage is woman's true mission, and it should be part of our great scheme of reformation to keep her in that position as much as possible." (p. 20.)

How fully we agree with these sentiments it is unnecessary, from what has been already said, to impress upon our readers. We pass to consider the causes for such an abnormal state of society as evidently exists at the northern point of our island.* According to Mr. Thomson's researches, this great excess of female life is mainly due to —first, the greater mortality of male life as compared with female life, more particularly in early years; and secondly, to the emigration of a larger number of males than females. It may be said that these circumstances are not foreign to England. It must be admitted that they are not, but likewise that they are much less so in respect to Scotland. Sufficient numerical proof of this assertion will be found in the author's paper. Other persons have taken different views of the cause of so much illegitimacy in Scotland to those we have adopted. They attribute its high rate to the too easy law of marriage in Scotland, especially in so far as regards the subsequent legitimation of the child. It is supposed that the law conduces to increase illicit intercourse, inasmuch as the woman knowing that the child which may be born will not sustain any legal damage if she shall succeed in getting its father subsequently to marry her, she is thus disposed to yield herself too easily a prey, taking her chance that the birth of a child may secure his consent to a marriage. On the other hand, Dr. Stark maintains that "Scotland is a standing proof that the allowing children to be legitimized by the subsequent marriage of their parents, is not found to have any hurtful effects on the morals of the people." Form of religious belief is an element of causation in the minds of some, it being regarded in Ireland that the practice of confession among the women who profess Roman Catholicism is powerfully operative in preserving their good fame. According to Mr. Lumley, however,—

"It cannot be said that the religion which prevails in the respective countries affords any satisfactory explanation. The most Catholic country stands high on the list, another closes it. Some of the Protestant countries are placed high, while others are nearly at the bottom. In the Prussian returns above

* "During the past quarter, there was, upon an average, an illegitimate child born every hour in Scotland. Yet the entire population is not much above 3,000,000; little more than 1,600,000 of them are females, about half of these are not of an age to bear children, and from those who are must of course be deducted all the married women."—*Quarterly Return*, September, 1862.

referred to, this is remarkably illustrated. . . . . The editor of these returns refutes all inference that the religious belief is the real cause of the difference, by referring to the high rate of illegitimacy in countries and cities principally, if not exclusively, Catholic. But it is to be observed, that in those countries which contain populations of different religions the rate of illegitimacy is high, and probably some influence must be attributed to the difficulties attending marriages between persons of the different religions who form attachments, which through these difficulties cannot end in marriage, but result in illicit unions." (p. 270.)

Illegitimacy, from whatever cause it springs or may be augmented, being a blot upon the national character, it behoves all Governments to consider what are the means which should be adopted to prevent or diminish the evil. The remedies for prostitution are also remedies, of course, for a part of illegitimacy; but there is another part, having its origin in a form of illicit intercourse, which, according to our opinion, requires to be met in a different way. An important preventive measure is, as we think, the promotion of early marriages. This must be mainly effected, first, by diminishing the excess of female life over male life; and, secondly, by society remodelling such conventional rules and removing such social regulations as prevent unwilling bachelors and spinsters from escaping from the single condition. We have no doubt that some considerable diminution would follow if the law would enforce a heavier pecuniary penalty upon the father for the support of his child.

"At present," says Dr. Ryan, "the law can only enforce payment of two and sixpence a week from the putative father for a certain number of years. Now this applies as well to the man who may have without a single exertion thousands a-year, as to the poor working man who may on an average not be able to earn more than *thirty pounds* a-year. Surely the father should be compelled to pay according to his means, so that the amount does not act as an inducement to immorality on the part of the young woman. At present 6*l.* 10*s.* is the allowance, and that might be still left as the minimum, as it is as much as some can pay; but there are circumstances of a peculiar hardship in some cases, where, for instance, a young and innocent girl, who may not be under the protection of her father when misfortune overtook her, cannot have an action for seduction brought, because that father lost none of her services, and in such a case, provision should be made for the child in some degree commensurate to the means of the father. For the amount at present allowed no woman can put her child out to nurse." (p. 42.)

As Dr. Ryan points out, even this 2*s.* 6*d.* a-week is not always to be secured, owing to the imperfect working of the bastardy laws. There is often great difficulty in finding the fathers, and the relieving officers cannot interfere. The mother is thus forced upon the parish. According to the statement of Mr. Tubbs, there were some time ago eighty-five persons receiving the weekly pittance each of one shilling from the parish of St. Marylebone, because they could not or did not recover from the fathers. If men were more certainly made to pay a continuous heavy money penalty for their bastard children than they are now, it is very probable that they might be a little more chary ere they begot them. But there are always two sides to a question, nor is our present one an exception to the rule. In the first place, it must

be remembered that if it be made a very easy matter to "father a child," and as a result to increase the facility of procuring a high pecuniary acknowledgment, illegitimacy, instead of being diminished, would be found to augment. At a meeting of the Law Amendment Society, it was argued that as it lay in the power of a woman to prevent seduction, she should not be at liberty to recover money for an offence to which she was a consenting party. Dr. Ryan thinks that—

"This doctrine shows small appreciation of the working of the human passions or the weakness of the human heart. If the man were as liable to become pregnant as the woman, then it might apply, but not otherwise. When cool reason succeeds bewildering passion, the woman finds that all the consequences of the momentary crime are fastened on her; the man walks off unscathed." (p. 82.)

Further, it must not be forgotten that the more the father has to pay, the more has he a direct interest in the death of his bastard child, or in the production of abortion by which it shall never live. And as by either of these circumstances, the woman may think that her disgrace will be the sooner or the surer hidden, she will not be apt to counterbalance her reputation against the larger and more certain money support, but will in too many instances side with the farther wishes of her seducer. Hence, some would maintain that whilst illegitimacy would not be diminished, abortion and infanticide would be increased. But the consideration of this point belongs to the next and third division of our subject—*infanticide.*

The terrible contempt for infant life exhibited by all the nations of antiquity is one of those dark stains upon their history which is familiar to every one. Perhaps not any of those dynasties of the Old World was so unrelenting in the practice of abortion and infanticide as was Rome—the arbitress of the earth. It is quite unnecessary that we should go into detail concerning this point of archæology, and may refer the reader to the latter portion of Dr. Ryan's interesting little book for ample information concerning it. It is our business here to state, that although European nations are destitute of laws giving to fathers absolute power over the lives of their children, and their people do not offer holocausts of infants to offended deities, or to the most inhuman of passions, yet that infanticide exists amongst them as a crime of very great frequency; many are of opinion that it is a crime committed far more frequently than the public have an idea of, and that it is so much upon the increase as to demand an immediate and improved legislation concerning it. Dr. Ryan is of this opinion in regard to the crime amongst ourselves. But the question is open to another view of the matter, as we know is the case as regards the idea of lunacy having augmented in recent times—viz., Are not more pains given to detect instances than were given before? The point is one most difficult to solve, and from the imperfect character of the numerical data at command, no certain deduction can be arrived at. We are disposed to agree with the writer in the 'Social Science Review,' in thinking, that although the details brought forward by Dr. Ryan must force us to acknowledge that infanticide is very general, yet they do

not compel us to admit that it is more frequently committed at the present time than at any other in the history of the nation.

"Indeed," says the writer in the 'Review,' "taking into consideration the immense increase of population, and the number of people at present living in the country, and comparing this with the number of cases of infanticide actually committed, we should be rather inclined to think that, as a crime, it has decreased within the last few years, rather than increased." (p. 81.)

Whilst we remain undecided as to this, we feel certain that a particular practice which is nothing less than infanticide has greatly augmented in modern times. Infanticide, viewed as the intentional *immediate* slaying of an infant, may be of more or less frequency than it was years ago, but which we cannot decide. But of this we are sure, that numbers of children buried with certificates of death from natural causes have been intentionally *let die*, whilst others have been *slowly* and intentionally slain, or their deaths ingeniously hastened. What is infanticide? The murder of a new-born child, says the law, and without naming any specific time to which the term "new-born" shall apply. It may be thought the definition is quite satisfactory. But what is a "new-born child" in the eye of the law in a case of infanticide? It means a child "wholly born," and which has an existence independent of the mother. Thus infanticide, according to such doctrine, is only constituted by the depriving a child of life after it has been wholly extruded from the vagina. No woman can be found guilty of the crime until it be proved that her child had an independent existence. Hence, says Dr. Ryan—

"It follows that the killing of a child during birth is not *murder in law*. That, in fact, a woman may kill her child, and, provided only that any part of the child is within her own natural passages at the time, she cannot be brought in guilty of murder. A hand, a foot, an arm, still within the passages of the woman, screens the murderess from the penalties of murder. *Murder has been committed* in this state, and the murderess has been allowed to go at large with an improved stock of experience for future need. On the heads of children being born into the world, their skulls have been broken in, or strangulation has put a period to their existence, and yet because these children were not *wholly born*, the perpetrators have escaped, as if any difference existed in the moral turpitude of murdering a *partially* over that of a *wholly* born child." (p. 6.)

The great difficulty experienced in proving the child to have been "wholly born," and the severe penalty of death hovering over the mother if such should be proved, has led, as a general result, to the mother being put upon her trial for "concealment of birth" only. Upon the one hand, we have, according to Dr. Ryan, truth libelled and justice insulted; and upon the other hand, crime meeting with much sympathy, often of the most ill-judged kind, and towards which "an almost partisan feeling has frequently been evinced, not only by the legal, but even by the medical profession." (p. 4.)

Admitting that justice may be occasionally defeated in requiring a proof of the child having been "wholly born" when its life was taken, yet, as a question of law and mercy, we agree with the writer in the 'Social Science Review,' that, considering the severe penalty overhanging the mother, we do not think that it could require less, for

"Although it is true that a child may be destroyed before its own life is actually proclaimed, and although many a guilty woman may in this way escape, yet if the law did not lay down a strict rule, then a variety of accidents, fatal in kind, but pertaining to the natural birth of the child, might be construed into evidences of crime. For instance, a child may be born bearing evidence of having been strangled, bearing evidence of having sustained injuries on the head, bearing evidence of wounds on the body—all of which may have occurred naturally. In such cases truly a profoundly learned physician might be able to distinguish between injuries inflicted naturally or feloniously, but such evidence is rarely at hand, and consequently it is far better and more common-sense to assert on proof that the child really had an independent being, than to run into refinements in any doubtful case which might, by misjudgment, lead to the conviction and death of a perfectly innocent individual." (p. 81.)

The state of the law as regards "still-born" children is thought to lead to criminal abuse, and it has been proposed* to make registration compulsory, whether the fruit be living or dead. At present the births of the former are not registered, and there is some reason to believe that a considerable number of children born alive are buried as still-born.

We cannot think, with Dr. Ryan (p. 4), that there is really any "sympathy" shown either by the public or the profession towards infanticide as a crime. We believe the disposition which is evinced to be that of a merciful compassion towards the criminal, who is judged to have been treated so badly, and to have suffered so sadly, before she can have committed the deed laid to her charge. That such must have been the case in numberless instances is surely true, though there may be others in which it may have been different, but the latter will mostly have occurred in connexion with the murder of older children, and towards the committors of which no "sympathy" is ever expressed. So long, then, as the law be *death* for infanticide, so long will seduced, abandoned, heart-broken, half-maddened women, who are thought to have slain their children, meet with such compassion as refuses to allow them to "risk the hazard of the die." Were the penalty a shade less than being hung, and less than that which is awarded to a Palmer, a Rush, a Manning, or a Greenacre, they would be left to their fate. As it is, they are either tried for "concealment" or they get off altogether.

"It is a well-known fact, that when the extreme penalty of the law was the sentence passed on all persons who should be found convicted of sheep-stealing and forgery, these offences became the more prevalent, because juries could not be found cruel enough to take away life in deference to a barbarous code. We stand now precisely in the same state in regard to infanticide as we did then in respect to forgery. Jurors will not convict in these cases; they feel, indeed, naturally, urgently, that in the majority of cases where a wretched mother destroys her infant to hide her shame, the woman, guilty though she may be, is not the only party to the offence—that there has, in fact, been a man to whom primitively the crime may, to a large extent, be imputed, or, to put it plainer, except for whom it never could have occurred."†

* Lancet, 1859, vol. i. p. 295; vol. ii. p. 414.

† Social Science Review, p. 80.

Dr. Ryan scouts the idea of any difference existing "in the moral turpitude of killing a half-born infant or a full-grown man." (p. 67.) But he forgets that it is a fundamental law to make allowances for temptations and other circumstances, and even to designate the same action in *effect* according to the difference of its remoter causes. Thus the same act in effect becomes murder, manslaughter, homicide, justifiable homicide, death by inadvertence, according to circumstances; and we speak even of "cold-blooded" and other murders. We agree, then, with Lord John Russell rather than with Dr. Ryan, the former of whom is reported to have said "that he could not but think the present punishment tended to increase what it was meant to prevent, by leading to acquittals and light punishments." It is admitted by our author that the statistics of infanticide are in a very unsatisfactory condition in this country, and will continue to be so until coroners' courts shall be required to give in all cases proper returns specifying the nature of the accusation, the kind and amount of proof, together with the result. A return of convictions only is not sufficient for our purpose.

"In many papers the most exaggerated statements prevail as to the number of exposures and infanticides in London alone. The number has even been placed as high as eleven hundred yearly. That it is very great is but too certain. Mr. Coroner Wakley is reported to have said that three hundred deaths by infanticide take place annually in London, although many are returned as dying from other causes, such as 'still-born,' 'over-laid,'" &c. (p. 20.)

For such statistics as exist, however, we may refer the reader to Dr. Ryan, p. 60, and to Mr. Acton's paper, read before the Statistical Society, "On the Illegitimacy in the London Parishes of St. Marylebone, St. Pancras, and St. George, Southwark." In the 'Lancet,' also, for 1859 (vol. i. p. 544, vol. ii. p. 415), reference is made to our present subject. The following we take from the *Times* newspaper of the 29th April:

"Infancy in London has to creep into life in the midst of foes. We hear often of the impoverished air of close alleys and rooms unfit for habitation, and now the coroners have just told us, in their official returns, that 67 infants under two years of age were murdered last year in the metropolis. One hundred and fifty more were found dead, a large proportion of them left exposed in the streets. How many of these were 'persuaded not to live' must remain a secret until the disclosure of all secrets. Of above 50 others, we learn that they either lost their lives through the misconduct of those who should have tended them, or that their deaths are attributable wholly or in part to neglect, want, cold, or exposure. The mother of one was only 13½ years old. More than 250 infants were suffocated, very generally in bed; and in upwards of half these cases there was no evidence how the suffocation was caused, and the juries did not state in their verdict that it was accidental. 1104 deaths of infants in London, in 1861, under two years old, were such as to demand coroners' inquests upon them."

In the majority of cases, children who are supposed likely to have been the victims of infanticide have been illegitimate. But there is a more hidden stream of the crime of child-slaughter flowing in a direction known principally to coroners and medical men. The vic-

tims here are legitimate as well as bastard. Indeed, we suspect that there are far more of the former than of the latter quietly sent out of the world in this particular way. We all know that to bury a corpse is an expensive business to any person, but especially to the needy. The latter grudge the money, as they appear to obtain so little for it. The class which feels this most acutely, nevertheless indignantly rejects the offer of the parish to bury deceased relatives. Hence have arisen certain "Friendly Societies," the members of which help each other. Now of a hundred children, for instance, only a certain per-centage will die within a given time *in the ordinary course of mortality.** But who can say which children shall make up that per-centage? Let, then, each child be entered in one of these societies at five shillings to make a common fund, and there will be twenty-five pounds annually from a hundred children. That sum will bury many of them. We thus have formed an "infant burial society," by which for a few shillings annually the parent of the child who dies can secure for it a funeral without expense to him. But is there not a temptation for certain persons to enter their children at a dozen societies? One insurance would pay for the funeral, the others they can put into their own pockets. But for such to be of avail to a needy person, it must cease to be a speculation—it must become a certainty. If the child entered at several societies will die naturally, well and good; but if it will not, it must die by some means, or the insurer's prospects will be disappointed. The latter cannot show any honest and humane pretext for wanting more than one funeral fee for one child, or at any rate the chances chosen to be played at cannot help forming a source of terrible temptation to one of the *classe dangereuse* under the pressure of poverty and want. Hence some few years back the public was startled to learn that 300 children were calculated to be burnt to death every year, under circumstances which seemed to show that they had been left with the means and the temptations to set themselves on fire. This extraordinary fact, coupled with other very suspicious cases in connexion with adults, led to the passing of what is known as the "Friendly Societies Act." This Act prohibits any money being paid to the insurer of a life except on production of a special medical certificate certifying that the insured died from natural causes, and not from injury, poison, &c. But unfortunately these "natural causes" cannot, in the case of children, be shown by a certificate to have arisen and progressed *naturally*. Systematic neglect and exposure, the artificial application of or intentional subjection to cold, wet, hunger, bad food, disturbed sleep, quack powders, syrups, and nostrums of all sorts, will too often produce on the frail constitution of the child that result which renders the obtainment of some burial fees a pretty near certainty. This may become quite so with very little farther aid upon the part of an unnatural parent. In fine, death may be the result of natural causes in *one sense* of the term, though the latter should be

* We may refer for explicit details in connexion with this point to an article by the present writer upon "Infantile Mortality," in the Review for Jan. 1862.

brought into operation most unnaturally. When discussing this subject, Dr. Ryan observes:

"In the Manchester and Salford district there was little mystery observed about the fact that children were enrolled in burial clubs in order that their deaths by neglect or more culpable means might bring profit to their unnatural parents. . . . . The minister expressed himself as often shocked by a common phrase amongst the women of the lowest class, in alluding to children—'Aye, aye, that child will not live, *it is in the burial club*'. . . . . It came out in evidence that one man had actually insured such payments in *nineteen* different burial clubs in Manchester. In one case the cause of death assigned by a man was deemed unsatisfactory, and the clerk to the Union, Mr. Gardiner, refused to register the death. He made inquiry, and found that the death of the child was attributed to wilful starvation. This child had been entered in at least ten burial clubs, and the parents had six other children, who only lived from nine to eighteen months respectively. They had received twenty pounds from several burial clubs for *one* of their children, and they expected to receive as much or more for the child of the present inquiry, who was allowed to die without medical aid. The jury concluded that the evidence of the parents was made up for the occasion, and was not entitled to credit; and the verdict was, 'Died through want of nourishment, but whether occasioned by a deficiency of food, or by disease of the liver and spine brought on by improper food and drink, does not appear.' After this verdict the parents enforced payment from *ten* burial clubs, obtaining 34*l.* 3*s.*!" (p. 22.)

There is also such a thing, too, as letting a sick child die, even when not entered at a burial society. It will be one less to feed, one less to spend time upon; and when both food and time are already scarce, there are to be found plenty who will avail themselves of "natural causes."

From what has been stated, it is clear that unnatural parents will always be able to find certain means of death which the law cannot *be sure* were originated or fostered by them, however much it may *suspect* that they were so. To remove such causes of infanticide a higher moral culture must be the lever employed. But as respects other less doubtful, though yet uncertain instances, the making it illegal or a total loss to the insurer to enter a child in more burial clubs than one, would put a stop to many of them. There still remain those causes of infanticide in operation which specially affect "new-born children." As we before stated, we are of those who think that the present punishment—*death*—acts in the way rather of promoting than of preventing the crime in question. The award is so severe that indictments are preferred to be laid for the "concealment of birth" than for child-murder; and when the woman is tried for the latter, juries are shy of convicting, or if they do convict, so recommend the prisoner to mercy as to lead to their recommendation unquestionably being respected. In this way the capital punishment comes to be but very rarely inflicted. As we now write (August, 1862), the following announcement appears in the newspapers:

"RESPITE.—The Home Secretary having had under his consideration the circumstances of the case of Elizabeth Jane Hannisets, who was sentenced to death at Lewes assizes for the murder of her infant child on the 5th of April last, has recommended that the mercy of the Crown should be extended. The

capital sentence will not, therefore, be carried into effect. The ultimate punishment of the wretched woman has not yet been decided on."

Were the punishment a grade or so less, guilty women would not thus readily escape the punishment for the major offence, as they do now. The writer in the 'Social Science Review' remarks:

"We entirely disbelieve that any woman will ever be again executed for infanticide; and if that be true, then it is quite certain that we have now virtually no law in any way adequately meeting this crime. It results that a law must be made; and when such a law is made, it must be of a nature that shall enable jurors peremptorily and unhesitatingly to carry it out." (p. 81.)

Such a view as we have here taken is strongly repudiated by Dr. Ryan. He regrets that, "from whatever cause it may have arisen, infanticide is not looked upon in the same light as other murders are by the public generally (p. 4), insists upon the continuance of the capital award, and further demands "that the proof whether a child be *wholly born* or not when the violence which caused its death took place be no longer required." (p. 12.)

Another point upon which difference of opinion exists is the value of foundling hospitals in preventing infanticide. The general view held in Roman Catholic countries is, that society, being quite unable to banish the vice of illicit intercourse, and dreading lest its hands may also be stained by the blood of the innocent, is bound to throw over the mother a veil of compassion, and to endeavour to lead her back to the bosom of society from which she has been displaced. Grief, shame, and privation, and the despair of being unable to rear her offspring, must offer a strong temptation to abortion, infanticide, or abandonment. To force the father to marry the woman he has betrayed, would be but a doubtful good; to oblige him to support his child is known to be a certain difficulty. The hand of Christian charity is bound, therefore, to open to the mother an asylum in which she shall meet with every needful assistance. It does so first in the lying-in hospital, in which she is safely and secretly delivered of her burden, and the foundling-hospital completes the beneficent and merciful intention by relieving her of the heavy responsibility which is the result of her fault. Thus the erring woman returns in peace to the world, escapes the shame and harsh reprovals which otherwise await her, conceals her first offence, can resolve against its repetition, and whilst she herself is saved from sinking to a lower degradation, her child has probably been rescued from a cruel fate. Protestant writers mostly aver that such institutions as foundling hospitals tend to increase illegitimacy and the abandonment of children, and moreover exhibit such a very high rate of mortality amongst the infants they receive, that the loss of life by this more than counterbalances that which infanticide itself involves. Dr. Ryan informs us that—

"After considerable attention to the subject, with all the drawbacks to their usefulness, I am still inclined to think that foundling hospitals, properly managed, hold out the most promising results, and would conduce much to the prevention of the crime of infanticide. But in this kingdom there may be—indeed, is—a strong feeling against such institutions. It has been said that

they are not according to the 'genius' of the country. But is infanticide according to the genius of the country? Few, it may be hoped, will reply in the affirmative. Then if it be not, let *some means* be taken to stop its havoc." (p. 83.)

A writer in the thirty-eighth volume of the 'Edinburgh Review' asserts that foundling hospitals "may safely be termed a great public nuisance, leading to unchaste life and to child-murder beyond any other invention of the perverted will of man."

The result of the careful inquiry into which Dr. Melzer formerly entered,* and whose 'History of Foundlings in Austria' has always been of high authority, is that foundling hospitals are mischievous rather than otherwise—

"Because they have no influence on those evils which they were instituted to prevent, because the relief they proffer can be obtained only by a deliberate sacrifice of the best feelings of our nature, because they are liable to abuses which it is almost impossible to prevent, and because, while they entail a great expense upon the country, they preserve the lives of but a very small proportion of their inmates."

As a large proportion of infanticide is certainly due to the abandonment of the female by her seducer, and the consequent despair to which she is reduced, both as regards her position and her means of support, a "North Country Woman" endeavours to show that—

"Could means be found to restrain the practice of throwing the maintenance of the child on the mother, many lives would be saved, for it is not reasonable to suppose that a poor girl, as often happens, who has not the means of obtaining a private lodging and medical assistance for herself, should be able to maintain her child. The law appears to me very inefficient in this case, for though theoretically it is the father's duty to provide for his offspring, he is not compelled to do so by the infliction of any penalty in case of its death. . . . . With respect to the father, if the child perishes, he is at once relieved from all expense and trouble; nor though its death should, as in the case of Mary Newell, be the immediate consequence of his neglect, can any penalty attach to him—a mob may duck him, but even then the police will take care he suffers no great harm. Should the child live, he may be made to pay as much as half-a-crown a week for its maintenance—a sum which amounts in thirteen years to upwards of 84*l*. Thus, through the inadvertence of legislators, the father has a direct interest in its death—a state of things which never could have been intended, and quite sufficient by itself to account for the regular increase of this crime; but if its death from neglect entailed punishment on himself, this interest would be counterbalanced, and three good results would follow:—fewer girls would be seduced, fewer children murdered, and poor-rates would be greatly lightened." (p. 2.)

The consummation of these latter desiderata is indeed devoutly to be wished, but as to the exact means through which justice tempered with mercy and the law clear in its vision can satisfactorily attain to it, appears to us by no means so easy to determine as some of our social reformers seem to think. There can be no question, however, as to the debt society owes them for their philanthropic exertions in so wide and important a field.

* Geschichte der Findlinge in Oesterreich mit besonderer Rücksicht auf ihre verhältnisse in Illyrien, von Dr. Raimund Melzer, k. k. Director der Staats und local-Wohlthätigkeits-Anstalten zu Laibach. Leipzig, 1846.

Review II.

On Ovarian Dropsy; its Nature, Diagnosis, and Treatment. By I. Baker Brown, F.R.C.S.—*London*, 1862. pp. 283.

Any one who undertakes to publish a comprehensive work on ovarian dropsy, founded on sufficiently extensive experience, and written truly and faithfully to the best of his ability, deserves the cordial approbation of the profession. Mr. I. Baker Brown has this year given us a book, purporting to embrace the conditions we describe. He says his experience extends over thirty years, during which time it has been his constant endeavour to devise means by which this disease (ovarian dropsy) might be destroyed without an operation dangerous to life; and he adds, that most of these expedients have been, to a certain extent, successful. It professes to be a truthful and impartial record of facts, and as such we have a right to expect benefit from its perusal. The most important chapters are those on the diagnosis and treatment of ovarian dropsy; and the appendix contains well-arranged tables of 42 cases, all previously detailed, in which he had himself operated. Twenty-two of these cases were followed by recovery, and twenty died; and in explanation of this apparently large mortality, the author remarks, that several of the cases occurred some years since, when his acquaintance with the method of operating was necessarily small, so far as concerned practical experience, and when that method was very imperfectly developed, and prior to the many improvements suggested by the advance of surgical science. At that time the contra-indications to operating were imperfectly recognised; the diagnosis of the nature and character of the ovarian disease was less perfectly understood, and the success of operations sometimes invalidated by the colloïd or other unfavourable nature of the tumour. He adds:

"My experience teaches me to be more discriminating in the selection of cases for operation, and to reject those where the health is very much broken down; where the drain of albuminous matter, by repeated tapping, has been great; where the disease is of a colloïd nature, or otherwise departs from the true cystic character; and where, from the habits of the patient, other organs have suffered organically to the serious detriment of their functions. Indeed, in cases of the description indicated, operative interference appears entirely contra-indicated."

We think there can be scarcely two opinions at the present day as to the admission of ovariotomy into the number of justifiable operations of surgery, the average of fatal cases not being more than in several other capital operations. Mr. J. Clay of Birmingham, in an appendix to his translation of Kiwisch's work,* has published statistics which show that out of 395 completed operations, 212 resulted in recovery; Dr. Clay of Manchester has had in all 105 cases, of which 73 were cures and 32 deaths; and in

* See No. for January, 1861, of this Review, p. 179.

Mr. B. Brown's own experience in the London Surgical Home, in less than four years he has performed twenty-two operations with only seven deaths. As to the propriety of the operation, therefore, in well-selected cases, there can no longer be any doubt; and the interesting question is, what are the conditions which render the operation of ovariotomy justifiable? Chiefly, no doubt, the following: 1. That the tumour is ovarian; 2. That it is increasing, and causing annoyance and suffering to the patient; 3. That no milder form of operation is likely to produce benefit; 4. That the tumour is not cancerous; 5. That the patient is not so reduced in her general health and vigour as to render her an unfit subject for a formidable operation.

We have on a former occasion referred in terms of praise to the accurate attention which Mr. Brown devotes to the minutiæ of his operations; and again, in the present instance, we cannot too strongly recommend those who are about to perform ovariotomy to study carefully the description of the mode of performing it, and the preparations required, to be found at the 159th and following pages of the work now under our consideration. In speaking of the size of the incisions, he says they varied, in his operations, from three to eight inches, and adds: "In no case can the fatal result be attributed to the incisions." Also, as to the period of life in which the operation will be most successful, he says it may be stated, without any reserve, *cæteris paribus*, that a better chance of success is held out to the female who undergoes the operation before she is thirty; and he considers that the risks of the operation become greater every year the disease exists, for which opinion some very good reasons are advanced at page 158.

But can anything else be done for the cure of ovarian cystic disease? Is ovariotomy the only operation attended with success? These are momentous questions, and our experience leads us to answer the former in the affirmative, for cures have several times been effected by other and less hazardous proceedings. Mr. Brown gives the following as the principal modes of surgical treatment hitherto proposed and adopted:

1. Tapping simply.
2. Ditto with pressure.
3. Ditto and injection of iodine into the sac.
4. Artificial oviduct:
    a. External.
    b. Per vaginam.
    c. Per rectum.
5. Ovariotomy, or extirpation:
    a. Incomplete, or partial excision.
    b. Complete excision.

Mr. Brown speaks highly of tapping with pressure, and claims to have originated the practice. He minutely describes the mode in which it should be performed, and his cases seem strongly to favour a trial of the procedure in most cases of single cysts, before the extreme and dangerous operation of extirpation is resorted to. Our author considers it most applicable to unilocular cysts without adhesions, with

clear and not albuminous contents, and where time and the condition of the patient admit of its persevering application. There are also cases of multilocular disease, and others where adhesions exist, where pressure may do material good and retard the growth. One great recommendation of this plan is, that it is seldom attended with much inconvenience, and still less with danger; and the possible benefit to be derived from it ought to give it precedence over other forms of operation, in the absence of any special circumstances to contra-indicate it. The success attending the treatment by injection of iodine into the sac has been so slight as to render it almost a useless proceeding; but it does not seem to be attended with so much danger as many suppose. But, on the other hand, we are favourable to making an opening into an ovarian sac *per vaginam*, when it can be safely accomplished, and allowing the contents to drain away. We have seen several cases in which tapping cysts *per vaginam* has been followed by favourable results, and one in which an ovarian cyst burst of itself into the vagina, and the patient recovered. Of course this is an operation that must be limited to cases in which the tumour lies in the pelvis so as to be felt projecting in the vagina between the rectum and uterus; but in all cases in which a fluctuating tumour *can be distinctly felt* in such a situation, we should prefer tapping it *per vaginam* to any other operation.

The diagnosis of ovarian tumours is confessedly a very difficult matter, although becoming less so as our knowledge and experience of the disease increase; it is still, however, difficult, as evidenced by the mistakes even of those who have devoted the greatest amount of attention to the subject. The chapter on diagnosis in the work before us will repay one for the trouble of examining the various statements contained in it; although, if we were inclined to be hypercritical, we might take exception to the value of some of them. One of the most difficult circumstances to make out satisfactorily beforehand, is the existence or non-existence of adhesions; but from our author's description we might be led to think this comparatively easy. He says, if the cyst can be moved from side to side easily (the patient lying in the horizontal posture, with the thighs flexed, so as to relax the abdominal wall), *it proves the absence of adhesions;* likewise if, when the hand is placed firmly on the relaxed parietes, these are readily moved over the walls of the cyst, *there are no adhesions*, at least on the upper and lateral surfaces; and a third argument against the presence of adhesions is deducible when the abdominal parietes, which are thin in this disease, can be grasped and puckered up, and so moved over the cyst; and when they can be gathered up readily without raising the cyst. *If these three indications are met with, we may determine there are no adhesions.* Can these indications in reality and in practice be so confidently depended upon? No doubt they are valuable helps in enabling us to form a correct judgment, but they may certainly fail us, nevertheless, and cannot unfortunately be implicitly relied upon. However, we are not disposed to enter upon objections, but rather desire to encourage a study of Mr. Brown's work, which will un-

doubtedly throw some additional light upon one of the most interesting subjects of the present day. We shall therefore make no further reference to it, but conclude this article by a brief statement of our own views about the treatment of ovarian dropsy.

If we can make out to our satisfaction that we have to deal with a case of a single cyst of moderate dimensions in a young healthy woman, we should first make trial of tapping with pressure, and with considerable hope of success.

In any case of ovarian disease of non-malignant character, where the tumour can be distinctly felt *per vaginam*, we should resort to tapping it in that situation, and if possible, leave an opening through which the fluid might drain away as it forms. The propriety of leaving an instrument in for this purpose is doubtful, but the opening made by the trocar might be enlarged by a bistoury, so as not to heal so readily or quickly as a smallerwound or puncture.

If the case be of such a nature and size as to require ovariotomy, we think it best that the whole cyst should be removed through an incision sufficiently large to allow of its being easily drawn through it, believing that there is less danger in making the opening *free* than in endeavouring to draw the cyst or tumour forcibly through a small one.

If, after having made the abdominal incision, the tumour should be discovered to be so adherent to the neighbouring parts as to make its separation very difficult, we should prefer opening the sac without disturbing the adhesions, and allowing it to discharge itself through an external opening, or "artificial oviduct," rather than making any attempt to break or cut through firm adhesions for the purpose of removing the whole cyst.

Lastly, in cases where the cyst is multilocular, with colloïd contents, or cancerous, the general health of the patient undermined, and there are appearances indicative of malignant disease, we should recommend no other operation than that of simple tapping, and that only when, from the size or situation of the tumour, the vital functions are seriously threatened and impeded.

Review III.

Fourth Report of the General Board of Commissioners in Lunacy for Scotland.—Edinburgh, 1862. pp. 248.

Some years ago the public were startled by terrible revelations as to the state of lunatics among our neighbours across the Tweed. Acts of such cruelty and barbarism as had been supposed impossible since the dark ages were discovered to be of daily occurrence. The excitement ran its usual course through the periodicals of the day, and disappeared. We wish we could add that the disappearance of the evils spoken of was equally complete. Much has been done by the machinery, which has now become usual in such cases, of a Government Commission with permissive rather than compulsory powers. Besides the power of refusing licences, and the personal influence that may be directly

brought to bear on managers of asylums by men of recognised position, tact, and intelligence, the results of their investigations when published in an authentic form furnish an unimpeachable basis for public opinion to act on them with the due measure of blame or praise.

Four reports of the Scotch Commissioners have appeared; and in each a steady improvement is discernible upon that of the preceding year. So great, however, were the evils in the first instance, that this improvement is very far as yet from being adequate. In the few pages which we propose to devote to the subject, we can promise our readers nothing of the same professional interest as in the highly valuable report on the Dutch asylums commented on in a recent number of this Review. The Scotch Commissioners seem to have but small leisure for psychological investigations. Their energies are entirely absorbed in inculcating the most elementary notions of proper lunatic treatment. It is obvious that so long as bad ventilation, improper and insufficient food and clothing, want of amusement and employment, ready recourse to the strait-waistcoat, and similar evils, are of constant occurrence, there is little likelihood of much attention being given to the finer details of the subject. Consequently the chief interest of the Report is of a moral and social rather than of a strictly medical kind. But we still think it well to place the results briefly before our readers. There is no question on which the honour of the profession is more at stake than this of lunacy; none from which it is liable to suffer so severely from the apathy or ignorance of a few unworthy members; none in which it may interfere more beneficially to form and enlighten public opinion.

By the census of 1861, the population of Scotland is 3,061,251. The number of lunatics is 8136, being 1 in 377, or 26·5 in every 10,000 of the population. In England and Wales, with a population of 20,061,725, the number shown by the reports of the Lunacy and Poor-law Commissioners is 39,152, being 1 in 512, or 19·5 in every 10,000 of the population. Notwithstanding all that is said, and most justly said, of the danger of relying on statistical reports without very intimate knowledge of the circumstances under which they are drawn up, it is difficult to attribute the whole of this very considerable difference to superior accuracy in the Scotch returns. The Scotch Commission has been in existence but four years, the English sixteen. In both countries it is probable that there is a large number of insane persons not reported to the Commissioners. But is there any indication that this unknown quantity is larger in England than in Scotland?

"We are not aware," say Messrs. Bucknill and Tuke, in their admirable treatise, of any reason why there should be a "larger proportion of insane persons in Scotland than in England and Wales." But we reply, that until some cause can be shown modifying the conclusions patent in these returns, the presumption is that Scotland *has* a larger proportion. And we cannot but consider the fact as sufficiently verified to justify some investigation of its causes. That there are striking differences of race, temperament, social constitution, historical

development between the two countries, has been evident to every one long before the publication of Mr. Buckle's second volume. If the religion of a people is to be considered as a standard, and at the same time a guardian, of its mental health—and this we take to be an exceedingly unimpeachable position—a comparison between Scotch Calvinism and the milder creeds of the Anglican or Gallican churches might point to some solution of the question. No one who looks ever so slightly into the ætiology of insanity, can fail to appreciate the prodigious influence of undue spiritual terrors. The characteristic doctrines of the Kirk, when enforced by injudicious and fanatical preachers, would seem calculated to act with dangerous potency on minds of a peculiarly logical and deductive cast. One of the forms of insanity has been defined as "correct reasoning from false premises."

There is nothing derogatory to the Scotch intellect in supposing that the peculiar merits which distinguish it may expose it to peculiar dangers. Temperance advocates would solve the question that we are considering, by pointing to the immense consumption of alcohol in Edinburgh and Glasgow; but this, too, may be only a symptom of a deeper evil; a reaction against the excessive restraints and the unnatural gloom imposed by the Sabbatarian system.

Passing to the special points on which the Commissioners comment, we find considerable laxity and uncertainty in the interpretation of the act authorizing the confinement of lunatics. It would appear that by the strict letter of the Scotch law, "a man must, in the opinion of competent medical persons, be unfit to be at large, either as regards his own personal safety and conduct, or the safety of the persons and property of others, or of the public," before he can be legally placed under treatment as a lunatic. This appears to be interpreted in very different ways, according to the social status of the patient. It is interpreted very loosely in cases above the level of pauperism; the sheriff grants the order for admission into the asylum upon evidence which certainly does not prove the lunatic to be dangerous. On the other hand, with paupers, the desire of the parochial authorities to avoid the expense of the removal of the patient and his maintenance in an asylum, leads them not merely to insist on the most stringent interpretation of the law, but to overstep its obvious meaning in an exactly opposite sense. We give two cases out of several where the parochial medical officer certified that the patients were *not* lunatics within the meaning of the act.

"J. M.—Chronic mania, implanted on congenital imbecility; has delusions; talks to herself during night; raves about people being above and below her bed with intention to hurt her; stands erect on one spot for hours, often till her feet and ankles become œdematous; is obstinate and dumpish; is indifferent to all going on about her; requires to be asked to take food; often refuses to answer questions.

"M. C.—Has a dull, melancholic look; is indifferent to everything about her; says she is unfit for work; complains of impossible pains and unreal weakness; constantly regretting the past; wakeful at night; hears noises; fancies people are about the house; is careless as to dress; does not wash herself; is almost constantly in bed; weeps, and says there is no pardon for her.

I found her in bed. She left it at my request, and when brought to the light was found to be naked to the waist, a bit of dirty blanket being for the moment thrown round her shoulders. It was admitted that frequently she was in a state of perfect nudity when in bed, yet she habitually sleeps with her father, whose age is probably between seventy and eighty. She herself is fifty-two years old. These two live alone together in a wretched, filthy, comfortless hovel."

In fact, the key-note which runs through large portions of this Report, and those preceding it, is the conflict of parochial selfishness and narrowness with common sense and common humanity. How to keep its lunatics at the smallest possible cost seems the only aspect of the question that the parish takes. Hence the efforts made to keep them at their homes, or in the lunatic wards of the poorhouse, rather than consent to their removal to an asylum.

"We strongly object," say the Commissioners, "to lunatic wards in poorhouses being used as substitutes for asylums, chiefly on the ground that the primary object of poorhouses is to afford a test for poverty and to provide for the poor in the most economical manner. The fundamental principle on which these establishments are conducted is thus antagonistic to that which ought to regulate the treatment of lunatics, and which, briefly stated, is the provision of every comfort which can reasonably be demanded to lighten the burden of perhaps the greatest calamity which can afflict humanity. The treatment of the patients in these establishments can scarcely in any instance be regarded as in harmony with the humane views of the day. There is generally a great deficiency in cheerfulness and comfort within doors, a prison-like aspect about the airing grounds, and an almost total absence of the means of employment both within and out of doors." (Report ii. p. 52.)

"Parochial boards are apt to be satisfied if at their visits they see clean wards and sufficiently clothed inmates. They do not realize the weary monotony of the patients' existence; their prolonged confinement to rooms, the clean bareness of which is in itself chilling and depressing; their scanty exercise in narrow yards, and the feeling of injustice which such treatment frequently engenders in the minds of those in whom disease has not altogether destroyed the power of reflection—the influence of these agencies is seen in the high mortality—*one-sixth of the average number of male patients resident in poorhouses having died within the year.*" (Report iv. p. 43.)

In the poorhouses of the Edinburgh district the mortality was even more abnormal. The lunatic wards of Edinburgh City and St. Cuthbert's poorhouses had, during 1861, an average population of 40·5 males and 99·5 females. Among these patients no fewer than 26 deaths occurred—15 of males and 11 of females. The male mortality was thus 37 per cent., or more than one-third of the average number. The most obvious sanitary conditions seem to be violated in these establishments. The diet, though perhaps sufficiently abundant, wants that variety which is conducive to healthy nutrition. Means of exercise and occupation are wanting. The dormitories in the City Poorhouse serve as day rooms, and thorough ventilation is thus rendered difficult. Of the 26 deaths 14 were caused by pulmonary disease; and as 12 of these had been two years in the house, it is probable that the seeds of the malady were implanted after admission. The bed-clothing appeared to the Commissioners far from

sufficient. There was an utter want of all proper arrangement for separating the sick and dying from the rest of the community. "The same apartments served the purpose of day-room, dormitory, and sick-room." The staff of attendants consisted mainly of "ordinary paupers, reduced to this condition by intemperance, who were formerly themselves placed on the list of lunatics with the view of exercising more authority over them!" In consequence of this, it is of course impossible to indulge the patients with occasional walks beyond the premises. In Aberdeen poorhouse—

"There are no water-closets accessible to the patients. The privies have undergone no change, are ruinous and dirty, are at a distance of fourteen yards from the door of the ward, and could only be reached through a damp yard covered with snow. The cold through the house was excessive. The snow was falling upon one of the beds, and we were told that this breach had existed for several days. The patients are allowed two pairs of blankets only; the attendant for the female side is supplied with three pairs, and sleeps in a sheltered recess. On the male side the bed of the attendant is placed next the fire. The smell in the lower dormitory for males was oppressive." (p. cxxix.)

So in other of the poorhouses visited we are told of the monotonous diet, the absence of amusement, the insufficient warmth, of the "prison-like aspect of the wards," and, as a consequence, of the want of vital energy, feeble circulation, pallor of the surface, and of the "marked subjugation and passivity of the community, compared with what is observed in public asylums."

1787 of the pauper lunatics are described as single patients; and much has been done in the last three years to improve their condition. Much, however, remains to be done. One woman was found in bed, "groaning piteously, on the floor in the corner of the kitchen, but nearly under the hole in the roof which served for a vent. She is separated from the earth by a layer of "breckan" and a bundle of rags." Another is "tied habitually by a strong common rope, secured roughly round the waist, to the foot of a bed." A third, an old woman of seventy-eight, is allowed to live alone in a one-roomed hut, which she has twice burned down, on a piece of waste ground far from human habitation. "She is an inveterate wanderer, leaving her house often at nightfall and going long distances. She was seen lately with her face severely cut and bruised, probably from a fall."

Pregnancy in the case of many of these single patients appears to be of frequent occurrence, and "we fear that this evil can only be efficiently guarded against by removing all such patients to asylums or poorhouses. Yet in many cases the attempt to carry out this course would frequently result in the patient's being taken off the poor roll and removed from our jurisdiction."

It would seem that there are supposed to be nearly 2000 patients above the level of pauperism living singly with their families. Over these the Commissioners have no jurisdiction; yet some of the worst cases are to be found in this number.

"E. G., aged forty-one, a large-featured, gibbous-jawed dwarf, whose hair is so thick, matted, and solid that the dimensions of the head could not be esti-

mated; skin generally excoriated; teeth gone; legs contracted; liable to epilepsy since seven years old; sees and hears, but unknown whether she distinguishes pain, cold, and heat. She does not walk, but creeps. Since the deformity and contraction of legs, falls in attempting to stand or walk, but may crawl to door. Of dirty habits; cannot wash or dress herself. Found grovelling among ashes close to fire, in which the nates have formed a nest or shallow pit in which she crouches during the day. Has often fallen into the fire and been burned. Sometimes sits up during the whole night, roaring, howling, and biting. Speaks but unintelligibly; the efforts to articulate interrupted by *stridor dentium*. Lives with mother and brother. House dirty, but gives evidence of coarse affluence. Bed of 'breckan' in a box near to fire in kitchen, shockingly filthy. Hair never was combed. Skin covered with layers of soot and ashes. This idiot inherited a share of her father's property, but her friends argue that the amount would not cover the outlay for past maintenance, and that they cannot afford to place her in an asylum."

Passing from these miserable cases to the public asylums, we find much that indicates more humane and enlightened policy, still there is not a contrast so great as we might hope. We must remember, however, that while in England asylums are built by a county-rate, in Scotland they depend partly on legacies and voluntary subscriptions, partly on payments made by patients' friends. These payments, indeed, have in many cases far more than covered the cost of maintenance, and have been devoted to the erection of new buildings. In other words, a public want has been supplied from the private funds of those who perhaps of all the community were least able to afford the sacrifice. It is not surprising, therefore, that the condition of asylums in Scotland, though on the whole improving, should still fall considerably below the general standard of English county asylums. Still some of the evils pointed out by the Commissioners indicate either some ignorance or some apathy. One would think that in these days of sanitary reform, such elementary conditions as warmth, fresh air, and cleanliness would be looked upon as matters of course. This is far from being the case. In few of the asylums does the supply of blankets seem adequate; even in that of Glasgow, which in most respects stands out in favourable contrast, the temperature in the upper rooms, now used as dormitories for female pauper lunatics, is spoken of as extremely low. No attempts are made to provide warmth, except by open fires. Bad ventilation, too, seems very common. In Dundee Asylum, the beds in many cases are placed sixteen inches apart. In Edinburgh and Montrose, the over-crowding is such, that beds have to be placed on the floors of the day-rooms and dormitories. In Perth, the economization of space by which a number of inmates is accommodated, is "creditable to the ingenuity of the officers, but cannot be commended." In the dormitories for paupers in the north wing, the beds were in some instances scarcely a foot apart. Nor can it be said that the arrangements for the cleanliness of the patients are in all cases satisfactory. The Commissioners speak with much earnestness, and we are sorry to say with much iteration, of the importance of providing a more liberal supply of lavatories and basins, as well as water-closets of better construction. In Dundee Asylum, on the female side there

were thirty-two patients in the north ward, for whose use only three basins are provided. There were seven patients in the weavers' dormitory, who had only one basin. Complaints, too, are made of the disorderly manner in which the meals are conducted, and of the restriction of patients to the airing-ground of the asylum, instead of conducting them on occasional excursions to the seaside or country. In almost all these points, however, there is more or less improvement. In the Glasgow Asylum especially, which contains 515 patients, much is found to praise. 380 patients are employed, and 220 of these industrially, and but for the lack of funds, it is evident that even more would be done in providing occupation and amusement. With 98 patients of degraded tendencies, the number of those actually of dirty habits is reduced to a mere fraction (composed chiefly of epileptics) by night attendance and careful watching throughout the day. No male was observed in a strong dress. The supply of food, clothing, and fresh air seemed all that could be wished. All, except sixteen males and ten females, took occasional exercise beyond the airing-courts. Finally—and this is a point of great importance—far more accurate and detailed registers of the cases seem to be kept. It is the only one of the asylums in which the cause of disease is given in the Commissioners' report:

Out of 72 admissions from December, 1860, to April, 1861, the causes of the disease were ascribed to—

	Cases.		Cases.
"Intemperance in . . .	10	Anxiety	5
Hereditary influence . .	4	Sunstroke	1
Predisposition	17	Ramollissement . . .	5
Masturbation	7	Grief	2
Puerperal state	1	Imbecility	2
Religious excitement . .	9	Unknown	9."

(p. lxxix.)

Of 2763 patients in the public asylums,

"223, or about 1 in 8, died in the year. Of these, 97 died of some form of cerebral disease—i.e., 18 of apoplexy, 10 of epilepsy, 34 of general paralysis (of these 4 being women), 18 of 'maniacal and melancholical exhaustion,' 17 of tumours or other disease of the brain; 65, or 29 per cent. of the deaths, were due to pulmonary disease, 11 to heart disease, 25 to disease of the abdominal organs, 19 to debility or old age, 2 by violence, 1 by suicide.

"Of 1650 admissions into asylums and poorhouses during 1861, 669 are described as recovered, which gives a proportion of 40 per cent.; but as 153 of the admissions were only transferencies of uncured patients to other establishments, the proportion of patients cured or recovered is raised to 44·7."

A third section of the Report deals with private asylums. We must say that the impressions left on the mind by the Commissioners' evidence are far from favourable. Of nineteen asylums, containing 852 patients, not more than four or five are spoken of with high praise; and on five or six a very severe verdict is passed. In many instances a spirit of most ill-advised and sordid economy seems to prevail. Thus, of one of the largest of these establishments, we are told that—

"Pecuniary profit to the proprietor is permitted to influence too largely the comforts of the patients. We do not mean that the supply of food is not, perhaps, sufficient, or that the clothing and bedding of the patients are not in adequate quantity, but that there is a pervading shabbiness in the furniture and fittings, and a parsimony in all the arrangements, far beyond what should be the case considering the payments made for the patients. . . . . The patients sat down to dinner without washing their hands after dirty work; the dining-hall was greatly overcrowded; no table-cloths were provided; the meat was torn with the fingers . . . . the meal was over in fifteen minutes. . . . . The great mass of the patients seem never to be beyond the airing-courts, and there are no proper arrangements for giving extended exercise to any but those who can be profitably employed on the farm." (p. 109.)

Of another we hear that—

"A considerable number of the male patients were found in ragged and dirty upper clothing; supplied with neither flannel nor drawers: the appearance of many was wretched, and the pulse and other physical indications gave evidence of low vitality. Many complaints were made as to the insufficiency of the diet. . . . . The Commissioners comment also on the ruined, squalid aspect of the rooms occupied by the agitated patients; the faded and decayed state of many of the dormitories; the positive wretchedness of the parlour for the refractory; the ruined seats, and the state of the privies in the garden; the close and offensive condition of the public room for males." (p. 115.)

From one establishment, which the Commissioners found it necessary to visit five times in the year instead of twice, they have, in the exercise of a very sound discretion, withdrawn their licence. Almost every phase of defective and neglectful treatment was here combined—cold, dirt, deficient attendance, untidy meals, frequent resort to restraint, constant absence of the proprietor.

"The wet, dirty, and troublesome patients, to the number of six, are placed together in one dormitory. Those of wet habits sleep on canvas stretchers, with not even a sheet intervening, and have (in the depth of a Scotch winter) only two pairs of blankets and a coverlet. They are not provided with chamber utensils, and are entirely dependent for the means of relieving nature on trays placed under their beds." (pp. 101–103.)

In concluding this somewhat ungrateful task of criticism, we must bear in mind that a considerable number of the patients in these private asylums are paupers, whose maintenance is paid for by the parishes to which they belong. Some, therefore, of the responsibility falls on the poor-law system, which we cannot but regard as totally inapplicable to the whole question of lunatic treatment. This, while it accounts for the inferiority in the condition of private asylums in Scotland to those in England, is, however, no excuse for neglect of such palpable and primary conditions as fresh air, pure and well-served food, and warm clothing.

Review IV.

1. *Des Affections Nerveuses Syphilitiques.* Par D. A. Zambaco, Docteur en Médecine de la Faculté de Paris, &c.—pp. 596. 1862.
On Syphilitic Nervous Affections. By Dr. D. A. Zambaco.

2. *Des Paralysies Syphilitiques.* Par J. Ladreit de Lacharrière, Docteur en Médecine de la Faculté de Paris, &c.—pp. 110. 1861.
On Syphilitic Paralysis. By Dr. J. Ladreit de Lacharriere.

If we accept the division of vital functions laid down by Bichat, the division into those of vegetal and those of animal life, and apply the principle to the classification of disease, syphilis would certainly be ranked by most observers in the first of the two classes. By far the greater part of its effects are wrought upon the tissues of vegetal, rather than on those of animal life. In the great majority of cases, and in all cases whatever in the first instance, the cellular tissue—using that word in the large acceptation which Virchow gives to it—is alone affected. In the primary and secondary phases of the disease, the skin and mucous membrane—that is, the outer and inner envelope of the body—are involved; and in the large and ill-defined group of subsequent symptoms which are spoken of so vaguely as "tertiary," the seat of the mischief is usually in the osseous and fibrous systems, which to the eye of the philosophic histologist, are but modified forms of the fundamental cellular or "connective" tissue.

In pathology, however, every classification whatever, must, from the nature of the subject, be provisional and faulty. Diseases are not fixed and permanent, like zoological species; each group passes by imperceptible gradations into some other; and each individual case offers such peculiar complications of its own, that it is often very difficult and arbitrary to place it within any group. Classification of disease is useful if employed merely to bring into stronger light the points of similarity between any two or more cases; it is dangerous if intended to prove any absolute difference or identity between them. It is, in short, a useful servant to the pathologist, but a bad master.

And so we find it in the case before us. Syphilis usually leaves the tissues of animal life—that is, the nervous and muscular tissues—unaffected; or at least it commonly injures them only indirectly, by impairing the general nutrition of the body. But there are exceptions to this rule; and the books placed at the head of this article are devoted to these exceptions. We are not aware of any work in our language bearing directly upon the same subject. Writers on diseases of the nervous system as well as writers upon syphilis have spoken of the venereal poison as an occasional cause of neuralgia and paralysis; and cases are here and there recorded in the medical journals. But no attempt has been made to collect these cases and consider them systematically, with the view of ascertaining how far syphilis was a *vera causa* of the symptoms, how far an accidental coincidence; and of deciding, in case its causative influence were really proved, the mode of its action.

The two works before us appear both of them to be the result of the system so largely pursued in France by the learned bodies of offering prizes for the study of some special question. Much may be said for and against this system; the value of the results will obviously depend much on the standard adopted by the judges. If it is a well-assorted collection of cases carefully observed, rather than theoretical "evolution of pathology from the moral consciousness," which is encouraged, the result is useful; and this we are bound to say is the case in both of these works, but especially in the first.

Dr. Zambaco's work contains reports of 91 cases, almost all of them stated to be observed by himself, illustrating the connexion of syphilis with neuralgia, paraplegia, hemiplegia, amaurosis, chorea, epilepsy, and mania. In thirteen of these cases death ensued, and a post-mortem examination was obtained. Each case is briefly analysed, and on the whole, a fair amount of scepticism is shown when the connexion of syphilis with the nervous phenomena remained uncertain. There are, however, a few of his cases that might as well have been left out altogether. Cases 3 and 4, for instance, merely prove the truism, that the outbreak of a secondary eruption is often preceded or accompanied by lassitude, dyspepsia, and feverishness.

Case 21, is of a man who had primary syphilis at eighteen, and died of a tumour in the brain at sixty-one. He seems to have enjoyed excellent health in the meantime, and no symptom whatever of constitutional syphilis is recorded. Dr. Zambaco inserts the case on the strength of a microscopical examination of the tumour by Charles Robin, who asserted that it had all the characteristics of syphilitic tumours. Great as M. Robin's authority is, we confess to an entire disbelief in the power of the microscope to pronounce any given tumour to be syphilitic; and our disbelief is not lessened by the vagueness of Robin's description, "amorphous matter, transparent, greyish, with here and there some fibrous tissue mixed with fusiform bodies, a large proportion of cystoblasts, and a few pus-globules:" this would hardly warrant us in asserting the cause to be a chancre cured thirty-eight years previously.

Another very useless case brought in to elucidate the connexion of syphilis with mania is that of a poor man, who, having contracted the disease by no fault of his own, was frightened by the fear of it and of mercury into a madhouse.

But leaving out these and one or two others, the majority of the cases will be found full of interest, and aimed well at their mark; and the practical importance of the subject will be allowed. The impenetrable obscurity of many nervous disorders makes them, if not the opprobrium, yet the despair of medicine. We can afford to lose no clue to their diagnosis; and in this case the diagnosis is of especial value, because it will modify and frequently altogether reverse the treatment. Dr. Zambaco records several cases of paraplegia, and one or two cases of chorea, and of what appeared to be intermittent fever, in which no progress whatever was made till the existence of the syphilitic diathesis was suspected, and mercury or iodide of potassium substituted for the usual tonic treatment.

"A woman, aged twenty-six, admitted into La Charité in December, 1846. During the last month, at five o'clock in the afternoon, shivering has come on, which lasts for a quarter of an hour, followed by intense heat, and ending with free perspiration. The fit lasts several hours. A slight papular eruption was noticed, but the patient denied the possibility of syphilis, and the symptoms were treated in the usual way with sulphate of quinine, in doses of a scruple per diem. The treatment was continued for seven weeks without the slightest result. Nor had purgatives and emetics any better effect. The ague fit came on at precisely the same time, and had precisely the same duration as before. Attention was now directed more closely to the eruption, and the suspicion of its syphilitic nature was acted upon. On the 18th of February mercury was given; by the 22nd the fever had almost entirely ceased, but there were still nightly pains in the limbs. On the 30th of March the patient left the hospital, free from every symptom."

In another case under Ricord, intermittent fever came on within a month of the primary disease; quinine without mercury was given for seven or eight weeks without the least result; mercurial treatment was then substituted, and the intermittent fever, as well as an extensive secondary eruption, disappeared together.

Two cases of chorea are given—

"L——, a laundress, twenty-two years old, went into the hospital of St. Lazare, April 20th, 1852, for constitutional syphilis. Has never had any convulsive disease; no rheumatism or scrofula; family healthy. Iodide of mercury was given. At the end of June she was just on the point of leaving the hospital cured of all symptoms, when she was seized with faintness, pain in the head and eyes, and feverishness; a vesiculo-pustular eruption followed. The bichloride was given, also iodide of potassium. The cutaneous disease was yielding to this treatment, but in August the pain in the head increased, vomiting, sleeplessness, eyes injected. Leeches were applied to the anus. The brain symptoms ceased, but four days afterwards involuntary movements came on in the left arm and leg, attended with pain and loss of power in those parts. She cannot eat with the left hand; when she brings the spoon near her mouth it is instantly driven far away again. The tongue is protruded to the right; the muscles of the right eye and cheek are convulsed. The iodine treatment was continued, and after six weeks all symptoms had ceased."

Here the choreic symptoms came on during the course of specific treatment; but a much more interesting one is given, though the history is too long for insertion here, of a girl who suffered from chorea of a most violent kind for eight months; there were also intense nocturnal pains. These, however, excited no suspicion, and the usual tonic treatment was pursued, which proved entirely ineffectual. At last a cutaneous eruption of an evidently syphilitic character showed itself; a specific treatment was adopted, and the relief was immediate. In a fortnight the convulsive movements had sufficiently ceased to enable her to walk, and in a few weeks all choreic symptoms had disappeared.

These, however, are, we believe, rare cases, and their practical importance is therefore less than that of the far more numerous cases of paralysis in all its forms, but especially paraplegia, which may be traced more or less directly to a syphilitic origin. English clinical writers have not overlooked such cases. But the relation of cause and effect, the mode in which the syphilitic poison acts, still remains obscure, and

therefore every well-founded addition to our stock of facts is to be welcomed.

Five cases are given in which one or other of the motor nerves of the eye were affected; in four of which the diagnosis of a syphilitic cause, and the efficacy of a specific treatment, seem to be undoubted. There are two cases of facial paralysis, of which we give in an abridged form the following—

"C——, an hotel waiter, aged twenty-six, came into the Hôpital du Midi Aug. 11th, 1854, with indurated chancres of two months' date, phymosis, and suppurating bubo. On the 5th of September, intense headache and general feverishness. On the 6th, facial paralysis of right side, slight ptosis of the eyelid; tongue protruded to left; half the tongue insensible to touch, to pricking, and to taste; no strabismus, but right eye immovable; cornea directed straight forwards; pupil fixed and very widely dilated; sight confused when the patient looks with both eyes at an object placed before him; on moving the object sideways to the left, the left eye follows it, but the right does not, and there is double vision; the external rectus is unaffected; the scalp on the right side is exquisitely sensitive; there is dinning in the right ear and some deafness; deglutition difficult, drink often returned through the nostril; no affection of arm or leg; copious eruption of vesicles all over the body; cervical and occipital glands enlarged; no tumour near the angle of the jaw. Under mercurial treatment all symptoms subsided in about six weeks."

This case is interesting, first, from the early stage of the disease at which the symptoms occurred; and secondly, because they cannot be accounted for merely by the usual hypothesis of a tumour pressing on the facial nerve at its exit from the base of the skull, since this still leaves the paralysis of the motor oculi nerve unexplained.

Coming now to the nervous centres, we find 15 cases of hemiplegia, 11 cases of paraplegia, and 5 cases of a form of general paralysis bearing a strong resemblance to the general paralysis of the insane, except that it was unaccompanied by the delusions of wealth and grandeur which are almost pathognomonic of that disease.

We abridge two cases:

"X——, a barrister, had primary syphilis in 1843, was treated in 1847 for syphilitic periostoses, which, however, did not entirely disappear. In 1851 general pains, but especially in right leg; took sulphur baths without effect. In the course of that year the right leg became weak, with diminished sensibility. Urine was made with difficulty. In the year following there was loss of power and sensibility in the whole of *the left side*. He was then placed under Ricord. Periosteal growths were still visible in the left mastoïd process. Iodide of potassium was given in large doses, and mercurial ointment applied. In five weeks sensibility and movement had returned to some extent in the parts affected. But the speech was often impeded, and the power of mental concentration weakened. After five months' continuance of the treatment bodily and mental health was entirely restored.

"X——, aged thirty-six, of a vigorous constitution and healthy family. Indurated chancre in 1856, followed by secondary symptoms. These yielded to treatment; but in 1858 there were mucous patches on the lips, alternately disappearing under mercury, and returning when treatment was suspended. Towards the end of 1858 he remarked increasing weakness of lower limbs and difficulty of retaining urine. He was now placed under Ricord. There was general debility, syphilitic psoriasis, and evident paraplegia. He could hardly

walk for ten or fifteen minutes. No abdominal tightness. Constipation, and retention of urine. Bladder and sphincter both partially paralysed. From two to four grains of iodide of mercury were given daily; mercurial inunctions and tonics were also exhibited. In six or seven weeks power of limbs and of bladder had greatly increased. Some debility, however, remained during that year and the next; and in April, 1860, the sight became dim, the pupil sluggish, words appeared left out in what he was reading, &c. On examination, the ophthalmoscope discovered choroïditis, and an effusion beneath the retina round the papilla, of a dirty white colour with irregular margins. The mercurial treatment, which had been omitted for the last year, was renewed, and the biniodide substituted for the iodide. In six weeks vision became clear, and the ophthalmoscope proved the entire disappearance of the effusion. The power of limbs and bladder was nearly restored; and by the end of the year the patient was quite well in every respect." (pp. 253–257.)

In another case, paraplegia came on within six months of the primary symptoms, and was cured by specific treatment with proportionate rapidity. This variation in the interval of time during which the disease remains latent, is quite consistent with our knowledge. Though a short course of treatment in most cases removes every trace of the poison, there is still not wanting evidence to confirm the opinion that has been sometimes advanced, that the germs of syphilis once implanted are ineradicable.

With regard to the pathological anatomy of syphilitic nervous affections, our author speaks with a good deal of prudent reserve. It has indeed been maintained that in no case does syphilis act on the nervous structure otherwise than by pressure produced by heterologous growths in surrounding cellular or fibrous structures; and that this is a frequent cause there can be no question. The intense pain often produced by cranial or tibial nodes doubtless results in this way, as in a minor degree the tenderness of corns even when no external pressure is used, and as also the intense agony produced by cancerous growths. The exostosis which when developed externally is harmless, may be fatal when it grows from the internal surface of the skull or spine.

In one fatal case of paraplegia which coexisted with and apparently originated in constitutional syphilis, a gelatinous tumour was found compressing the spinal cord in the dorsal and lumbar regions. There were also numerous periosteal growths from the sternum, inferior maxilla, &c., and also a small tumour in the course of the sciatic nerve, which had been the cause during life of intense pain. All these were examined microscopically by Charles Robin, and pronounced to have all the characteristics of syphilitic growths—a verdict which at all events excludes the hypothesis that the coexistence of paraplegia with the other symptoms was fortuitous. Our author, however, devotes a section (pp. 420–436) to the consideration of syphilitic paralysis *sine materiâ*—that is to say, of cases where post-mortem examination revealed no lesion. Two cases of paraplegia and one of hemiplegia are given. It is certain that all three were under the influence of constitutional syphilis, and no other cause could be alleged for the symptoms. But in all the brain and cord were to all appearance healthy. So far as they go, these facts are valuable, as tending to show

that syphilis may act directly upon the nervous tissue as well as by the development of abnormal growths in the surrounding osseous and fibrous tissues. And it will be a confirmation of this view if we should accept the conclusion which would seem to follow from some remarkable cases in which the symptoms resembled those of general paralysis. One of these we give, leaving out unessential details:

"L——, an ironworker, aged twenty-four, was admitted under Ricord in March, 1853, with indurated chancre. Iodide of mercury was given for a month, when the patient left the hospital, but returned July 15th with secondary eruption, enlarged cervical glands, hair falling off, intense headache and periorbital pain, and some loss of vision in the right eye. The induration of the chancre remained, and there was enlargement of glands of groin without suppuration. Mercurials and iron were given for another month. On the 12th of August he insisted on leaving the hospital, uncured; but in four days he returned in a remarkable condition of imbecility, with difficulty of speech and general loss of muscular power; he stands stiff, slightly inclined to the right. The right arm is motionless, and hangs down; he looks like a man with partial hemiplegia, and totters as if drunk. Aug. 17th.—Has been very drowsy since admission; senses dull; great fear when the time for physician's visit arrives; answers questions confusedly; great loss of memory. All the movements are slow and stiff, but one limb does not appear to be weaker than another; no part is perfectly paralysed. 19th.—Well-marked contraction of left arm, which lasted for three or four days; then the limb became relaxed and powerless. Aug. 27th.—Contraction of right arm; the patient is in a sort of coma. On the 1st of September he can get up and walk about alone, but the gait is very tottering. For some time he seemed to be getting better, then he relapsed, and had to take to his bed; by the middle of September his state was precisely that of a general paralytic: eyes fixed; speech slow and stammering; fear of any one who came near; alternation of laughter and tears; constipation; loss of flesh, but craving appetite. The symptoms increased, the pharynx became paralysed, at last coma and convulsions came on, and he died the 2nd of November.

"*Post-mortem.*—Abdominal and thoracic organs healthy. The brain in perfect contact with dura-mater. No cerebro-spinal fluid. Pia mater of convex surface of brain injected, but no exudation; convolutions somewhat flattened. There was general softening of the white central portions of the brain, especially of the fornix, corpus callosum, and interior part of medulla. The grey substance of the peripheric portions is spotted and softened; in several parts it is detached with the pia mater. No tumour, no affection of the brain. Ricord had half the brain analysed for mercury, of which, however, no traces were found."

We presume he thought the symptoms might possibly be attributed to the remedy as much as to the disease.

In another case witnessed by the author under Richat's care, in which the symptoms were very similar, and apparently consequent on constitutional syphilis, the pia mater was found "of fibrous structure; it was thick, and adherent to the grey matter of the brain throughout its whole extent. No other lesion was found. The pia mater in this fibrous state appeared, so to speak, to strangle the cranial nerves as they emerged from the base of the brain."

In a third fatal case, under Ricord's care, "general softening of the grey matter" is described; the arachnoïd was "lactescent;" the fat

ossified in parts; the cranial nerves apparently normal. The patient was an artist of fifty-five. The symptoms had been similar to those already described; relaxation of facial muscles; escape of saliva; tottering of lower limbs; slow and stuttering speech. Besides this there were paroxysms of mania. On the hypothesis of a syphilitic origin, Ricord treated the case with specifics, and with sufficient success to allow the patient to resume the practice of his art. Within the year, however, he relapsed and died.

The author details other cases in which similar symptoms wholly disappeared under treatment. But these our limits will not allow us to give. Similar cases have been recorded by Reed, of Dublin, and others. It is clear that, as Dr. Zambaco himself admits, we require many more cases of the same kind before we can draw any confident conclusions. Still, it is for that reason most important that even two or three cases should be put together, and the first provisional hypothesis drawn from them, with the view of stimulating and guiding future inquiries. The fact that in so many of the cases here recorded a specific treatment should have proved effectual is equally encouraging to the practitioner and significant to the pathologist.

We have left ourselves little space for alluding to an interesting series of amaurotic cases, in which the course of the disease, and the action of remedies, was traced by the ophthalmoscope. The chief lesions, according to our author, were congestion and inflammation of the choroïd, and deposits on or underneath the retina. When the exudation was underneath the retina—that is, not masking the retinal vessels, it usually disappeared under treatment. Deposits on the retinal surface proved more obstinate. In one case of choroïditis, the pigment is described as deficient in places, allowing the sclerotic to be seen. In another there was detachment of the retina and atrophy of the papilla. Another patient showed merely an enlarged and varicose condition of the retinal vessels. In all the recent cases, the effects of specific treatment were very marked. In no case did examination fail to show some distinct and appreciable lesion.

We regard this book as a useful contribution to our knowledge of a subject which has been but little studied: the effects of syphilis upon the internal organs. The theory which has been lately advanced, that there are no such effects, and that it is erroneous to speak of a syphilitic diathesis, we have not attempted to combat here. But there certainly is no *à priori* improbability in the belief that a disease so evidently transmissible through the seminal germ, should manifest effects of as general and varied a kind as are here described, in the organization where it is originally developed.

Review V.

Lehrbuch der Augenheilkunde. Von Dr. Josef Pilz, K.K.A.O. Professor der Augenheilkunde an der Prager Universität und Königlich Böhmisch-ständischem Augenarzte. Mit 267 schwartzen und 137 colirirten Abbildungen.—*Prag*, 1859.

A Manual of Ophthalmology. By Dr. Joseph Pilz, Professor of Ophthalmology in the University of Prague, and Royal Oculist for the State of Bohemia. With 267 Uncoloured and 137 Coloured Figures.—*Prague*, 1859. 8vo, pp. 1024.

This work is divided into three parts: the first, introductory; the second, pathological and therapeutic; the third, devoted to the operative surgery of the eye.

The first part is divided into two sections. The *first*, treating of the anatomy and physiology of the human eye, contains five chapters, embracing: 1. The descriptive anatomy and histology. 2. The physiology of vision. 3. The hæmostatic relations of the eyeball. 4. The physiology of the eyelids and lachrymal apparatus. 5. The development of the human eye. The *second* section treats of the examination of the diseased eye.

The contents of the second part are arranged under nine heads.

The first head is devoted to inflammatory disorders of nutrition, and embraces four sections. The *first* section treats of inflammations of the eyeball, and in seven chapters discusses inflammations of the conjunctiva, sclerotica, cornea, choroïd, retina, crystalline capsule, and vitreous body. The *second* treats of inflammations of the orbital adipose tissue and bones of the orbit. The *third*, of inflammations of the eyelids. The *fourth*, of inflammations of the lachrymal gland and excreting lachrymal organs.

The second head is devoted to non-inflammatory disorders of nutrition, and contains four sections. The *first* section treats of the non-inflammatory disorders of nutrition of the eyeball, and in five chapters discusses those of the conjunctiva and sclerotica, choroïd, optic nerve and retina, crystalline, and vitreous body. The *second* section discusses similar disorders of the bones of the orbit, and of its connective and adipose tissues. The *third*, those of the eyelids. The *fourth*, those of the lachrymal gland, and excreting lachrymal organs.

The third head embraces disorders in the circulation, and discharges of blood in the eye.

The fourth, disorders of continuity and contiguity of the eye—i.e., wounds and burns.

The fifth, displacements of particular parts of the eyeball and eyelids.

The sixth, disorders of the accommodative power—i.e., myopia, presbyopia, &c.

The seventh, disorders in the movements of the eye—i.e., strabismus, palsy, &c.

The eighth, disorders of the sensorial and sensitive systems of the eye—i.e., night-blindness, anæsthesia, &c.

The ninth, congenital defects of the eye.

The THIRD PART includes the surgical operations performedon the organ of vision; starting with iridectomy, and ending with the application of a glass eye.

The work has no alphabetical index, a defect which all its readers will occasionally deplore, and especially those who might be disposed to consult this ponderous and instructive volume on any particular disease in which they felt at the moment more especially interested. Such readers, however, will probably feel still more disappointed, when, on turning to the copious table of contents, of which the above is an abstract, and even on dipping into the body of the work, in search of information on some particular practical point, they find perhaps no trace of the names of diseases to which they have long been accustomed, such as amaurosis, glaucoma, and others equally familiar, but which Dr. Pilz has had the hardihood to sweep (as probably he imagines) into the limbus of forgetfulness, supplanting them by a nomenclature conformable to the most recent discoveries in pathology.

Amaurosis, for instance, ophthalmologists have taught to be an obscurity or loss of vision depending on causes other than those which hinder the transmission of light through the cornea and humours of the eye. It needs but little reflection to see how numerous and diversified must be the morbid affections of the retina, optic nerve, and encephalon, which may give rise to such a loss of vision; or to feel how inappropriate the confounding of them all under a single name, as if they were one and not many entities, each distinguished by its own characters, these characters often altogether opposite in kind, and marking out diseases for which one indiscriminate sort of treatment would be altogether unfit. Dr. Pilz has dismissed, therefore, Amaurosis from the list of diseases of the eye. The word occurs but once or twice in his whole work, and then merely incidentally; while we find the only true and philosophical views which can be taken of the subject unfolded to us under the head of Inflammation of the Retina, with its attendant congestion or hyperæmia, exudations, superficial or parenchymatous, and various consequent organic changes; under that of Secondary Affections of the Retina, such as separation from the choroïd, consequent to serous exudation between the two membranes; under that of Non-inflammatory Affections of Nutrition in the Optic Nerve and Retina, giving rise to organic changes, either regressive, such as atrophy, pigmental depositions, &c.; or progressive, such as hypertrophy, tubercle, cancer, &c.; or under that of Disturbances of the Circulation, and discharges of blood, within the optic nervous apparatus; such as an atheromatous state of the retinal bloodvessels, effusion of blood from these vessels, effusion of blood from the choroïd pressing on the retina, effusion of blood within the sheath of the optic nerve, &c.

In like manner, Dr. Pilz excludes Glaucoma from his table of contents, describing the symptoms hitherto enumerated as those belonging to acute and chronic glaucoma under the head of Choroïditis with deposit of exudate from the anterior branches of the uveal arteries, or parenchymatous inflammation of the ciliary processes.

When a subject has been considered so long, so carefully, and by so

many observers, as have been the diseases of the eye, it necessarily follows that a variety of names have been invented to express the objects of contemplation, in different languages, and in correspondence with the various views of those who either first noticed the diseases in question, or who supposed they had for the first time unfolded their true nature. Of such synonyms, Dr. Pilz in general takes no notice; and this we consider a material defect. Tempted by an appellation we have never met with before, we proceed to the perusal of one of his chapters, and after toiling, sometimes tediously enough, through several pages, we find that we have encountered merely an old friend, who has been dubbed with a new name, and disguised in a few new pathological phrases, which, in fact, sound no better and have no more real meaning than those in use for hundreds of years. Much of Dr. Pilz's ophthalmological nomenclature must, by its complexity, appear to English readers lumbering and unhandy. Although the title he gives to the introductory part of his work (Propaedeutischer Theil, from πρὸ and παιδεύω, *ante doceo*) smells rather strong of the dictionary, he steers clear of the too common nuisance of new-made Greek names for eye-diseases and eye-operations, enabled to do so, no doubt, by the ductility of the German language, which, being little inferior in that respect to the Greek, is thereby adapted to express any discoveries in the sciences, or inventions in the arts, by new, indeed, but quite analogical, and though cumbrous, quite intelligible, derivations and compositions.

The descriptive anatomy and histology of the organ of vision occupy ninety-five pages, and are treated with great care and minuteness.

The following paragraphs commence with Dr. Pilz's account of the FIBROUS ENVELOPES OF THE EYE, known by the names of Tenon's membrane, and Bonnet's or O'Ferrall's capsule—structures, the original descriptions of which, and especially that by Tenon, have sometimes proved puzzling to succeeding authors on the anatomy of the eye.

"The fibrous coat of the eye [i.e., both sclerotica and cornea included] is in respect to connexion with surrounding parts strengthened externally, at the anterior part of its sclerotic portion, by incorporation with the tendons of the recti muscles. From the sides of the sheaths of these muscles, a true fibrous membrane, the *tunica vaginalis bulbi* is formed. The *tunica vaginalis bulbi*, on the one hand, surrounds the sclerotica loosely with a second capsule, and extends as such (also named Bonnet's capsule) from the place where the optic nerve enters the orbit to the insertion of the tendons of the muscles of the eye in the sclerotica, and, on the other hand, towards the margin of the cornea, where it enters into connexion with the stroma of the corneal conjunctiva, and passes into another cellulo-fibrous membrane (Tenon's membrane), which lines the posterior surface of the sclerotic conjunctiva to be described below. This cellulo-fibrous, or Tenon's membrane, inasmuch as it extends to the orbital margin of the upper and lower tarsal cartilage, constitutes a medium of connexion of the *fascia tarso-orbitalis* with the conjunctiva.

"At the posterior circumference of the eye, the sclerotica has a direct connexion with the sheath of the optic nerve; and indeed, as Donders has shown, and as the figure (fig. 6), partly designed after him, demonstrates, the outer of the two fibrous sheaths enclosing it passes along with vessels and nerves into he two outer thirds of the sclerotica; whilst the inner is immediately behind

the choroïd, with which some of its fibres enter into connexion, only in part reflected outwards, and passes into the inner part of the sclerotica. From the sclerotica, however, at the same time, a number of elastic elements pass between the several bundles of the optic nerve, and form the so-called lamina cribrosa, which Donders moreover admits to be in connexion only with a small part of the choroïd. In this region the optic nerve is enclosed only by the firm tissue of the sclerotica. On this, therefore, it depends that the layer, consisting of cellular tissue, and lying between the two fibrous sheaths of the optic nerve, is extended to immediately behind the lamina cribrosa over the inner sheath of the nerve; and here, where it is already in some degree found in the sclerotica, has increased still in thickness. Moreover, the sclerotica, nearer or farther from the place of entrance of the optic nerve, is pierced by numerous small arteries and some few venous twigs, besides being penetrated by the ciliary nerves. In the equator bulbi, the so-called vasa vorticosa of the choroïd issue, and at the circumference of the cornea are seen the places of entrance and exit of the anterior ciliary arteries and veins. The inner surface of the fibrous coat of the eye, in its sclerotic portion, is in some places—e.g., behind—closely connected with the choroïd; in other places less firmly; still this connexion (with the exception of the foremost segment to the extent of 2—3 lines in breadth) is always such that, in exposing the choroïd by raising the sclerotica, a part of the former in the shape of a delicate brown tissue (the so-called lamina fusca) remains, in greater or less quantity, adherent to the latter. The incorporation of the lamina fusca with the sclerotica appears to be owing to the circumstance that the stroma of the choroïd is, as it were, formed from that of the sclerotica. The dark ring around the entrance of the optic nerve, often observed with the ophthalmoscope, may be explained by the circumstance that in the tissue of this so-called lamina fusca, at the entrance of the optic nerves, somewhat more pigment is found." (p. 10.)

The appearance here referred to, of a dark ring, seen with the ophthalmoscope to surround, in some subjects, the entrance of the optic nerve into the eye, has sometimes been taken as a morbid sign; but arising, as it does, in the way stated by Dr. Pilz, it must be regarded as a normal circumstance, only varying in different individuals according to the quantity of pigment deposited at that particular place.

As to the portion of the above paragraphs which relates to the exterior envelopes of the eyeball, we have quoted it more for the purpose of instruction than of criticism. The explanation, however, of the connexions of the sheath of the optic nerve with the sclerotica is so obscurely expressed in the original, that we must confess we do not understand it; while the aid promised from Donders' figure goes for nothing, as no such figure is to be found in Dr. Pilz's work.

As for the phrase "equator bulbi," which Dr. Pilz uses to express a vertical circumferential line dividing the eyeball into two halves—an anterior and a posterior—we regard it as objectionable, seeing that the term has long been in use to signify a horizontal section of the eyeball into an upper and a lower half. Confusion must arise from the innovation, especially as a third equator bulbi might be spoken of—namely, that which would divide the eyeball into halves placed right and left of a vertico-medial section. An equator, besides, should divide a sphere into two equal and similar halves; whereas, the anterior

half of the eyeball is different in figure as well as in contents from the posterior. The same objection lies against the phrases afterwards met with, of "equator retinæ" and "equator lentis." Applied to the lens, this word "equator" is particularly affected and useless, as "edge," or "margin" expresses what is meant simply, accurately, and distinctly.

An internal structure of the eye, which has lately attracted considerable attention on account of its supposed pathological importance, is what is termed the ELASTIC LAMINA OF THE CHOROID. The following is the short account given of it by Dr. Pilz:

"The pigment-layer [the epithelium of the choroïd] is covered on its outer surface through the whole extent of the uvea [including iris, corpus ciliare, and choroïd,] by a structureless membranule with very transparent nuclei, which, after it has invested the posterior surface of the iris, may be followed over the whole free surface of the ciliary processes to the inner surface of the choroïd. Only at the ora serrata retinæ is it fixed, and there it is connected with the membrana limitans retinæ. Kölliker calls it the elastic lamina of the choroïd, and places it in the same category with certain elastic lamellæ of the innermost or lining membrane of the bloodvessels." (p. 15.)

Concerning the structure in question, we may observe, that it has been compared to Descemet's membrane; and by some pathologists has been supposed to be the seat of what is termed *colloïd disease of the choroïd.* The fact seems to be, that the inner surface of the choroïd, on which the pigment lies, presents a membrana limitans, membrana propria, or basement membrane, like most other surfaces invested by an epithelium; but this membrana limitans is not separable from the rest of the choroïd as a distinct layer. By doubling the choroïd on itself, with its inner surface outermost, and compressing it, we see a clear edge—the expression of the membrana limitans. We do not think that this membranule of the choroïd is, as by some supposed, the seat of pathological changes. Such commence in the substance of the choroïd proper, and the membrana limitans becomes atrophic, breaks up into shreds, and disappears. Mr. Hulke favours the supposition, that the small transparent bodies which stud the inner surface of the choroïd in what is called *colloïd disease*, take their origin in the chorio-capillaris. In some specimens he has seen the elastic lamina to pass over them.*

As an additional specimen of Dr. Pilz's method of treating the anatomy of the eye, we might, had we space at our disposal, select his account of the RETINA—a subject which has not hitherto received from English ophthalmological authors the full amount of attention which its importance demands.

Our readers would then observe how widely our author's manner of describing the retina differs from that to which we have been accustomed, starting, as it does, with the microscopical, and omitting altogether the usual macroscopical views of this most complicated structure. This method we do not consider as any improvement, unfitted as it is, except for the use of those who are already considerably familiar with the anatomy of the eye. Neither can we compliment Dr. Pilz on the

* Ophthalmic Hospital Reports, vol. i. p. 71.

clearness of his laboured description. Altogether, it is ill drawn up, and gives one rather the idea of being a compilation from the statements of others than the result of his own observations.

Passing over the chapter which treats of the Physiology of Vision, including the theory and construction of the Ophthalmoscope, and its application to the physiological investigation of the eye, all of which are fully and satisfactorily explained, as well as a short Chapter on the Hæmostatic Relations of the Eyeball, we are tempted to extract what our author says on the FUNCTION of the EXCRETING APPARATUS of the TEARS.

"In regard to the mechanism for the conveyance of the tears through the apparatus for their excretion, manifold theories have already been proposed; founded, one, on the hydraulic action of the canaliculi as a syphon (Petit); another, on the simple capillary attraction of the same canals; another, on absorption of the tears in connexion with the process of respiration (by means of aspiration according to E. H. Weber and Hasner); another, on a process of suction by the lachrymal passage, in consequence of the diastole of the same produced through the sphincter at the moment of nictitation, and a sipping of the tears through the canaliculi (Hyrtl); another, on a pressing in of the tears into the open puncta lachrymalia, through the operation of the orbicularis in closing the eyelids from without towards the inner angle of the eye (Ross). All these theories appear to be insufficient, and by no means free from objections. A. von Gräfe and Arlt first succeeded in laying down a theory sufficiently satisfactory, and capable of explaining the pathological appearances in the most natural way. This theory is based upon the fact, *first*, that an overflow of tears is always present; *secondly*, that the canaliculi and lachrymal sac and duct are always full of fluid; and, *thirdly*, that their function is in continuous activity.

"The conveyance of the tears takes place, then—

"1. Because, by every act of nictitation, a movement is effected of the continued column of fluid extended between the opening into the nose and the outer angle of the eye, a compression of the canaliculi and lachrymal sac being produced by the action of the muscular fibres belonging to the *portio lachrymalis*, and covering the lachrymal sac, thus rendering possible an escape of a small quantity of the fluid contained in this last towards the nose.

"2. Because, as by the opening of the fissura palpebrarum there takes place an intermission of the compression of the lachrymal sac and canaliculi, first of all their former lumen will be attained, and then an advance of the fluid held in the furrow between the edges of the eyelids and the eyeball, be accomplished by the suction of the canaliculi.

"Arlt showed that neither through the movement of the lids is a progressive motion of the tears in the canaliculi possible, since at the moment of nictitation, on account of the compression of these canals, no taking up of fluid can take place in them; nor, that respiration can exercise any other influence here than this, that at most through evaporation at the nasal extremity of the lachrymal passage it may affect the state of fluidity in these narrow capillary canals." (p. 254.)

In cases of obstruction of the nasal duct, when by pressure over the lachrymal sac we evacuate the accumulated mucus and tears through the puncta, the stillicidium is for some time after relieved. From this it is to be inferred, that the tears are taken up by the puncta and received thence through the canaliculi into the sac. If this be so, it shows that a syphon-action is not necessary for the absorption of the tears.

That pressure over the sac by the orbicularis in the act of winking contributes to driving the tears accumulated in the sac through the nasal duct into the nose, when the nasal duct is free, may be inferred from the fact, that in cases in which the nasal duct is obstructed, we often see tears and mucus regurgitated through the puncta by the act of winking.

For the tears to be drawn in by a diastole of the sac, consequent to its compression by the orbicularis, we do not think the proper conditions exist. The nasal orifice of the nasal duct is not sufficiently valvular, while the puncta do not stand sufficiently widely open.

Gräfe and Arlt's explanation does not appear to be completely valid. It is quite true that the canaliculi, sac, and nasal duct are always filled with fluid, and that, in fact, the fluid in the conjunctival space is always continuous with that of the nose. Now, what may be inferred from this? We think we may infer fairly that there is a continuous stream of fluid from the conjunctival space to the nose by *diffusion*—the thinner tears being diffused into the thicker mucus of the sac, duct, and nose. When the nasal duct is obstructed, if we evacuate the sac by regurgitation, it becomes refilled by diffusion. According to Gräfe and Arlt's theory this could not be.

After a short Chapter on the Development of the Human Eye, our author proceeds, in the second section of the introductory part of his work, to treat of the EXAMINATION of the DISEASED EYE. He observes, that this requires to be practised in a variety of ways, of which he enumerates the following—

"1. By investigating the objective symptoms, so far as this can be done through ocular inspection in ordinary daylight, combined with proper tactual examination.

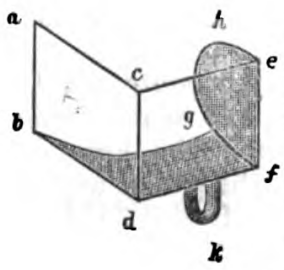
"2. By proving that portion of the optic apparatus which is sentient of light—its fitness to take cognizance of the images of external objects, as well as of light generally.

"3. By testing the powers of accommodation.

"4. By the ophthalmoscopic examination of the dioptic media and the sentient structures with the aid of artificial light.

"5. By the use, as diagnostic means, of certain instruments of measurement and certain surgical instruments." (p. 265.)

All these topics are laboriously handled by the learned Professor. As involving a method of viewing the eye probably new to most of our readers, we shall content ourselves with extracting his account of CZERMAK'S ORTHOSCOPE—



"In every case, where we wish to obtain a complete and correct view in profile of the chambers of the eye, by which the exact contentive proportions of the anterior visible parts of the bulb—the cornea, iris, and capsule of the lens—to one another shall be rendered evident, Czermak's orthoscope (from ὀρθος, straight, correct; and σκοπέω, I look) deserves commendation. This apparatus consists in a sort of small box, formed of four right-angled walls joined and grooved together so as to be water-tight. The anterior (*c, d, e, f*) and the outer wall (*a, b, c, d*) are of trans-

parent glass, the lower (*b, d, g, f*) and the inner (*e, f, g, h*) of blackened metal. The free posterior edges of the lower (*b, g*) and of the inner (*g, h*) wall are so shaped, that, underneath the edge of the orbit they can be pressed close to the cheek and between the inner angle of the eye and the root of the nose. The posterior part (*a, b*) of the external glass wall lies flat on the temple. A separate apparatus is required for each eye, as the facial cut for the right side must be curved in the opposite direction to that for the left. When we lay hold of the apparatus by the small ring (*k*) soldered to the lower surface of the lower metallic wall, and apply it properly, the eye to be examined is, as it were, secluded in an open box, into which we pour water from above, till the fluid stands at the level of the upper edge of the orbit, the patient shutting his eyes, and opening them only after the filling is finished, in order that he may gradually accustom himself to the disagreeable feeling of the unwonted medium. In order to prevent as much as possible any escape of water from any imperfect fitting of the apparatus to the face, we apply along the line where it approaches the eye, particularly under its inner angle and at the temple, kneaded crumbs of bread, which apply themselves readily to the face, and receive completely the edge of the apparatus by gentle and continued pressure. Czermak proposed for this object a peculiarly fitted border of caoutchouc.

"By thus observing the eye under water, all reflection from the cornea is prevented, and the refraction of the rays coming from the eye at the surface of the cornea is considerably reduced, so that the rays retain nearly their straight direction, and produce images which correspond almost exactly to the objective relations. The eye appears to the observer peculiarly changed in its profile; the iris retiring rather than plane, the cornea as a clear glass globular vesicle strongly bulging forwards, so that a good side-view is obtained throughout the anterior chamber, and an exact estimate can be formed of any adhesions of the iris to the cornea or to the capsule, or of any exudations on the capsule, on the iris, or within the cornea.

"To lessen the unpleasant feeling for the eye which arises from its being touched with cold water, Hasner recommends always to use water at from 89° to 91° Fahr." (p. 271.)

The second part of Dr. Pilz's work, embracing the Pathology and Therapeutics of the Eye, occupies 586 pages, and of these 329 are devoted to the Ophthalmiæ.

As there is perhaps no subject more interesting to the general surgeon, as well as to the oculist, than the INFLAMMATIONS OF THE CONJUNCTIVA, we shall present our readers with the following summary view which our author gives of the products and varieties of CONJUNCTIVITIS. This extract will enable the reader to form some notion of the pathological doctrines adopted by Dr. Pilz:

"The conjunctival exudates given off by the superficial vessels may take the following forms:

"I. The amount of nutritive plasma, which appears on the free surface of the conjunctiva, is increased; the formation of cells is greater than in the normal state, yet they do not attain their normal development, but are sooner pressed upon and displaced by new layers of cells formed beneath them. The quicker the flow, and the richer the nutritive plasma, so much the more cells form, and so much the earlier are they thrown off.

"*a.* In this case the cells reach no higher development, they do not assume the epithelial form characteristic of the conjunctiva, but are thrown off as round, more or less spherical, mostly singly nucleated, mucus-corpuscles. With these conditions, the disease of the conjunctiva appears as an *acute catarrh.*

"*b.* If the secretion of nutritive plasma takes place very quickly, almost all the cells are in a state of early development, they present abundantly 3—5 nuclei in all their stages from complete separation to complete disappearance, they are smaller, their elements softer, they resemble the cells of *pus bonum et laudabile*—a state of matters which forms *catarrhal blennorrhœa.*

"*c.* If the course of the disease is somewhat less acute, the shedding of the cells is a little less rapid; at the same time, it is disposed to reach a higher degree of development, so that we find plentifully in the fluid covering the mucous membrane under these circumstances, constituting *chronic ophthalmic catarrh,* almost completely developed cells of the appearance of its usual epithelium.

"In these three varieties of inflammation of the conjunctiva, we have to do, then, only with different ages of epithelial cells, of which the mucus-corpuscles must be regarded as pretty well developed, the pus-corpuscles as quite young. If we drop, agreeably to Virchow's denouncement, the name epithelium, we yet have cells which, as in the normal state, form on the free surface of the mucous membrane; only their development goes on more violently. The rapidity in the formation of cells is, then, the peculiar difference of these three forms.

"II. The nutritive plasma is not merely quantitatively increased, but also its composition so far changed, that, carrying a greater proportion of fibrine, it gives rise to more or less complete coagulation. There always follows from this a deposition of altered nutritive plasma in the texture of the conjunctiva, and the diseases hence resulting exhibit no purely exudative, but more or less parenchymatous forms of conjunctival inflammation.

"According to the different constitution of the fibrine, there here also arise several varieties:

"*a.* If the coagulating exudate is almost entirely of a fibrinous nature, with a prevailing tendency to organization and new formations, we are presented with an extremely rare form of conjunctival inflammation—the *fibrinous conjunctivitis, conjunctivitis membranacea.*

"*b.* If the fibrine is croupous, if we observe the cells on the free surface pass through their whole course of development till their final disappearance, there arises that form of blennorrhœa which I call the *croupous-fibrinous.* It occurs in the acute as well as the chronic form. The more acute the attack, the greater the tendency shown by the exudate to become purulent, and the surface of the conjunctiva to be destroyed; the more chronic, the greater the exudation into the texture of the conjunctiva and into its papillary structure, so that the membrane takes on an uneven granular appearance of characteristic form—the *chronic blennorrhœa.*

"*c.* If there be a deposition of a gelatinous or fatty [*speckige*] exudate into the conjunctiva, the results are *trachoma* and *fatty* [*speckartige*] *infiltration of the conjunctiva*—less exudative, more interstitial and parenchymatous diseases of the conjunctiva.

"III. The nutritive plasma is not only increased in quantity, but its quality so changed, that all other acts of the nutritive process except that of exudation are interrupted. There results from this the malignant form of blennorrhœa—the *phagedenic conjunctivitis.*

"The exudates which are deposited by the deep-seated vessels not pertaining especially to the conjunctiva—the beginnings of the anterior ciliary arteries and the terminations of the muscular arteries of the bulb—constitute those manifold forms of inflammation of the conjunctiva which I group together under the generic name of *exanthematic process of the conjunctiva.*" (p. 311.)

Our readers will be at no loss to recognise in Dr. Pilz's last-

mentioned group the eruptive affections of the conjunctiva, known in this country under the names of scrofulous ophthalmia, aphthous or pustular ophthalmia, &c. They, as well as the puro-mucous diseases noticed in the above extract, are afterwards described in detail by our author. The puro-mucous ophthalmiæ he considers under the six following heads:

1. Acute Eye-Catarrh.
2. Catarrhal Blennorrhœa.
3. Chronic Eye-Catarrh.
4. Fibrinous Conjunctivitis—Conjunctivitis Membranacea.
5. Croupous-Fibrinous Conjunctivitis.
   a. Acute Croupous Blennorrhœa.
   b. Chronic Croupous Blennorrhœa.
6. Trachomatous Conjunctivitis.

With regard to the first three, it is to be observed that they are merely different stages, degrees, or modifications of the same affection. Proceeding, then, to consider them as three separate diseases, while it possesses no advantage in a practical point of view, loads us with tiresome repetitions, and is a breach of the plainest maxim of classification —that magnitude affords no ground for specific distinction.

1. We consider it as merely solemn trifling to distinguish, with Dr. Pilz, *acute eye-catarrh* into blepharocatarrhus and ophthalmocatarrhus, according as the inside of the lids or the surface of the eyeball is affected; or to dwell on an idiopathic variety, arising from cold—a sympathetic, attending catarrh of the respiratory organs, measles, &c. —and a sympathetic, springing from inflammation of the Meibomian follicles, sty, dacryocystitis, &c.

2. Dr. Pilz, while he acknowledges the symptoms of *catarrhal blennorrhœa* to be similar to those of his acute catarrh, only in higher intensity, leads us to suspect that he is confounding different blennorrhœal affections of the eye with one another, when he tells us that this disease prevails in foundling-houses and in nurses. The ophthalmia met with in foundling-houses does not arise from cold, but is a contagious disease kept up by constitutional debility arising from errors in food, air, and clothing; while the ophthalmia lactantium is much more a retinitis, or an ophthalmitis, than a mere external inflammation of the eye.

3. *Chronic eye-catarrh* arises, according to our author, either idiopathically from an acute catarrh so mild as to have been neglected; from the same disease, or from catarrhal blennorrhœa, ill-treated; or symptomatically in consequence of chalazion, ophthalmia tarsi, &c. It may end in ectropium or blepharophimosis.

4. The name *fibrinous conjunctivitis*, or *conjunctivitis membranacea*, might at first sight seem intended to mark out a kind of inflammation of the conjunctiva of a totally different nature from the puro-mucous. It is characterized, according to Dr. Pilz, not only by an effusion of fibrine upon the conjunctiva, but also by a parenchymatous exudation. This last is nothing more nor less than inflammatory œdema, usually

styled *chemosis*, which may be either red or white, sanguineous or serous, and is attended with swelling and stiffness of the lids. As for the secretion, Dr. Pilz describes it as of a mixed nature, thin at first and scanty, forming a greyish turbid fluid, in which float whitish, plastic flakes; and being made up of tears, epithelial detritus, dissolved colouring matter of the blood, coagulated fibrine, and copious pus-corpuscles. He acknowledges that the disease rarely occurs in an exquisite, by which we presume he means a well-marked form; and that the one eye of the patient may present the characters of fibrinous conjunctivitis, and the other those of catarrhal ophthalmia. Injuries, mechanical or chemical, are, he states, the chief causes of the disease. Professor Von Gräfe describes a set of cases under the name of *diphtheritic conjunctivitis*, and regards them as originating in some constitutional cause—sometimes in diphtheria, sometimes in congenital syphilis. Such cases are classed by Dr. Pilz along with his fibrinous conjunctivitis.

Although we occasionally see, even in mild purulent ophthalmia, opaque shreds of epithelium, or flakes of puro-lymph, resting on the chemosed conjunctiva (in ophthalmia neonatorum, for instance)—although we occasionally find a false membranous substance, whitish and opaque, on the inner surface of the lower lid, which after being partially detached, may again be reproduced, its reproduction ceasing as the inflammation subsides—and although in severe cases of ophthalmitis, both traumatic and pyæmic, a thick pellicle of coagulated lymph often adheres to the chemosed and everted lower eyelid, and to the surface of the bulb, we have been able to discover, neither in the cases related by Bouisson,* Von Gräfe,† Jacobson,‡ and others, nor in the systematizing pages of Pilz, sufficient grounds for the admission of a specific conjunctivitis, of which the distinctive character is a fibrinous exudation. Such an occurrence seems only an accidental coincidence, superadded to one or other of the inflammatory diseases of the eye, and that not always a conjunctivitis, indicating in general more than common severity, and depending probably not so much on any local cause as on an altered state of the blood—such as that which follows variola or scarlatina. The different diseases in connexion with which it occurs, and the very different causes by which these diseases are produced, show that a fibrinous effusion on the conjunctiva is not a disease *per se*, but only a concomitant.

5. Dr. Pilz's own words afford the most direct testimony that several of his nosological distinctions are superfluous and unfounded. For instance, after defining *croupous-fibrinous conjunctivitis* to be

"That disease of the conjunctiva where the quantity of nutritive plasma is not merely increased, but the quality so modified that a proportion of croupous fibrine is mixed with it;"

he adds—

"Here not merely the conjunctiva of the lids, but in many cases even the

* Annales d'Oculistique, tome xvii. pp. 46, 100.
† Archiv für Ophthalmologie, Band i. Abth. 1, S. 168.
‡ Ibid., Band vi. S. 180.

epithelium of the cornea, is covered with coagulated exudate, although this exudate differs from that in the last-described conjunctivitis in being soft, easily torn, and passing speedily into the stage of suppuration." (p. 329.)

A little way on, he tells us that the croupous fibrine (*croupöser Faserstoff*) melts into purulent exudate (*eitrigem Exsudate*). The fact is, that under the name of croupous-fibrinous conjunctivitis, or acute and chronic croupous blennorrhœa, we meet, only huddled up together and disguised in a new, cumbersome, and sometimes false pathological drapery, our old acquaintances, the well-known varieties of purulent ophthalmia. In this country we have been in the habit of considering croupy or croupous exudations as peculiarly fibrinous, and should think it a contradiction in terms to bestow that appellation on the discharge which attends the purulent ophthalmia. To some of our readers, *croupous-fibrinous* will perhaps appear a tautology as glaring as fibrinous-lymphatic would be; but it is not exactly so; for though all croupous exudates may be fibrinous, in the sense of the terms adopted by German pathologists, all fibrinous are not croupous. We do not know who first used the term "croupous" as synonymous, not exactly with "purulent," but with a certain form of fibrinous exudation prone to be supplanted by a purulent or puriform matter; but probably it was Rokitansky, who, indifferent to the ambiguity of the application, calls two of his forms of fibrine *croupous*, and says the fibrine borders in them upon that in pyæmia, the cells and nuclei included in the coagula being pus-cells. Dr. Pilz's idea of the croupous fibrine melting into purulent exudate is certainly incorrect; it does not melt into it, but is replaced by it.

a. Under the head of *acute croupous blennorrhœa*, Dr. Pilz describes the symptoms of the purulent or contagious ophthalmiæ, the ophthalmia neonatorum, Egyptian ophthalmia, and gonorrhœal ophthalmia; and notices correctly the fact, that a chief danger in these cases lies in perforation or destruction of the cornea. He says that acute croupous blennorrhœa may be sporadic, endemic, or epidemic. Arising originally from cold, he believes it may become contagious; the contagion being fixed, not volatile or propagated through the medium of the atmosphere.

b. His *chronic croupous blennorrhœa* is the same disease, only following a less violent course, although sooner attended by a parenchymatous affection of the papillary structure of the conjunctiva, or what is commonly called by English surgeons *granular lids*, and of which the result is a peculiar variety of vasculo-nebulous cornea or *pannus*. Granular conjunctiva we have been in the way of considering as a sequela of purulent ophthalmia, and especially of the Egyptian ophthalmia; but Dr. Pilz regards this chronic congestion and hypertrophy of the palpebral conjunctiva and its vascular papillæ as a primary affection.

6. What in this country has been regarded as only a peculiar variety of granular conjunctiva, characterized by small, pale, hard, isolated granules, seated chiefly where the membrane passes from the lids to

the ball, Dr. Pilz considers as a separate form of *conjunctivitis*, to which he gives the name of *trachomatous*. He describes this disease as originating in a gelatinous exudation, and the granular bodies, which are consequently developed, as differing altogether from the hyperæmic and hypertrophied papillæ which are met with in the purulent ophthalmiæ. Microscopically examined, the granulations are found, he says, without cells or nuclei, and often covered with a thick layer of cylindrical epithelium. He allows that trachoma may accompany or follow attacks of catarrhal, blennorrhœal, or exanthematous ophthalmiæ, but that these cannot of themselves produce it. In itself it is not contagious. Allowed to proceed in its course, it ends in atrophy of the conjunctiva, trichiasis, entropium, tendinous pannus, xeroma, and posterior symblepharon.

Not less laboured and minute than his accounts of the inflammations of the conjunctiva is that of sclerotitis and corneitis. This part of Dr. Pilz's work, however, we must pass over, to take up some portions of the chapter which treats of INFLAMMATIONS of the UVEA, under which name he comprises the choroïd, tensor choroïdeæ, ciliary processes, and iris. The following are the introductory remarks with which he enters on the subject:

"With the exception of the conjunctiva, it is mostly in the tunica uvea that inflammations with free and superficial exudates fall to be observed, although inflammatory parenchymatous disorders in the iris and ciliary muscle are not unfrequent; yet they never occur in the choroïd as inflammatory disorders of nutrition without anomalies of secretion. Although the tunica uvea, as anatomy teaches, is, in a certain light, to be regarded as a whole, yet we find the superficial inflammatory process especially confined to certain portions—a circumstance attributable to the peculiar arrangement of the vascular distribution in this membrane. If we regard the arrangement of the vessels more closely, we shall readily recognise certain divisions in the choroïd, which stand forth as more or less independent parts, supplied by a peculiar category of vessels, entering into the formation of the tunica uvea—divisions which represent a relatively independent domain,—a domain often anastomosing, indeed, at the circumference by collateral branches, though still by no means extended throughout the whole organ. In these greater and smaller districts, then, the relations of the blood-stream, so far as they are dependent on the vascular system, are subject to certain proportionate conditions, and the operation of every change in these relations refers always to such a whole division. As such stream-domains, I think I must point out, above all—1. In the posterior section of the *uvea*, the *choroïd;* (*a*) that of the direct passage of the posterior short ciliary arteries into the veins, or the stream-domain of the *vasa vorticosa;* (*b*) that of the capillary system of the *choroïd;* and (*c*) that of the anterior branches of the choroïdal arteries. 2. In the *iris*, a layer close to its posterior surface, verging towards the papillary margin, under the pigment; and 3. The region of the *ligamentum iridis pectinatum.*

"The nutritive fluid morbidly escaping in increased quantity from these vascular domains has undoubtedly much resemblance to the secretions, especially to those of membranes; and for the explanation of the same it is sufficient just to fix one's attention on the bloodvessels and the exudate. This last [viz., the exudate] will be different according to the different disorder of the vessels, their particular arrangement and distribution, as well as according to the quantity of fibrin, more or less, which it contains; and from this its influence will also be different on the textures depending for their nourish-

ment on the choroïd. Thus will the abnormal product of secretion proceeding from the choroïd and the ciliary processes exercise a varied influence on the nutritive relations of the lens, the vitreous body, and the quantitative as well as qualitative condition of the aqueous humour. For as certainly as the bloodvessels of the choroïd stand in a certain relation to the lens, so undoubtedly stand the bloodvessels of the ciliary processes and a part of those passing to the iris in a certain relation to the aqueous humour; and the same [viz., the aqueous humour] derives its nutritive elements, like the vitreous humour, from the ciliary processes, only with this difference, that whereas, in the case of the aqueous humour, a fluid medium is concerned, in that of the vitreous it is a solid one.

"As for the superficial uveal inflammations, it is best, further, to regard them generally as circumscribed forms, and by no means to refer the same always to a peculiar kind of crasis; otherwise there might be assumed for each circumscribed iritis a phlogistic blood-crasis. It is here most rational (with exception of *embolism* and *phlebitis*) to fall back upon disorders which are situated nearer the places of irritation, and do not depend merely on the altered tension of the coats of the vessels. Nevertheless, in part, and indeed generally at those places where it possesses no capillary system, the uvea is subject to the same nutritive factors as connective-tissue in general. Moreover, the great bulk of its stroma is formed of genuine connective-tissue, in which is present a large quantity of mostly spindle-shaped and stellated, rarely round, cells, or connective-tissue corpuscles, which, in dark eyes more than in light ones, contain pigment, and connect themselves in the form of a network by their fine prolongations. These textural elements can undergo nutritive changes even as the muscular elements of the corpus ciliare and the iris, can become enlarged in certain diseased states, augment in contents, grow opaque from copious deposit of granular albuminates, suffer distinct symptoms of swelling and so considerable an increase of volume, that the greatest part of their enlargement—the so-called inflammatory swelling, which even in the case of superficial exudates we never find wanting—must extend to all the swollen elementary parts. On this account, with every such inflammation, a parenchymatous change of the stroma of the texture also is connected, which, however, according to my experience, is never observed independently in the choroïd without anomalies of secretion, but in the iris and ligamentum ciliare makes itself objectively evident as a frequent appearance.

"Agreeably to what has now been said, the phenomena of an *uveitis* will be different according as—1, the exudate is furnished from the system of the vasa vorticosa; or, 2, comes from the capillary system of the choroïd; or, 3, has its matrix in the anterior choroïdal vessels, which extends to the ciliary processes and partly to the iris; or, 4, is derived from the capillary system of the iris; or, 5, has its prevailing cause in parenchymatous changes of the iris and ciliary ligament." (p. 469.)

After a short account of congestion and hyperæmia of the choroïd, the chief symptoms of which are dilatation of the pupil, injection of the choroïd and retina, and pain round and in the eye, Dr. Pilz proceeds to consider, at great length, choroïditis with deposit of exudate from the system of the vasa vorticosa and the outer branches of the posterior short ciliary arteries, a disease to which the names *ophthalmitis phlegmonosa* or *traumatica*, *ophthalmitis phlebitica*, and *panophthalmitis* have been applied by English authors. This disease, which generally terminates in internal suppuration of the eyeball, and has been known to lead even to the death of the patient, Dr. Pilz believes to be sometimes connected with phlebitis or embolism of the choroïdal

or retinal vessels. He then takes up, with still greater minuteness, choroïditis with deposit of exudate from the system of the chorio-capillaris, a disease which produces, among other effects, detachment of the retina, atrophy of the pigment, the appearance called amaurotic cat's eye, and sclerotic staphyloma. Choroïditis with deposit of exudate from the anterior branches of the uveal arteries—in other words, parenchymatous inflammation of the ciliary processes—follows next, under which we have detailed the symptoms of acute and chronic glaucoma. Parenchymatous iritis follows next, being but meagrely discussed, owing, no doubt, to our author's imperfect appreciation of the varieties known as rheumatic, syphilitic, scrofulous, gonorrhœal, &c., as may have been already guessed from what he says, in the introductory remarks above quoted, regarding the futility of keeping blood-crases in view in considering uveal inflammation.

The next inflammatory disease which Dr. Pilz describes having been less attended to by previous ophthalmological authors than its importance demands, we shall extract his account of it entire. It is known in this country as AQUO-CAPSULITIS, but Dr. Pilz terms it SUPERFICIAL PARENCHYMATOUS INFLAMMATION of the IRIS, or PARENCHYMATOUS DISEASE of the LIGAMENTUM IRIDIS PECTINATUM.

"This form of parenchymatous iritis, which we may denote as *anterior*, always takes its origin from the border formed by the ligamentum pectinatum behind the sclerotic furrow; so that those parts which I have described in that situation as warts (*cryptæ iridis*), and the development of which, according to H. Müller's most recent statements,* first takes place in later years, remain completely normal. The disease extends itself from the said border, as well over the posterior surface of the cornea, as over the anterior wall of the iris. The true estimate of this affection, also described as *hydromeningitis*, *hydatoditis*, and *iritis serosa*, hinges upon an exact consideration of the anatomical relations of Descemet's membrane and the ligamentum pectinatum. I regard the so-called *hydromeningitis*, which has given rise to so many disputes as to its peculiar nature, as a disease of this union, and of a parenchymatous nature, with consequent disturbance of nutrition and opacity of the posterior epithelial covering of the cornea and anterior surface of the iris, with which in advanced cases a fibrinous exudation from the latter may be combined.

"The grounds for this view, I think, I find in a close consideration of the symptoms.

"1. The earliest trace of opacity is always observable behind the edge of the cornea, at that part of the anterior chamber where the ligamentum pectinatum is situated, and from this point it extends. The opacity, which may be observed either of a light hue (with a mixture of grey, as light-, pearl-, or felt-grey), or darkly pigmented (hair-, wood-, chestnut-brown), similar on a superficial view to a variously coloured velvety fulness, appears on closer examination not uniform, but partially penetrated by lighter points, arranged so as to form a sort of beaded appearance. I think these light-coloured spots must indicate the warts above referred to, which, by retaining their normal transparency, mark themselves out distinctly against the turbid region of the ligamentum pectinatum. The diagnosis of this matter, however, is to be made out only in the earliest period of the disease, as after further development it becomes hid by other opacities and exudations.

"2. Only after a shorter or longer continuance of this peculiar opacity, the

* Gräfe's Archiv, Band ii. Abth. 2, S. 50.

characteristic punctiform or patchiform exudate of this disease appears on the posterior wall of the cornea, showing itself either of a white, grey-white, or dirty-yellow colour, or being observed in the form of pigmented points or patches. These have been held to be deposits of plastic exudate on the posterior wall of the cornea, arising from precipitation on the same. The grounds for this conclusion were the arrangement of the points, the largest, it was alleged, commonly taking the most dependent places of the posterior surface of the cornea, the smallest being observed at its upper part. Strict examination of such diseased eyes with the magnifying glass shows, however, that fine points are also to be found in the lowest regions of the cornea as well, and that the largest opacities, placed below, are nothing else than the turbid spots of the ligamentum pectinatum. In the commencement of the affection, sometimes the whole epithelium of the posterior surface of the cornea is turbid, and only as individual epithelial cells separate in the course of the disease do the punctiform opacities come to be distinguished with the magnifying glass. Stellwag also notices that the posterior wall of the cornea is often hazy long before inflammatory products are discovered in the cornea and iris.

"3. Only when the opacity proceeds over the epithelial covering of the iris, and the parenchymatous disease of the ligamentum pectinatum has also extended to that portion of the fibres of the same which pass over the anterior surface of the iris, does there occur an effusion of fibrine from the vessels of this last. In such cases we can see the formation of the exudate quite distinctly behind the ligamentum pectinatum, mostly in the shape of circumscribed grains, like those of barley or wheat. The exudate may either melt away in suppuration, and become the source of extensive hypopium, or, preserving its plasticity, extend itself more and more, gradually from one segment of the periphery of the anterior chamber fill the whole of that cavity, present even a new formation of vessels, and at last give rise to an adhesion of the iris to the cornea. If we examine such an eye anatomically, we find, in the middle of the adhesion, Descemet's membrane, not only quite entire, and its vitreous structure very slightly attacked, but sometimes even a reproduction of it present, in which a laminated arrangement is occasionally to be detected, a circumstance of which Donders* first took notice. In the examination, the layer of exudate, which often advances farther towards the middle of the chamber than the adhesion of the cornea to the iris reaches, shows itself not merely covered on its external surface by the vitreous membrane (the true Descemet's membrane), but we find, in softened sections of the dried parts, when we try with needles to withdraw the iris from it, which can always be done without difficulty, also a vitreous membrane perceptible on the internal surface of the exudate, which also sometimes shows a distinctly laminated formation. A laminated arrangement of the vitreous membrane Donders believes explicable only by a formation of layers, in a certain measure periodical; thereby, however, by no means putting an interstitial division out of the question, as, in the first place, the transition of the younger into an older, thicker, firmer, more resisting layer can be explained no otherwise than through intussusception of molecules, while, on the other hand, the changes of form of the globules proceeding from the vitreous membrane point clearly to intussusception. Further, Donders thinks that these new formations stand in no direct relation to inflammations.

"Against the assumption that the points which occur in hydromeningitis are epithelial changes (a fact already established by Hasner), Stellwag has keenly contended, although he himself, in a case of such disease, found Descemet's membrane in part stripped of its epithelium. Notwithstanding this, I cannot forbear acknowledging this view [i.e., Hasner's] also to be

* Gräfe's Archiv, Band ii. Abth. 1; and Band iii. Abth. 1.

mine; and, indeed, on the ground that several instances of paracentesis happening to me when hypopium was present,* afforded no pus-cells whatever, but only epithelial cells in the process of being decomposed and broken up. Yet, again, I think Stellwag must be agreed with in this, that moderate hypopium can never depend alone on a collection of such metamorphosed cells, and that such a one generally arises from a purulent solution of a fibrinous product, of which the anterior surface of the iris is the matrix. I see, then, in hydromeningitis a complicated form of disease, in which to a parenchymatous inflammation of one part (the *ligamentum pectinatum*), a parenchymatous disease of the epithelium of the chambers, and lastly a superficial free exudation on the anterior surface of the iris, may be associated. The nutritive disturbance of the epithelium, besides, may happen in various forms—sometimes as mere epithelial opacity, sometimes as pigmentary deposit in the cells of the same. In many cases these form quantities of endogenously-growing elements, which burst on the surface, pour their contents into the aqueous humour, and so give rise to a peculiar form of ulceration, by which that which we sometimes were accustomed to diagnosticate as pus in the sense of a pure exudation, originates in the evacuation of this accumulation, and, in fact, is to be referred entirely to a change of texture (*iridoncus*).

"Further, I think I must here notice yet another thing stated by Stellwag, which, however, I have never found in true hydromeningitis—namely, that with the development of the smoke-like opacity of the posterior wall of the cornea, the appearance occurs of a peculiar group of grey-yellowish, sharply-defined spots in the corneal substance, from the size of a point to that of a millet-seed. I hold these corneal opacities for true parenchymatous affections of the substance of the cornea, to which, on the addition of new nutritive disturbances of the bulb, epithelial opacities of the walls of the anterior chamber join themselves, but which never commence by a primary disease of the ligamentum pectinatum.

"In a clinical point of view, I consider that according to the changes of the affected textures which have been mentioned, we should distinguish the following three forms of this inflammation:

"1. The acute form, with conversion of epithelium into endogenous growths, or with fatty degeneration.

"2. The chronic form, in which I found the posterior wall of the cornea, especially on using the magnifying-glass, beset with a quantity of pigmented points, the changes in the structure of the iris very insignificant, the disturbance of vision, on the other hand, considerable. On careful inspection of the periphery of the iris, the region of the ligamentum pectinatum shows itself of a dark colour, and strikingly softened and velvety.

"3. That exudative form by means of which an effusion of fibrine occurs on the anterior surface of the iris. I should mention that even as in the most severe cases of this last sort, a superficial iritis joins itself, so, on the other hand, to a parenchymatous iritis, proceeding in general from the periphery of the anterior surface, a hydromeningitis is readily superadded, as I have already (p. 536) stated.

"The course of the disease is generally very tedious, especially the chronic and exudative forms. It may go on for weeks or months, with alternations of better and worse, and then, without proceeding farther, at length disappear.

"Completely destructive for sight are cases of the third sort only, when the exudate increases to such a degree, that the anterior chamber is quite filled up, and besides adhesion of the iris to the cornea, whereby the above-mentioned

* "See the cases communicated in my essay 'On Inflammation of the Iris,' in the 52nd volume of the Prague Quarterly Journal, pp. 107–110."

condition of Descemet's membrane must be produced, atrophy of the corpus ciliare ensues. Add to this, that not unfrequently the fibrinous production, increasing outwards, acts on the sclerotica, and leads to its atrophy and protrusion.

"The termination in capillary choroïditis, as well as closure of the pupil by exudation from the capillary system of the iris, I have witnessed only when this parenchymatous form of iritis was complicated with an exudative inflammation proceeding from the edge of the pupil; this last also in rare cases of the acute form, when the emptying of the endogenous growths happened in a great degree, and occasioned in the iris an irritation not so intense.

"I regard as one of the most important ætiological forces [*Momente*], a stagnation of blood and a diminution of the circulation in the choroïd, during which, owing to deficient passage of arterial blood out of the posterior short ciliary vessels, and owing to the now greater congestion in the remaining arterial vascular system of the iris, originating from the long posterior and anterior ciliary arteries, antagonistically a greater flow of blood is caused to the iris, and by this means changes in its nutrition, as well as in that of the cornea, may be excited. I have already directed attention (§ 315) to this point, and to the interesting reciprocal relation [*Wechselverhältniss*] betwixt disease of the cornea and that of the iris; but I consider it further worth mentioning here, that the results induced in the case of parenchymatous corneitis generally correspond to those observed in the more acute forms of iritis, in which cases, nevertheless [i.e., in the cases of acute iritis secondary to parenchymatous corneitis], this iritis [viz., parenchymatous inflammation of the ligamentum pectinatum] is generally complicated with exudation near the pupillary margin.

"The treatment in the acute form must be especially antiphlogistic, such as leeches, the rubbing in of unguentum cinereum with or without opium, remaining at rest within doors, or even abiding in bed, protection to the eye against strong light, and an appropriate reducing diet. The dropping in of atropine is of use, especially against the danger of an approaching exudation from the capillary system of the iris. Paracentesis of the cornea is also useful, by discharging a large quantity of parenchymatous exudate produced by the endogeneously-growing elements, especially as an absorption of this sort of formation takes place either not at all, or only very slowly. Coming into contact, like a foreign body, with the iris, it must always prove hurtful. In the chronic form, I found the external and internal employment of iodide of potassium useful in many cases—a mode of treatment already explained when speaking of the disease as accompanying corneitis. I have also found worthy of commendation, in very tedious cases, frequently repeated evacuation of the aqueous humour by paracentesis corneæ. Excision of a piece of iris, especially at its periphery, close to the ligamentum pectinatum, I have not yet tried, but shall put in practice hereafter in obstinate cases." (p. 542.)

The only comment we shall make on Dr. Pilz's account of the symptoms of aquo-capsulitis is, that we have generally found the vitreous humour more or less turbid in this disease, and that the great deterioration of sight which attends it, even when the morbid appearances in the anterior chamber are but slight, marks an affection of the retina from the first.

As to the treatment, small doses of calomel with quinine we have found more efficacious than any other medicines. Tartrate of antimony with rhubarb also proves useful.

The disease styled by previous German ophthalmologists CYCLITIS, and by Dr. Pilz PARENCHYMATOUS INFLAMMATION of the TENSOR

CHOROIDEÆ, having scarcely attracted the attention of English authors, we need make no apology for transferring the following account of it to our pages:

"We were long in doubt," says Dr. Pilz, "whether inflammation of the *tensor choroïdeæ* occurred as an independent phenomenon. While some ophthalmologues thought that an inflammation confined to the tensor muscle should be admitted, others opposed this view, and rejected the admission of a *cyclitis*. Although I myself, in the beginning of my ophthalmological career, belonged to the latter class, and although later anatomical researches, the results of which I published at the time in various articles, led me to the admission of a *sclerotitis* only in such cases, I find myself obliged at last, led thereto by the results of experiments on the eyes of birds, to acknowledge an inflammation of this texture. After such experiments, the animals being killed at different periods after the operation of thrusting a red-hot needle into the neighbourhood of the sclerotic groove, I found appreciable changes in the ciliary muscle. When the process was very acute, an inflammatory softening of the muscle showed itself in the most evident manner, the connexion of its primitive bundles was at particular spots quite broken up, the molecular contents had run together into a cavity, in the immediate neighbourhood we saw in the molecular mass already isolated drops of fat, the number of which was here and there so numerous that the whole primitive bundles seemed filled with finely granular fat, imbedded in a scanty connective mass. In other cases, where the operating force had not been so intense, but consisted more in a prick or cut, the appearances in the ciliary muscle were less declared, although changes in colour and cohesion were always perceptible, giving rise to the conclusion that the molecular composition of the texture was affected. Its colour was found sometimes scarlet-violet, sometimes grey-red and brownish, sometimes whitish, at other times even greenish. Its brittleness was increased, so that it was more easily torn. Under the microscope, the primitive muscular bundles of the tensor presented a more uniform homogeneous appearance, and their cross markings had become no longer recognisable; the contents of the primitive bundles also were evidently altered, being more opaque, of a greyer colour, and in a more molecular condition. In long-continued cases, sometimes a fatty degeneration of the fibrils was present, while in others only a colourless transmutation of the primitive bundles was found, in which small heaps of yellowish shining molecules were discovered.

"Although in the human eye I have not yet been so fortunate as to find anatomically such recent parenchymatous inflammations, yet I think I must admit their existence. Ammon* saw, in four human subjects, the *orbiculus ciliaris* augmented to six times its normal thickness, being at the same time twice as dense as boiled albumen. There were also exudates on the iris and outer surface of the choroïd. Ignaz Meyr† saw also a thickening of the ciliary body. Stellwag‡ regards the effusion of serous elements in the substance of the ciliary muscle, and even of the sclerotica, during inflammation of the iris, as not very rare. According to him, this infiltration does not always confine itself to the special episclerotic texture; even the firm substance of the sclerotic is thereby sometimes so permeated and swollen, that the anterior zone of the choroïd is projected above its normal level, in the form of a bossulated thin-membraned swelling. In anatomical preparations, he has found the more or less closely injected ciliary muscle distinctly swelled, very moist, as if softened by a quite limpid or yellowish brine-like [*sulzähnlichen*] product,

* Zeitschrift für Ophthalmologie, Band ii. S. 217.
† Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien, 1853, Band ii. S. 102.
‡ Ophthalmologie, Band ii.

or, in cases in which there was hæmorrhagic effusion in the interior of the said structure, by a reddish transparent product, which, besides a small quantity of fine and clear molecules, contained no elements of any set form, and seemed to fill the whole interstices of the normal structural elements, and even to permeate these.

"Although I myself, as already mentioned, have had no opportunity of examining anatomically any recent case of inflammation of the *tensor choroïdeæ* in the human subject, yet I believe I may justly infer its previous existence from some of the changes of the ciliary muscle which have come before me; such as its transformation into a more or less dense, reddish, or whitish connective tissue, or its shrinking into a shining, tendinous texture. I believe that such changes occur isolated or in combination with exudative processes in the *tensor*, that the exuded substances may consist sometimes in an albuminous, sometimes in a fibrinous, sometimes in a hæmorrhagic fluid, and may undergo yet farther changes.

"Among the symptoms by which inflammation of the *tensor choroïdeæ* manifests itself during life, besides a debilitation or annihilation of the power of accommodation, I hold especially worthy of consideration certain appearances occurring in the iris, which deviate from any hitherto described, are easily observable. The peripheral segment of its annulus major swells, the swelling assuming in light (blue, grey, greenish) irides a graphite or yellowish-slate grey; in dark (hazel) irides, a rusty or coffee-brown colour. The swelling embraces either only a segment of the great ring of the iris, or it takes in its whole circumference. The great ring becomes so markedly separated from the little ring by an irregular zigzag line, that it ends as if abruptly cut off, and acquires a peculiar appearance, as if tufts of wool [*gezupte Wolle*] were stuck on from the great zone to the beginning of the small. By this means the anterior chamber is so narrowed at its periphery, that the iris lies almost quite close on the cornea, and the anterior chamber only begins to appear at the commencement of the small zone. The annulus minor of the iris, surrounded as it were by this wool-like edging, still shows its distinct fibrous structure; yet its colour no longer corresponds to the normal, but, whatever may have been the colour of the iris, it appears bleached, yellowish white, dull white. The edge of the pupil retains its wonted circularity, but the opening is strikingly contracted—often to scarcely half a line. The pupillary edge lies close on the anterior capsule, and its mobility is so limited that it appears as if it were fixed to it. Yet this really occurs very seldom, although I have sometimes seen a slight exudation which spread over the anterior capsule. The remaining portion of the posterior surface of the iris, although less covered with pigment and less changed in quality, is free from adhesion to the crystalline. Sometimes along with fixation of the whole edge of the pupil to the anterior capsule, there is a serous fluid in the posterior chamber similar to the aqueous humour. The *membrana limitans uveæ* I always found entire. The inflammatory process, therefore, involving the iris proceeded always from the middle or fibrous layer, remaining limited to the same, and in fact to its great zone. This was changed at the diseased part into a brinelike [*sulzähnliche*] mass, in which now more, now fewer, fine molecules, and sometimes considerable quantities of free fat in the form of vesicles and globules, along with free pigment granules, were to be seen with the microscope. At these spots muscular elements were no longer to be perceived; the nerves, on the contrary, were plainly distinguished. In place of individual vessels we could here and there detect strings filled with a coarse granular mass, consisting of calcareous salts and fat-molecules. At certain places no vessels were to be found. Here undoubtedly the development of the secondary morbid projection of the iris takes place, solely at the expense of the connective tissue of the iris and its radiating muscle; the membrana limitans, as well as the sphincter pupillæ, suffered

no change; the pigment on the posterior surface of the iris only a very inconsiderable one. I am decidedly of opinion that no data for diagnosis can be drawn from the subjective symptoms, any more than from the appearance of a distribution of vessels in the annulus conjunctivæ (Ammon's elevated angiectasic partial convolution of vessels), nor from the formation of numerous vessels extending from the periphery [of the eyeball] to the annulus, and there ending as if sharply cut off, whereby the whole circle of connexion of the cornea with the sclerotica attains the appearance as if a furrow were drawn in the latter, a symptom which I regard as belonging more to corneitis.

"More frequently than with recent parenchymatous changes of the *tensor choroïdeæ*, which often pass quite unnoticed, unless disturbances in accommodation or disorders of the iris call for medical aid, have we to do with the sequelæ of this affection. These show themselves as parenchymatous disease of the middle layer of the corpus ciliare and ciliary processes, contemporaneously with all the appearances of glaucoma. Hypertrophy of the *tensor* I have never seen to result; yet such a thing is not to be entirely overlooked, as fibrous effusions may complicate the parenchymatous changes. When they do occur, they must operate detrimentally on the degrees of pressure within the eye, and cannot be estimated without taking into account the other layers of the corpus ciliare. In the eyes of horses, Ruete* has often observed changes of this kind, but belonging apparently to the ciliary processes, as the exudate lay on the zonula, and always extended into the hyaloïd fossa. Varicosities of the orbiculus ciliaris, appearing, at the distance of about two millimetres from the edge of the cornea, in the form of a bluish ring, through the attenuated sclerotica, certainly do not occur. Such varicosities depend on parenchymatous changes in the sclerotica. Even so is the circular protrusion of the sclerotica and neighbouring cornea (the so-called *varicositas corporis ciliaris, cirsophthalmus*,) with [it may be] obliteration of Schlemm's canal, no ways connected with parenchymatous inflammation of the *tensor choroïdeæ*, as the description of *sclerectasia* will render still clearer.

"The causes [of cyclitis] are chiefly mechanical injuries, especially pricks, bruises, concussions—particularly when the former involve that region of the sclerotica which immediately covers the tensor. It is remarkable that primary sclerotitis so seldom brings on a parenchymatous inflammation of the tensor. Just as little have continued strainings of the powers of accommodation any connexion with such inflammation; leading, as they do, much more by inactivity of the muscle to the affections which happen to weakened and torpid muscles, and which consist in regressive non-inflammatory changes of the muscular fasciculi. On the contrary, it cannot be denied that syphilis and rheumatism stand in a similar causal relation to disease of this structure as to parenchymatous primitive inflammation of the iris, and that here the ætiological occasions already mentioned are valid, with the difference only, that the point of origin of the disease varies, and the appearances in the iris are more of a secondary nature.

"The treatment corresponds to the inflammatory appearances, being purely symptomatic, regard always being had to the possibility of a syphilitic or rheumatic complication being present." (p. 548.)

The author refers for the particulars of treatment to what he had previously recommended for parenchymatous iritis (p. 537); consisting chiefly in the employment of mercurials in various forms, iodine, oil of turpentine, belladonna and atropine as mydriatics, exclusion from light, rest in bed, spare diet, &c.

It is not very evident where Dr. Pilz ends his account of the symptoms of cyclitis as seen during life, and commences to give the results

* Lehrbuch, Band ii. S. 313.

of his dissections. Nor is it easy to determine whether he is relating the appearances seen on dissecting the eyes of man or those of birds. From his mentioning that the iridal nerves were plainly distinguished, we should be led to suspect the latter, as the nerves of the human iris are traced only with great difficulty, owing to their extreme tenuity. His experiments on the eyes of birds, besides, are very little to the point, there being no *tensor choroïdeæ* in that class of animals. Crampton's muscle, the part he must have wounded with his red-hot needle, has no connexion with the choroïd, and is not analogous to the ciliary muscle.

There appears a manifest contradiction between Dr. Pilz's statement (p. 550), that a debilitation or annihilation of the power of accommodation is one of the signs by which inflammation of the *tensor choroïdeæ* shows itself during life, and what he afterwards says is his opinion (p. 552), that no data for diagnosis can be drawn from the subjective symptoms.

The consideration of inflammation of the retina, the crystalline capsule, the vitreous body, the orbital tissues, the bones of the orbit, the eyelids, the lacrymal gland, and the excreting lacrymal passages, occupies the next seventy-eight pages; after which Dr. Pilz proceeds to the non-inflammatory disorders of nutrition of the eyeball. Among these, CATARACT occupies a prominent place.

"The non-inflammatory disorders of nutrition of the crystalline body," says Dr. Pilz, "consist chiefly in regressive changes in the lens and its capsule. The opacities hence resulting we distinguish with the name CATARACT (*Graustaar*). Microscopical examination has shown that these regressive changes are in general either pure atrophy, and then the fibres forming the nucleus of the lens are affected, or that they must be regarded as degenerative atrophy with a tendency to induration or to softening and fluidity, and as such, affect either the periphery of the crystalline body, consisting of the lenticular tubes, or the homogeneous substance of the lenticular star." (p. 699.)

Lenticular star is the name applied by our author to the *interfibrous substance* of Wharton Jones, the *central planes* of Bowman. Growing opaque, or becoming the seat of a deposition of *corpora amylacea*, this portion of the lens presents the appearance to which the name *cataracta dehiscens*, or *cataracta stellata* is sometimes given.

Our author proceeds to treat of the several varieties of cataract under the following heads:—

I. Hard cataract—proper lenticular cataract—pure atrophy of the nuclear substance of the lens—phakoscleroma.
II. Degenerative atrophy of the lens.
  a. Myeline change of the lenticular tubes.
    1. Cortical cataract.
    2. Laminar cataract—(*Schichstaar*).
    3. Partial cataract—cataracta centralis—cataracta punctata.
  b. Fluid cataract—phakohydropsia.

As a sort of appendix he adds:

α. Cataracta cystica.
ϐ. Cataracta arida siliquata.

γ. Cataracta amylacea.
δ. Cataracta capsularis.
ε. Cataracta spuria.
η. Cataracta secundaria.

All morbid changes of non-inflammatory origin are distinguished by Dr. Pilz as either *regressive* or *progressive*. These terms are nearly synonymous with *atrophic* and *hypertrophic*. The regressive affections of the crystalline body he regards as being either of a purely atrophic, or of a degeneratively atrophic nature. He scarcely admits in any variety of cataract the influence of inflammation.

We are not satisfied that either the dark contour, or the serrated edges of the lenticular fibres, set down by Dr. Pilz as microscopical changes in cases of hard cataract, are not, the former an optical illusion, and the latter a normal appearance.

In speaking of the symptoms of hard cataract, he does not sufficiently distinguish what is observed in the living eye from what is discovered on examination of the lens which has been removed by extraction.

The increased density of the lens in the incipient stage of hard cataract, and the augmented refractive power hence resulting, must, according to our author, produce a shortening of the focal power of the eye. Of this there can be no doubt; but Dr. Pilz adds that the eye will thereby be rendered presbyopic, and that the patient will have recourse to convex glasses to aid him in reading and writing.

Now, is it not notorious that we generally find the patient to have become comparatively myopic, and that after repeated visits to the optician's shop, with the view of changing his convex glasses, he has laid them aside as no longer of use?

A diminution of the focal length of the lens would certainly not cause presbyopia, nor increase presbyopia already existing. If not counteracted by some other change in the eye, it would produce myopia, or diminish previously existing presbyopia; and we suppose that this effect is not uncommon.

We can imagine that Dr. Pilz may have often met with increasing presbyopia during the formation of a senile cataract; and that such presbyopia might or might not be directly connected with this process. In the former case, the presbyopia might depend on a diminution of the elasticity or flexibility of the lens, preventing it from undergoing the changes of form necessary to accommodation of the eye for near objects; or it might depend on a diminution of the curvature of the surfaces of the lens consequent on atrophy and shrinking of its substance, and in no case could it be a result of diminished focal length of the lens or any other part of the dioptic apparatus.

Letting alone hypotheses to account for the facts which Dr. Pilz alleges, we think we may safely affirm the following propositions—

1. A diminution of the focal length of the eye, as a whole, cannot cause presbyopia, nor co-exist with increasing presbyopia. It will either cause myopia, or diminish previously existing presbyopia.

2. An increase of density in the lenticular substance will produce an increase of the refracting power of that substance, if it affects the refracting power sensibly at all; and the increased refracting power of the substance is equivalent to a diminution of the focal length of the lens, unless that effect is counteracted by a diminution of the curvature of its surfaces.

3. A diminution of the focal length of the lens tends, so far as it goes, to produce a diminution of the focal length of the whole dioptic apparatus of the eye. It cannot, therefore, cause presbyopia; although presbyopia, dependent on other causes which tend to increase the focal length of the eye, as a whole, may exist and increase in spite of it.

DEGENERATIVE ATROPHY OF THE LENS, Dr. Pilz tells us, declares itself in one or other of the three following ways—

"1. As myeline change of the lenticular tubes. 2. As entire change of the cortical substance into an emulsive fluid (Staarmagma), which chiefly exhibits a solution of protein substances with finely granular fat, and gradually draws also the nucleus within the sphere of this metamorphosis (fluidity). 3. As amyloïd degeneration of the amorphous substance, forming the star of the lens." (p. 704.)

We shall conclude our extracts from this part of Dr. Pilz's work, with his account of the symptoms of TRUE CORTICAL CATARACT (*Der eigentliche Rindenstaar*)—

"1. The opacity generally begins at the edge of the lens, in the shape of streaks or oblong triangles, the bases of which are turned towards the circumference of the lens, their points towards its axis. These streaks are either from the first very narrow, and of a white colour (the rarer case), or they appear at their bases of greater breadth, and more of a bluish-grey colour and of a peculiar (mother-of-pearl) lustre. They by no means present at first a complete opacity, but are rather translucent, so that we see into several layers, lying over one another. Betwixt the streaks are generally small sectors (the radiations of the lenticular star), in which the transparency is still considerable. The streaks themselves correspond with peripheric segments of the lens, at least in this respect, that we can still perceive in them the relative positions of the lenticular tubes. Sometimes the triangles begin as irregularly scattered points, which increase in number, and unite into groups; occurring, however, always more numerously near the edge of the lens, invading the spaces between the tertiary and secondary divisions of the lenticular star, and at length by their union forming the more or less extensive triangles, of a greyish or bluish-white colour. With this formation of the triangles there often remain individual segments free from opacity, and we thus retain a view of the transparent, or more or less yellowish or yellowish-brownish nucleus of the lens, the same being in a state of pure atrophy. If the progress of development of the triangular opacities takes place from the edge more over the anterior surface of the lens, then they appear curved forwards, lie nearly in the plane of the pupil, and almost touch the edge of the pupil (*cataracta corticalis anterior*); if, on the other hand, the progress is more on the posterior surface of the cortical layer, the streaks appear rather concave and lie far behind the pupil, while the very characteristic, opalizing, dull mother-of-pearl appearance of the opacities of the anterior surface is, on account of the luminous reflexion through the nucleus of the lens, entirely lost. By artificially dilating the pupil, the growing continuation of the individual concave streaks and triangles

near the edge of the lens is easily detected, and sometimes also the spreading opacity from this over the anterior surface of the cortical layers. As the disease proceeds (this being remarked with especial distinctness in the anterior segments of the cortical substance), the fine triangular form of the opacities becomes more and more characteristic; the triangles become more slender, they assume a linear, spoke-like form, and at the same time acquire a whiter colour. At the same time a double change takes place in the appearance of such cataracts. The cortical substance becomes so much thinned (condensed) that, as the nucleus had previously been atrophic, its shining through becomes strikingly more perceptible; the apices lying in the central region appear much attenuated, and the diaphanous substance lying between the opaque triangles in the peripheric segments becomes by this means so distinct that the patients obtain an increasing glimmer of light and allege that they see better. A second interesting appearance consists in spotted, sharply circumscribed portions of an intense white colour, lying close to the posterior surface of the capsule, which gradually expand, occur most abundantly at the terminations of the lenticular tubes, where they grow broader towards the lenticular star, and allow the anterior investment of the capsule which extends over it, and appears at first of normal brightness, to be seen of a duller condition, and often, after a longer time, with a wrinkled aspect. With the development of the last particular [the transition apparently of a lenticular into a capsulo-lenticular cataract], there is combined a loosening of the normal connexion of the capsule with the zonula zinnii.

"2. With the commencing opacity there is always connected a distinct swelling of the crystalline body—an enlargement in the direction of the axis. Owing to the circumstance that the normal position of the lens in reference to the iris becomes more distinct, on account of the opacity of the anterior cortical layer, the enlargement is not apparent, although it is real, and even recognisable with the naked eye from the strong bolstering forwards of the iris and narrowing of the anterior chamber. Later, with the beginning of a great consolidation of the opaque cortical layer, there takes place a diminution in the thickness of the lens. Hence fails the indication of a shadow from the iris on the opaque anterior capsule, not only so long as the development of the cataract lasts, but also then, if, in course of time, a diminution of the volume of the lens ensues, and the edge of the pupil lies close to the lens and no space of transparent lenticular substance intervenes betwixt the opacity and the edge of the pupil lying on the capsule.

"3. As to the consistence of such cataracts, it follows from what has been said that it will be so much the more considerable, (*a*) the more decided the diminished volume of the lenticular system; (*b*) the broader the clear streaks between the opaque points and spots; (*c*) the more of a saturated white colour the triangles which diminish in breadth at their bases; (*d*) the more distinct the deposits on the inner surface of the capsule. If the cortical substance be grey, and appears pretty uniformly sprinkled with fine points or spots, we may, in general, in cases of great want of transparency, conclude that there is a soft (yet brittle) condition of the cortex; in cases of slightly saturated yet pretty transparent opacity, we may infer almost normal (gelatinous) consistence. When, on the contrary, between the points and spots there are small clear streaks, the cortex has, at least partially, a greater consistence.

"4. The opacity caused by a cortical cataract speedily influences vision, taking it away often in a few weeks; although, for the complete consolidation of the cortical mass (its ripeness), often a period of two months to two years will be required. The deficiency of sight soon reaches, in general, to a mere perception of light, especially when the opacity of the lenticular layers affects the field of the pupil, or when capsular deposits occur. On the other hand, in the commencement of cortical opacity at the edge of the lens, the distur-

bance of sight is often very slight, and sometimes (although rarely) is confined to the occurrence of various sorts of scotomata, or to double or multiplied vision of small and especially of shining objects (for instance, in regarding the moon or the flame of a taper, a polished metallic button, and the like), so that the diagnosis of a lenticular opacity may be extremely difficult, and we must call in the aid of other diagnostic means, as—

"*a.* A pretty full dilatation of the pupil, by which we may obtain a view of the commencing streaky fine-pointed opacities at the edge of the lens.

"*b.* Examination with obliquely incident daylight, or, better still, with the light of a lamp converged by a convex glass, by which latter contrivance we distinctly see the most various self-crossing reflections arise from the layers lying behind one another, all yielding distinctly the same greyish colour, which in the middle parts especially seems somewhat more saturated on account of the greater number of layers. (This examination is particularly important when no nuclear cataract is present, as then not a trace is to be recognised of that yellowish reflexion which arises from the presence of an indurated lenticular nucleus).

"*c.* Examination with the ophthalmoscope in transmitted light. By this means we recognise distinctly black radii converging from the periphery towards the centre, or, by a more punctiform arrangement of the opacities, dark points, especially towards the edge of the lens. The same assume, supposing they are not naturally black, a light colour, if we illuminate them by concentrating the focus of the rays of light on them. But if the opacities are more diffused, they show themselves even by transmitted light of a light colour.

"*d.* The use of Listing's entopic experiment. The patient suspected of incipient cataract looks at the clear sky through a hole in a card made with the finest sewing needle, whereby the abnormal opacities are readily brought into subjective contemplation as various dark spots and streaks in the field of dissipation of the nearly parallel homocentrical light, and in general can be perceived earlier than it is possible to discover them as objects from without. It is hereby demonstrable, that these dark spots, which prevent the course of the rays of light through the dioptric media, are situated at a small distance from the pupil, in the lens or near its capsular covering. Less advantageous here is the Purkinje-Sansonian experiment; as, so long as the anterior capsule is normal, the conditions for the regular reflexion of the light at the surface of the crystalline body will not be in the least disturbed, even when the above-described pellicular deposits form on the inner surface of the anterior capsule, especially as in this case the capsule, as well as the external epithelium, is in a state of complete integrity. Hence, even in cortical cataract, the image reflected from the anterior lenticular surface will be seen, and it will be only when the capsule takes on a roughness through the process of shrinking that the reflected image will suffer disturbances in its purity. That the inverted image reflected from the posterior capsule must fail in any case, is self-evident.

"In those cases where the myeline change of the lenticular tube-layer is present at the same time with the development of granule-cells and fat granules in and betwixt the elements composing it, with subsequent formation of cholesterin, the external appearance of such cataracts differs from the above description of pure cortical cataract, and becomes as such diagnosticable only when they begin to be converted into true peripheric cholesterin cataracts. The appearance afterwards depends particularly on the various proportions of cholesterin ingredients, and the cataractous surface attains through the strong conglomerating of the same in little heaps, a peculiar metallic, sparkling appearance, as if arising from glittering scales. The capsule retains its normal lustre. The cataract acquires a new degree of consistence, and along with this there is a diminution in the size of the crystalline body, to which detach-

ment from the zonula may readily be added, especially from concussions or the contemporaneous presence of deposits on the zonula (*cataracta tremula, dislocata*).

"As a particular form of cortical cataract, I must here shortly notice those peripheric opacities of the lens which, besides myeline changes of the lenticular tubes, acquire a very dark, black, often blood-red colour, from the endosmotic penetration of hæmatin into the peripheric layers of the lens, and are designated *cataracta nigra, sanguinea, pigmentosa.* The opacity shows the radiating character, the streaks offering either the normal grey colour, or appearing partly quite black. The black parts occupy either a large extent, or they are interrupted by grey cortical streaks, and with these form a marked contrast. By ophthalmoscopic examination, the black streaks appear sometimes dark blood- or cherry-red. Microscopically, the lenticular tubes are shown to be the diseased substance, and present, besides the myeline change in various high degrees, in the black streaks and spots, the lenticular tubes infiltrated with a dark-red pigment. This last is found both diffused and in some particular places accumulated, more strongly so always next the anterior capsule, and consisting of fine red granules. It contains, along with larger masses of pigment, also isolated crystalline forms, which, according to Gräfe, yielded in one case not the rhomboidal form of hæmatoidin crystals, but that of pentagonal dodecaedrons, and chemically showed themselves quite identical with the colouring matter of blood. The nucleus of the lens may be either normal or in a state of pure atrophy, but is always free from the deposits of pigment. The consistence of the lens is exactly as in common cortical cataract. This cataract is frequently associated with internal effusions of blood (choroïdal apoplexies), and the disturbance of sight from this very cause is greater than in simple cataract (true amblyopia). These cataracts must also be carefully distinguished from highly-developed senile cataract, which may indeed reach to a dark brown shade, but never to a black colour." (p. 707.)

These extracts will more than suffice, we think, to give our readers an idea not only of Dr. Pilz's mode of describing the varieties of cataract, but of the spirit and character of his whole work—namely, invincible laboriousness. The pains he has bestowed on the pathology of the eye can be judged of only by a careful perusal. It is probable that many of his statements, to be generally received, will require the confirmation of future observers; and we cannot help thinking that many of the minutiæ, obscure and subtle, upon which he dwells with so much earnestness, are of very small importance in a practical point of view.

To the pathology of cataract there succeed non-inflammatory disorders of nutrition in the vitreous humour, bones of the orbit and orbital tissues, eyelids and lacrymal organs. Dr. Pilz then takes up disorders of circulation and effusions of blood in and round the eye, then wounds, then displacements, such as ectropium and entropium, upon which less is said than the importance of the subject seems to us to demand—then disorders of the accommodative powers, as myopia and presbyopia — then strabismus and paralytic affections of the muscles, external and internal. Nyctalopia, and the effects of cerebral diseases on the organ of vision, come in for a few remarks, while congenital defects close this part of the work.

The Operative Surgery of the Eye occupies 131 pages. After a description of the instruments used in this branch of surgery, and

some general rules regarding operations on the eye, Dr. Pilz rushes *in medias res* with an account of IRIDECTOMY, showing the importance he attaches to this operation as a remedial means of almost general application in diseases of the eye. It must be remembered, that at the date of his publication iridectomy held its full swing. We have always regarded the operations for cataract as the most important of all those performed on the organ of vision; and their study, and the repetition of them on the dead body, as affording the best basis for those to proceed upon who mean to attain a perfect knowledge of eye surgery. He who thoroughly understands the operation of extraction of the cataract, and has acquired a facility of performing it on the dead subject, will find all other eye-operations comparatively simple and easy.

To show Dr. Pilz's exaggerated notion of the use of IRIDECTOMY, we shall give his indications for its performance; and with this we shall close our extracts from his work:

"The indications," says he, "for the undertaking of this operation follow from the pathology.

"We may present a brief view of them as follows:—

"A. Stationary processes; the object being the restoration of sight to the eye operated on.

"1. Corneal opacities covering the pupil.

"2. Simple closure of the pupil and *cataracta accreta*.

"3. Anterior synechia, with distortion and abolition of the natural pupil.

"4. Partial or total staphyloma.

"5. Conical cornea (*Kerectasia conica*).

"6. Laminar cataract (*der Schichtstaar*), stationary opacities of the lenticular nucleus and central capsular cataracts of from 2 lines to 2¼ lines in extent, cases ill adapted for the ordinary methods of cataract operation, and in which the advantages of an operative enlargement of the pupil, according to Gräfe's masterly deductions,* outweigh, in a high degree, the removal of the cataract.

"B. Extensive suppuration of the cornea, with or without iritis, threatening danger to the preservation of the pupil, or foretelling the later necessity of an artificial pupil, even before the issue of the disease of the cornea.

"C. Cases where our object is to stop the irritation of the tunica uvea, or the stimulus of a chronic inflammation of the uvea, and remove the threatening (sympathetic) disease of the second eye.

"1. Posterior synechia, with or without closure of the pupil.

"2. Irritation of the tunica uvea.

"3. Serous exudate, which proceeds from uveal irritation.

"4. The earliest period of the prodromal stages of *choroïditis capillaris*, for prevention of the approaching *iritis parenchymatosa*.

"5. The chronic form of parenchymatous inflammation of the *ligamentum iridis pectinatum*.

"6. All cases productive of bruising of the iris, swelling up of the lens after opening of the capsule (it may follow an operation, or be caused by a wound), foreign bodies driven into the iris and sticking in it (which can be removed along with a piece of iris), distortions of the iris from partial adhesions—for example, to a cicatrice caused by an irregular incision of the cornea in extracting the cataract—pressure on the iris by a dislocated lens, and so forth.

* Archiv, Band i. Abth. 2, S. 241.

"7. Where by traumatic uveal irritation, or spontaneously-occurring internal inflammation of one eye, or even after complete blindness of one eye in consequence of the above-mentioned process, periodic iritic irritations befal the second, till now sound, eye, even when as yet no iritic products are present in the same. Here also we feel grateful for Gräfe's highly important hints (l. c., s. 248). He always found in iridectomy on the eye first blinded, not merely a prophylactic for the preservation of the second, sometimes even commencing atrophy of the bulb would retrocede, for instance, where, relatively to the reduction of the size of the eyeball, the flattening in the region of the straight muscles was but slight—the same being, according to his expression, *more concentric*, and where the patient still retained a fair perception of light.

"D. Diminution or loss of sight from increase of intraocular pressure, in consequence of choroïditis with deposit of exudate from the anterior branches of the uveal arteries, with inflammatory changes in the vitreous humour, and so forth. [Acute and chronic glaucoma.]

"E. Diseased contraction of the pupil (*myosis*)." (p. 907.)

An important question still remains, in answer to which we must say a few words. How does Dr. Pilz treat the diseases of the eye? Is his treatment good or bad—new or old—bold and energetic—or trivial and expectant? We may answer, in general, that, in principle, it differs but little from our own. Except in regard to excision of the iris, it is the reverse of rash or heroic, and is often feeble and temporizing. In the commencement of acute catarrhal ophthalmia, for instance, he absolutely forbids the use of local means, cautions us against the application of cold water, and recommends the brow and temple to be rubbed twice a-day with an opiate salve!

Dr. Pilz pays great attention to dietetical means, regulating the food and drink of the patient, and guarding the body and mind generally, and the eyes particularly, against causes of irritation. He hangs warm cloths, and bags filled with dried herbs, over the eyes; pleases the patient with lemonade, ices, almond milk, and tea; and advises him to smoke only through a long pipe!

Depletory means he uses with great discretion, recommending venesection (the most potent of all means in acute inflammation of the eyes) very sparingly, and only when the patient is robust; and trusting to leeches and cupping. He occasionally has recourse to scarification; excises trachomatous granulations, as well as thickened and vascular folds of conjunctiva; and by times practises paracentesis corneæ.

He seems to have little faith in counter-irritation.

His sedative applications are chiefly cold water and iced compresses. He uses as lotions for the eye, solutions of sulphate of zinc, compounded with aqua lauro-cerasi, and Sydenham's liquid laudanum; solutions of acetate of lead, alum, sal ammoniac, and lapis divinus; also, a weak solution of corrosive sublimate. Of saline substances in general, as applied to the eye, we are inclined to say, that, with the exception of nitrate of silver, the sooner most of them are discarded the better.

The value of warm fomentations, either with simple water, poppy decoction, or the like, does not seem to be sufficiently appreciated by Dr. Pilz; although he mentions that eye-waters should be used lukewarm. His objections to Gulz's distilled aqua opii (eight ounces to be distilled from a pound of water with two ounces of pure opium) are amusing, though perhaps true enough. He says it has "*einen üblen*

Geruch und kömmt theuer!" Many other drugs are liable to the same objection.

Rather from the experience of others than his own, he speaks of tannin as an astringent, to be used either in powder, solution, or salve.

Dusting of the eye with calomel in fine alcoholized powder, is spoken favourably of in scrofulous ophthalmia.

Of stimulants and escharotics applied to the eye, nitrate of silver, sulphate of copper, and opium wine, hold the chief place. The solution of the nitrate of silver which Dr. Pilz generally uses, is of the strength of one grain only to the ounce of water; but he occasionally employs from ten to fifteen grains to the ounce; and sometimes the solid pencil of lunar caustic, as well as the milder one, formed of nitrate of silver with an equal proportion of nitrate of potash.

As anodynes, to be used internally or externally, Dr. Pilz recommends chiefly opium, tincture of stramonium, digitalis in various forms, and chloroform; the last as a liniment. He cursorily mentions the inhalation of the vapour of sulphuric ether as a remedy for scrofulous ophthalmia; but seems to be unaware of the great benefit to be derived from a similar use of chloroform, as well as of ether, in many of the most distressing affections of the eye. We are afraid one drop of tincture of stramonium (Tinct. stramonii, zu 1 Tropfen) will not do much to relieve the neuralgia attendant on severe ophthalmia.

As mydriatics, atropine and belladonna are constantly recommended, especially in iritis. The former is considered as acting not merely on the pupil, but also on the ciliary muscle. Friction with belladonna, combined with white precipitate salve, is mentioned as a remedy in scrofulous ophthalmia; but its great utility in the form of lotion or fomentation, both in that and in other inflammatory diseases of the eye, does not seem sufficiently appreciated.

A variety of eye-salves are enumerated; the chief being those containing white or red precipitate of mercury.

Of internal medicines, those of a reducing sort, such as purgatives, ipecacuan, and Dover's powder, are frequently recommended, but only in small doses. Tartar emetic is too rarely named. Neutral salts, in so-called *digestive* doses, phosphate of soda, phosphate of ammonia, acetate, citrate, and tartrate of soda and potash, are recommended chiefly as acting on the kidneys; and with the same view, as well as counteracting over-nutrition and vascular plethora, the alkaline and earthy carbonates.

Mercurials, and the preparations of iodine, receive their full meed of praise. Calomel, occasionally in large doses, generally in small ones, often repeated; corrosive sublimate, Van Sweiten's solution,* and Zittman's decoction,† are frequently mentioned. Mercurial inunction, so as to affect the system, is forbidden; but friction with mercurial salve round the orbit, with or without digitalis, is greatly confided in.

* This is a solution of bichloride of mercury and hydrochlorate of ammonia, and is very like our liq. hydr. bichlorid.

† This consists of a strong decoction of sarsaparilla, in which a bag has been suspended containing a small quantity of alum, of calomel, and cinnabar during the boiling. We are informed that it is almost proved that none of the mercury in the bag is dissolved; at any rate, that none has been found in the decoction.

Oil of turpentine Dr. Pilz has not found of any considerable benefit in iritis.

As tonics, quinine and iron are those principally depended on.

For the treatment of granular conjunctiva, Dr. Pilz speaks favourably of Buys' plan of coating the inside of the eyelids with acetate of lead in fine powder; and for pannus, or vasculo-nebulous cornea, arising from purulent ophthalmia, he recommends inoculation with blennorrhœal matter, as practised by Piringer and Jäger.

Considerable pains and cost have been bestowed on the illustrations.

The woodcuts referring to structure are passable. The figure in p. 53, showing the posterior part of the orbit, with the annulus fibrosus, and the different periosteal openings for the passage of the nerves, arteries, and veins into or out of that cavity, is new to us, and will aid in giving an idea of the complicated parts concerned. But the explanation of the figure is incomplete.

In the account of Bonnet's capsule and Tenon's membrane (p. 10) reference is made to a fig. 6; but no such figure is given, neither as a woodcut in the text, nor in the plates at the end of the work. There is, indeed, a magnified section of the eyelids and anterior part of the bulb at p. 82, in which those textures are referred to, but from it no notion of their most important relations can be formed. The figure at p. 94, of the nasal duct, is very poor—much inferior to the figures of the same part given by Fischer. The figure of the retina, compressed into a funnel form, p. 493, would scarcely have passed even in the days of Meibomius. Beer's knife, p. 894, and his needle, p. 896, are represented much too large. Rosas's scythe-needle (ib.) is not accurately represented, and is worse described, for it cuts on its concave, not on its convex edge. At p. 899, Maunoir's scissors are too big, and the sharp blade projecting beyond the blunt one is an error. In place of Jäger's ophthalmostat, consisting of two forceps opening together by a spring, and closed by pressure on a trigger (p. 900), we would recommend to Dr. Pilz, Mr. France's use of a simple forceps for laying hold of the conjunctiva and steadying the eye in such operations as extraction. The two figures (p. 916) said to represent Gräfe's coreoncion are really figures of Schlagintweit's instrument. The first figure is too large, and the second does not correspond in its most essential part with the first. There is no excuse for such blunders, seeing the instrument is so beautifully made in Vienna. Guepin's instrument for iridoparelkysis, intended to punch out a piece of the cornea, and thereby cause a prolapsus of the iris, is described as "ein besonderes locheisenförmiges Instrument!" We should transfer this iron-hole-forming-tool to its rightful owner—the saddler or the cobbler. All double needles, such as those figured at pp. 931, 946, we hold in abomination. At p. 1020, we have figures of two instruments, proposed by Reybard of Lyons, for an operation which Dr. Pilz, on physiological grounds, rejects as useless. Gensoul's probes (p. 1021) are represented much larger than they really are, and abruptly truncated at the end, in place of being rounded off.

The work is furnished with thirteen large plates at the end. Two

of them, comprising eight figures, are illustrative of the structure of the organ of vision, and the normal appearance of the fundus oculi as seen with the ophthalmoscope. Seven plates, containing 129 figures, of which thirteen are ophthalmoscopic, relate to the diseases of the eye—all brightly coloured, not particularly good as works of art, but sufficiently suggestive of what they are meant to represent. Five uncoloured plates follow, containing 102 figures, mostly in a reduced size, illustrative of the operations performed on the eye, plans well calculated to aid students in their first steps in ophthalmology.

A word as to style ere we part with Dr. Pilz. That his work is the first in which an attempt has been made to embrace ophthalmology as a whole cannot be denied, but its solitary supremacy does not extend much further. The information which it contains is indubitably valuable, diluted though it be with a large amount of German fume; but the style is the very reverse of perspicuous or agreeable. Long lumbering sentences, loaded with parentheses, and the clauses connected in the most slovenly way, render perusal tiresome in the extreme, and often leave the meaning scarcely intelligible. Oh! that Dr. Pilz, and his countrymen generally, could but learn to write short sentences, and keep in mind the sovereign rule of Quintilian—"Non solum ut intelligere possit, sed ne omnino possit non intelligere, curandum!"

REVIEW VI.

Cooper's Dictionary of Practical Surgery and Encyclopædia of Surgical Science. New Edition, brought down to the Present Time. By SAMUEL A. LANE, Surgeon to St. Mary's Hospital, &c.; assisted by various eminent surgeons. Vol. I.—*London,* 1861. pp. 1085.

THIS work made its first appearance in 1809, and during the following twenty-nine years passed through no less than seven editions—a fact sufficiently proving the estimation in which it was then held, and indeed its real value, for from its large size and manner of arrangement it was essentially a book of reference for the more advanced student or practitioner, and by no means calculated to attract a beginner as a short or royal road to surgical lore. Since the publication of the last edition, however, twenty-three years have elapsed—twenty-three years, each of which has brought forward a very large number of new works, many of real and lasting value, and in each of which changes have been made in our views of surgical pathology, and accordingly improvements, or at least alterations, introduced in our methods of treatment. In every direction our knowledge has been enlarged by the observation of many new facts, and by a more exact and careful consideration of those already known.

During this long interval no work has appeared that could at all take the place so long occupied by Cooper's Encyclopædia in English medical literature; hence we cannot but applaud the design of issuing a new edition brought down to the present time. We think that the

editor has also acted wisely in associating with him in his editorial labours a number of surgeons who for the most part have already become distinguished in the special departments which they have here undertaken.

The ordinary course of studies required by most of the examining boards unfortunately is at present in many respects more likely to render a man able to pass his examination creditably than to fit him for his future duties, and almost every one must have felt as he enters on practice the necessity of further and fuller information than that afforded him in the manuals and treatises he has hitherto been in the habit of employing, and which it has been too much the habit of teachers to recommend or allow in place of works of a more comprehensive nature. When the mind is young and active, and the charm of comparative novelty still attracts, almost every case to which the surgeon is called will present some point for consideration—either a doubt as to the diagnosis, or some question with regard to the treatment to be employed; and for assistance he will naturally wish to turn to the experience of his predecessors—to that which has been best written on these subjects. To most, however, it is not granted to have access to large libraries, and even of the comparatively few who have such facilities, there are still far fewer who are capable of utilizing them to their full extent: the fact is, that to make efficient use of any great collection, there must be either long experience and great diligence, or some book which will point out and distinguish the really important from that which is of little or no value, and which will thus act as a reliable guide. A large library is like a wilderness, in which the traveller without a guide is lost; and it is obvious that a mere catalogue, however well prepared, cannot fulfil the necessary requirements.

The great mass of medical men, however, will always be without access to large collections, and will accordingly require some work of reference, in which the more valuable publications may be found condensed, arranged, and compared in a fair but critical manner, and which may serve them to some extent in lieu of the original works. The frequent ignorance of foreign languages, and the little time left for study by the incessant demands of practice, increase the necessity for such publications as the present. In every case such a work is occasionally valuable if well carried out in fulness and accuracy; it will assist the searcher after knowledge, sometimes by furnishing information drawn from sources which would otherwise be inaccessible, sometimes by pointing out the works in which he can find the subject treated in all its details.

In the elaboration of such a digest of surgical literature, next and even still more important than the design, is the spirit and manner of performance; clearness of style, fulness of detail, and accuracy of reference, will of course be expected. If the execution does not correspond with the design, such a work as the present must be a failure. It seems, indeed, to us that it was specially owing to the manner in which Samuel Cooper carried out his plan, that his dic-

tionary became so extremely useful; the design was good, the handiwork was good. On two peculiarities we should lay especial weight, because they seem to us to indicate exactly what should be kept in view in preparing a new edition; one, the absence of any local character; the other, the abundance of references. Cooper himself has, in pretty strong terms, indicated both these points as special characteristics of his work. In the preface to the seventh edition he says:

"In preparing this edition, which comprehends an account of all the principal modern improvements in surgery, I have conscientiously endeavoured to deal fairly and impartially with every individual whose name I have had occasion to mention, or whose suggestions form subjects of consideration in the ensuing pages. My aim has been truth, wherever I could find her; and in every situation, where any glimpse of her beautiful figure presented itself, I have ardently courted her, regardless of the name, school, or country on which she might deign to shed her glory. By steadily adhering to this principle; by zealously marking what the book of nature and the field of experience unfolded; by renouncing all obsequious submission to every other kind of authority, and by taking the liberty of sometimes thinking and judging for myself, I trust that the most likely plan has been adopted of maintaining the character of this book, and raising my own reputation."

And to the title of the same edition he adds: "And numerous references to ancient and modern works, forming a catalogue of surgical literature, arranged according to subjects." Both these reasons remain in operation at the present day. There is no work in the English language that represents fully, not only English, but also French and German surgery, or that gives a sufficiently extended and well-selected series of references on surgical subjects. These are wants which a new edition of Cooper ought to satisfy; should it not do so, we cannot see any special reason for its publication. The works, so well known, of Erichsen, of Holmes, &c., would meet all other requirements.

Thus we see that the object of this work is to furnish an Encyclopædia of Surgery which may serve as a guide to surgical literature, and to some extent even supply the want of other books. For this purpose, no mere exposition of the doctrines or of the practice of any particular school or place can be sufficient, nor yet is any originality required. What is wanted is the collection and selection of material from every and any source, its condensation and arrangement; a series of carefully arranged references to all the most important papers or works being appended to each article.

It is in accordance with these views that we now proceed to examine how far this edition fulfils these requirements; and for the sake of greater clearness, we shall separate our remarks into three parts—those on the original text, those on the additions to the text, and, lastly, those on the references. As to the first, little need be said; it would now be absurd to attempt to criticise the matter, except in so far as it has become insufficient or obsolete.

"The plan adopted in conducting the present edition through the press has been, to retain as much as possible of the original matter, whether historical or strictly professional; to erase only that which by lapse of time had become obsolete, or which the accumulated experience and the advance of the colla-

teral sciences had shown to be at variance with the improved knowledge of the day."

We are inclined to think that a freer excision of the old matter, and a larger introduction of new, would have been advisable; indeed, it seems to us that several articles should have been entirely re-written. Some alterations have been made in the arrangement of the articles, and as in this respect the old edition was certainly deficient, some general line of conduct should have been laid down and adhered to as much as possible—such as, for example, that all diseases of special organs or tissues be treated under the name of the part, and all operations under the name of the operation. Wherever this could not conveniently be done, cross references should have been introduced. Such a plan, when once understood, would much facilitate the use of the book. We may exemplify the inconvenience presented by the present arrangement, or rather want of arrangement, by detailing an actual occurrence. Not finding in the new edition Foreign Bodies in the Bladder treated under the latter term, we then referred to Foreign Bodies and to Bodies Foreign, but under neither did we find any information. Noting, however, that Boil was treated under Furunculus, we naturally referred to Corpora Aliena, again to be disappointed. As no other heading under which they could possibly be in the first volume of the new edition occurred to us, and as we were aware that Cooper occasionally treated under the same title both the operation and the various diseases for which the operation was applicable, we turned to the old edition, sections Lithotomy and Lithotrity, in neither of which did we find anything bearing on our search. We now determined to follow another plan; foreign bodies occur in the ear, eye, rectum, &c. Under Rectum, to which we first applied, the second paragraph begins with "Foreign bodies introduced into the rectum," &c., and winds up with a reference to "p. 214;" and as we had now become somewhat curious, we continued our search, and turned to that page, where we only found some remarks on "abscess near the rectum, supposed to have been caused by foreign bodies passing through the mucous membrane of the bowel into the cellular tissue." Evidently, Foreign Bodies in the Rectum were treated under Rectum. Under Ear we found the fifth division to be on "extraneous substances, &c., in the meatus auditorius externus." Under Eye, we again found nothing on foreign bodies, and we referred successively to conjunctiva, cornea, and ophthalmy before we found what we wanted. Recurring again to our original subject, we looked over the articles entitled Urethra; Urethra, Strictures of; Urinary Calculi; Urinary Fistulæ; Urine, Retention of, and ultimately found the tenth division of the last article entitled Retention of Urine from Foreign Bodies in the Bladder. This is, no doubt, an extreme case; but yet we have on several occasions had considerable difficulty in finding under what title a given subject was treated. We have always felt that this was a defect of some moment in a work of reference, and one that might have been readily avoided, had the articles been arranged on some plan, such as the one just mentioned. We may note here that

the article on Gun-shot Wounds is placed before Guaiacum, Gumma, Gums, whilst according to the alphabetical arrangement it should follow them.

The following articles have been reprinted without any additions of new matter; in some of them this might possibly be advisable, it can however be scarcely doubtful that to most of them additions should have been made to such an extent as would bring the information down to the present time. For the sake of comparison, we append to Acupuncture and Arteries a number of references taken almost at random from our notebook; they are neither complete, nor can we promise that they are all of value; they will, however, serve our purpose, if they give some idea of the vast mass of material unemployed.

Abdomen; much additional matter should have been inserted, especially on abdominal abscesses, their diagnosis and treatment; abscess of the iliac fossa should have been treated at length.*

Acupuncture;† Amaurosis, with the exception of a paragraph mentioning the ophthalmoscope, abundant material on this subject now exists, especially in the 'Archiv für Ophthalmologie,' and the whole of it should have been re-written; arteries;‡ arteriotomy; operation for extra-uterine fœtation (under the heading of Cæsarean operation);

* See Ballard's work on the physical diagnosis of the diseases of the abdomen; the papers of Bernutz and Manley on abscess of the abdominal parietes, &c.

† It has also been used in hydrocele, anasarca, ascites (Lond. Med. Gaz., vol. xxi. pp. 55, 332; vol. xxiii. pp. 103, 228; it is not a means free from danger (Lancet, vol. vii. p. 374; Revue Méd., vol. xvii. pp. 312, 471, 477); on acupuncture of the heart (see Medical Times, vol. iv. p. 92; Lancet, vol. x. p. 624; vol. xxxvi. p. 768; Revue Méd., vol. xxii. p. 275); to be compared with accidental wounds of the heart by a needle (Med. Times, 1850, new series, vol. i. p. 119; Lond. Med. Gaz., vol. xii. p. 720; vol. xxxiii. p. 461; Provin. Med. and Surg. Journal, vol. xvi. p. 336, &c.)

‡ *Arteries.*—M. Valette: Sur la Possibilité de lier l'Artère Occipitale près de son Origine; Modifications à certains procédés usités dans la Ligature des Artères Iliaque Externe, Epigastrique, et Sous-clavière; La Ligature de l'Artère Honteuse Interne. (Gaz. des Hôp. 1854, p. 99.)

W. Hargrave: Suggestions for Facilitating the Exposition of Arteries and the Application of the Ligature. (Dub. Med. Press, 1853, Feb. 2.)

Guthrie: On Ligature of the Internal Carotid. (Med. Times, 1850, vol. ii. p. 134.)

A. Deville: On manner of Finding and Exposing the Arteries. (Med. Times, &c., 1854, vol. ii. p. 490, 518, 540, 589.)

Dezeimeris: De la Compression des Artères comme Moyen Thérapeutique, et particulièrement de la Carotide Primitive. (Encycl. des Sciences Méd., tom. lxiv. c. p. 20, 1837.)

Sédillot: Sur la Section des Artères après la Ligature. (Encycl. des Sci. Méd., tom. ccvii. p. 215, 1849.)

G. W. Norris: On Mortality after Ligature of Subclavian. (Amer. Jour. Med. Sci., New Ser., vol. x. p. 13, 1845.) Statistics of Ligature of Carotid. (Ib., New Ser., vol. xiv. p. 13, 1847.) Table of Ligatures of Iliac Artery. (Ib., New Ser., vol. xiii. p. 13, 1847.) Statistics of Ligature of Femoral. (Ib., New Ser., vol. xviii. p. 313, 1849.)

R. G. H. Butcher: On the Treatment of Wounds of the Palmar Arch and of the Arteries in the Vicinity of the Wrist-joint. (Dublin Med. Press, vol. xxviii. p. 17, 1852.)

Chevers: On the Effects of Obliteration of Carotid on the Cerebral Circulation. (Indian Annals of Med. Sci., vol. i. p. 706; Lond. Med. Gaz., vol. xxxvi. p. 1140.)

Malgaigne: On Ligature of the Ulnar Artery. (Med. Times, vol. xvi. p. 652;

cancrum oris; castration; contusion (hardly any addition); corns; cupping; diplopia (requires re-writing); dura mater, fungous tumours of; ecchymosis; ectropion (alteration of two words); emphysema; empyema; encanthis; epulis; exfoliation; exophthalmia (most trifling); eye, injuries of; fluctuation; frænum linguæ; fragilitas ossium; fungus hæmatodes; furunculus; ganglion; gums, inflammation and abscess of; gums, tumours of; hemeralopia (scarcely any addition); hemiopia; hernia cerebri (would not this article have been better placed under the head encephalocele?); hordeolum (two lines of addition); hydrophthalmia (two lines added).

The article on Bandage is insufficient; to Auscultation a few lines are added on percussion—a means of diagnosis which should have been much more fully treated, as its surgical applications have been both enlarged and better defined since the time of Cooper; the Dynamometer is allowed five lines and a half, no addition having been made to what Cooper had said on the subject, yet sufficient evidence of its value is to be found in the work* by Malgaigne, which has been so often employed in the additions to the articles on Fractures and Dislocations.

In general, we think the remarks made by Cooper on symptoms, such as Crepitus, Fluctuation, should have been extended. Let the reader, for example, refer to the former term; he will find "Crepitus, the grating sensation or noise occasioned by the ends of a fracture when they are moved or rubbed against each other; one of the most positive symptoms of the existence of such an accident." Such is all

Rapport de M. Seutin sur les Plaies des Artères Palmaires, Ency. des Sci. Méd., tom. cclvi.; Bull. Belg., p. 177, 1853.)

The various treatises on aneurysm, operative surgery, &c.

G. L. Dieterich: Skizzen zur Geschichte der Unterbindung einig. gröss. Arterien. (Erlangen, 1830.)

G. L. Dieterich: Das Aufsuchen der Schlagadern, &c. (Nürnb., 1831.)

* Traité des Fractures et des Luxations, two vols., Paris, 1847—55; more especially in vol. ii. p. 91, where he shows that an assistant of ordinary strength scarcely ever draws by a steady pull more than thirty kilogrammes (sixty-six pounds), and that even this effort does not last two minutes; by a sudden and violent effort he may, however, momentarily draw to sixty (132 lbs.), or even ninety kilogrammes (198 lbs.), thus doubling or even tripling the force employed. If this is the case with one man, what differences must there be when there are three, six, or more men, according as they pull together, by a steady strain, or suddenly by a violent effort. It is impossible under such circumstances to have even the least idea of the force exerted. In the next page he states that the force exerted may be determined to within a couple of pounds or so by the dynamometer—an accuracy quite sufficient for all practical purposes; that the traction may at once, without inconvenience, be carried to 100 kilogrammes (2 cwt.), increased a minute later to 150 (2½ cwt.), then to be carried more slowly and with all the requisite care to the point required for the reduction of the dislocation. According to this author, the greatest force yet used and measured by this instrument has been 275 kilogrammes (Ib., p. 106). Sédillot (Traité de Médecine Opérative, seconde éd., tom. i. p. 92, Paris, 1853) states that he has gone as high as 300 kilogrammes. It should be mentioned that the credit of having introduced this useful addition is due to the latter author, who published an interesting paper on its use in the Gazette Médicale de Paris, August, 1834; some remarks on this subject will also be found in "Observations on the Reduction of Dislocations, with the Description of a New Apparatus for making Extension, &c." (Dublin Hospital Gazette, 1861, vol. viii. p. 273.)

the information given under this head; not even is there a cross reference to any other article. Surely it would have been better to omit the term altogether, than to give such an account, so imperfect, and so calculated to lead to an erroneous opinion. There may be fracture without crepitation, and crepitation without fracture.* No doubt a man of experience will recognise in most cases, without difficulty, that the crepitus in one case is to be referred to a fracture, in another to an extravasation of blood, in another to emphysema, in another to articular disease, and so on; but he who has not yet gained this experience is the one likely to refer to this article, and he will scarcely be rendered wiser by its perusal in its present state. A full enumeration of the cases in which so important a symptom occurs should have been given; some attempt to describe the various modifications in its character might certainly have been made, and some caution as to the cases in which it should not be too anxiously sought for would scarcely have been superfluous.† Similar remarks apply to the article on Fluctuation. Every practical surgeon is aware how deceitful is fluctuation, yet comparatively few have ever carefully considered what is meant by the term, or perceived that under it as ordinarily employed several distinct phenomena are included. "FOURTEEN medical men of *eminence* examined an ovarian tumour, and all agreed that it contained fluid, the fluctuation from the ensiform cartilage to the pubes being so unequivocal and distinct."‡ All fourteen were in error; there was no fluid, the tumour was composed of colloïd matter. Where, as in ascites, a swelling is tolerably superficial, its walls soft and yielding, its cavity of large size, so that it contains a considerable amount of liquid without too much tension, a slight but quick tap with the fingers of one hand will excite in those of the other hand applied to the opposite side of the belly a sensation which is called fluctuation—a feeling of a slight shock caused by undulations in the liquid. As, however, these conditions are not generally present in abscess, effusions of blood, ovarian dropsy, &c., no fluctuation of that kind can be found; but a different sensation produced in a different manner may be perceived; although this last mentioned sensation is essentially distinct from the former, both in its manner of production and its characters, the conditions of its existence and the state it discloses, still both have been generally confounded together, and are yet included under the one name of fluctuation, a potent means of perpetuating error. The latter

* Under the head Fracture we find some further and fuller remarks on crepitus, and possibly others on the same subject may be scattered elsewhere. What we wish to show by the above remarks is that each article should be complete in itself, or else references should be made to the other parts of the work in which further details, &c., may be found. By the latter plan we at once become acquainted with all the information given on any subject; by the former we are always left in doubt as to whether we have discovered all or not.

† "Mais lorsqu'elle (la crépitation) est faible et obscure, et qu'il s'agit de la distinguer du cliquetis articulaire, la chose est beaucoup moins facile; pour mon compte, je suis resté en suspens plus d'une fois, et plus d'une fois aussi, j'ai vu Dupuytren hésiter lui-même." (Malgaigne, l. c. tom. i. p. 104.)

‡ Lancet, 1843–4, vol. i. p. 651.

method depends on the fact that, as all fluids are incompressible, a cyst containing them will expand in one direction if compressed in another; and the best method of producing this artificial expansion has been well described by A. Bérard as follows:

"The surgeon commences by applying the pulpy portions of one or more fingers of the left hand to a superficial part of the tumour; he then exerts a gradually-augmenting pressure perpendicular to the surface of the skin with the fingers of the other hand, which are most often placed on the same side of the tumour and at some distance from the fingers of the left hand. He will soon perceive that the fingers of the left hand are being gently forced forwards or from within outwards, and that they feel raised by a smooth soft mass, which, however, acts with considerable power. Having arrived at this result, he should cease from pressing with the right hand, so as not to further indent the parts touched by it; at the same time he should not raise his fingers, or remove them from the swelling; he should hold them exactly at the spot and the depth at which they have arrived. He should now begin to press with the fingers of the left hand, gradually increasing the force, and as he does so, he will perceive in the fingers of the right hand a sensation like that which he had felt in the left hand. He may, he ought, indeed, to recommence the same manœuvre a number of times, alternately pressing with the fingers of the right or left hand, and taking care to pay attention with each alternation to the fingers which are experiencing pressure from within outwards; for it is by them, and not by those which are pressing, that the sensation of fluctuation, so-called, is perceived. . . . . In short, to educe this species of fluctuation, there must be an active pressure, an active displacement of the one hand from without inwards, whilst the other is passive, its motion being only communicated to it; and during all this period the surgeon must direct the whole of his attention to the sensations furnished by the latter."*

This method furnishes an important means by which the elasticity of erectile tumours, encephaloïd cancers, &c., may be often distinguished from genuine fluctuation caused by a collection of fluid. How this can be done is explained by Bérard in the article just cited; he says:

"Errors will be surely avoided if we apply the fingers of one hand alone, and appreciate the resistance presented by the tumour; and then press, gradually increasing the force, with the fingers of the other hand; for provided the distance between the two hands be at least five to six centimetres (about two and a half inches), there will be no sensation of fresh fluctuation, it matters not with what energy we press, nor yet will the force tending to elevate the fingers be increased."

This induces us to point out, that an article on general surgical diagnosis would have formed a useful complement. Much excellent matter on this subject may be found in the first volume of the 'Chirurgische Diagnostik,' by M. B. Lessing, Berlin, 1845; in the 'Compendium de Chirurgie Pratique,' par Bérard et Denonvilliers, tome 1, Paris, 1845; in the work recently published by F. Jordan

* Compendium de Chirurgie Pratique, tom. i. p. 29. We have extracted this rather long passage, partly because the subject is of the greatest importance, partly because it is very generally misunderstood, but principally to draw attention to an article of three pages, every line of which might have been inserted with advantage in the present edition of Cooper.

('Introduction to Clinical Surgery,' London, 1858); many valuable and apposite remarks are to be met with also in the clinical lectures of Velpeau, Lisfranc, &c.

We shall now pass to the additions, and shall first notice the articles which are entirely, or almost entirely, composed of fresh matter. Amongst these, a series of Essays on the Pathology of the Blood is conspicuous—Blood, pathology of; Chlorosis; Cholæmia; Glucohæmia; Hydræmia; Hyperinosis; Hypinosis; Heterochymeusis; Hyperæmia. The editor considers these to form a very important addition; we cannot help, however, considering them out of place, for however good they may be, there are many matters of much greater importance which might have been inserted. A concise essay on the history of surgery, for which there was a basis already in the article headed "Surgery," would have formed a fitting introduction to such a work as the present, and been, at all events in our opinion, much more valuable. In this series there are also the following essays—Anæsthesia, a very satisfactory disquisition, yet scarcely written in the spirit of Cooper; Caustics; Cautery; Chambers of the Eye, not so good, nor can we imagine the reason for inserting here a paragraph of some length on pus in the anterior chamber, when hypopyum is specially treated at the end of the same volume. A short but interesting sketch of the surgical treatment of cicatrices, appended to art. Cicatrix. Choroïditis; conjunctiva; conjunctivitis—all, as it appears to us, indifferent; as, in general, we cannot fairly speak in very eulogistic terms of the sections relating to the eye, it will be necessary to point out our reasons, and we may do this best by examining a passage, such as that at p. 474, on purulent conjunctivitis in infants. It is stated there that—

"There are two symptoms that may be selected as a guage of the intensity of the disease as it occurs in infants—the one is the condition of the lids, the other the colour and consistence of the discharge. If the lids are of a bright red colour and much swollen, and if the discharge is yellow and thick and very abundant, it is a severe case, but only in the first stage, and the eye is as yet probably safe; but if the lids appear of a bluish-red colour and rather flaccid, the disease has most probably seriously damaged the eye."

Thus one of the most important symptoms in regard to both prognosis and treatment, stiffness, firmness of the lid, is unmentioned;* the point of paramount importance is, however, the condition of the cornea, which ought to be examined daily; as regards the prognosis, every other symptom dwindles into insignificance in comparison with this. "The rapidity and destructive character of the disease are regulated by the nature of the morbid secretion that has been applied to the eyes, and also by the constitutional powers of the little sufferer." We had imagined the belief in the destructive action of the secretion to be only a medical superstition, which had already nearly died out; we find we are mistaken; there is not, however, the slightest

* Gräfe in Archiv für Ophthalm., b. i.; Arlt in Jahrb. f. Kinderheilk. Erster Jahrg., et Annal. d'Ocul. tom. xl. p. 49; Stellwag v. Carion in Jahrb. f. Kinderh. Zweiter Jahrg., S. 126.

proof that pus has any such action, and there are many good reasons for believing that it has not, as may be seen in Arlt,* who concludes that the ulceration of the cornea cannot be attributed to any caustic quality of the secretion, but rather to the inflammation extending to the cornea.

"The treatment of these cases is merely local; it is very simple, and the result highly satisfactory. All that is required is the frequent application of some mild astringent or caustic lotion to the surface of the conjunctiva. At the Ophthalmic Hospital a solution of alum is used, from five to ten grains to the ounce; but a weak solution of nitrate of silver answers equally well."

In slight cases such a treatment and merely local may be employed, and we can perfectly believe the results to be highly satisfactory; but we should like to see some better proof of its value in the severer forms than a simple assertion. In some cases constitutional means will be of service, and in the acuter forms of the disease, or where the cornea has become attacked before the case is seen, the intelligent employment of scarification, arg. nit. cum pot., and of cold, will all be required;† Stellwag von Carion has strongly recommended compression, which is also, we believe, of great value in some cases. We notice a distinct error a little further on in the same article, where it is said in regard to the treatment of pannus by the inoculation of purulent matter, that "some fifty cases of pannus have thus been treated by Jaeger and Piringer;" the fact is that so far back as 1841, Piringer had alone had sixty-one cases, and in 1842 Professor Jaeger had had eighty-four cases, or together one hundred and forty-five cases, nearly three times the number stated. A similar article on the cornea follows, and then we have a brief exposition of the écraseur and its uses, and a description of fever, which might be improved. Gall-bladder; under this heading reference is only made to tapping for distension, and the single authority is Frerichs; some account of wounds, ruptures, &c., is required, or reference should have been made to the articles under which they are treated; as the account here given is so short, we may point out that there are some tolerable passages on these subjects in Rust,‡ to which may be added a reference to W. R. Barlow, tumour of the right hypochondrium, from which bile was drawn repeatedly by tapping;§ Rossi, operation of cutting into the gall-bladder;‖ suppuration of gall-bladder;¶ a paper** recently published by Thudichum, &c., &c. Hydatids and hyperæmia form the termination of this series.

The following are the articles to which additions of some importance have been made; one on abscess, which would be excellently suited for

* Die Krankheiten des Auges, B. i. S. 35-7, Prag. 1851.

† On this subject see the paper by Gräfe, l. c., or translated in the Lond. Med. Review, vol. i. 1860-61.

‡ Handbuch der Chirurgie, Berlin, 1830-6; Abscessus Vesicæ Felleæ, B. 1, S. 219; Extravasat in die Bauchhöhle, B. 6, S. 724; Fistula Biliaris, B. 7, S. 165; Lithiasis Hepatica, B. 10, S. 683; Paracentesis Vesicæ Felleæ, B. 13, S. 71; Ruptura Vesicæ Felleæ, B. 14, S. 311; Vulnus Vesicæ Felleæ, B. 17, S. 504.

§ Trans. Med. Chir. Soc., vol. xxvii. p. 378.

‖ Med. Times, vol. xv. p. 305. ¶ Lancet, vol. xxx. p. 219.

** On the Pathology and Treatment of Gall-stones. (British Med. Journal, vol. 19, p. 935.)

a manual, but is scarcely conceived in a sufficiently wide spirit for this dictionary—the work of Chassaignac* may be used with profit for the next edition; absorption; amputation; anastomosis. Aneurysm, which ought to have been remodelled—the statistics are given in a somewhat slovenly manner; ankylosis. Antrum and anus, to both which the additions are insufficient. Aorta, from which some of the old text on rupture of it within the pericardium, &c., might well have been excised; asphyxia; atrophy. Bladder, susceptible of further improvement; excision of bones, a good essay, which, however, should decidedly have been placed under excision, and not under bones. Burns, scarcely up to the mark—the essay by Crompton has been overlooked; bursæ; Cæsarean operation, the greater part of which should have been excluded; cancer, rather poor; carbuncle; caries. Cataract, which has suffered the fate of all the other eye-diseases in this encyclopædia; an addition is made on cataract in the East Indies, not a word on linear extraction; catheter; chilblain; cicatrisation and cicatrix. Dislocation, which has been much improved by further information principally drawn from Malgaigne's voluminous treatise on the same subject. Ear, rather defective; erysipelas, much improved; exostosis, imperfect; eye, cancer of; eyelids, inflammation of the—an article consisting of four lines. Fingers; fistulæ in perinæo; fracture; glaucoma; gleet, very little addition; gonorrhœa, a rather long addition on this disease as it occurs in women; granulations. Gunshot-wounds—the reviser appears to have taken great pains with this article, and has added much valuable information; we must remark that only in this article and in those on hydrophobia, and excision of both upper jaws, do we find any large addition of references. Hæmatocele; hæmorrhage, the addition is simply on acupressure; the part of this article which, in the former edition, referred to the hæmorrhagic diathesis, has been treated separately and considerably enlarged, thus forming a useful contribution. Hare-lip; head, which has been treated with success; hernia, which still requires much further change before it can represent the present state of knowledge; hospital gangrene; hydrocele; hydrophobia, which has been carefully revised; hypertrophy; hypopyum, to which six lines have been added, and finally, hypospadias.

We now pass on to the references, which, as we have already pointed out, form an important constituent of the work, and therefore deserve considerable attention. This they unfortunately have not received; we might rather say that they have been almost entirely neglected, the references to "gun-shot wounds" being almost a solitary exception.

The original references should have been carefully examined; those to works that were originally of little value, or that have since been replaced by better, such as Averill's 'Operative Surgery,' should have been expunged. Where later editions have appeared, they should have been quoted; it is absurd to find references to early editions of common books such as a reference which we notice to the second edition of Malgaigne's 'Operative Surgery,' published in 1837. There can be

* Chassaignac: Traité Pratique de la Suppuration et du Drainage Chirurgicale. 2 vols., Paris, 1859. A valuable work.

little doubt that, as the rule, the last published edition should be the one cited. All references made to papers in journals, or transactions, should be, as much as possible, by quoting the volume, page, and date of publication, and not by the number, as is so often done; all those to separate works should give the date and place of publication. When a work or paper has been translated into English, both the original and the translation should be mentioned.

Supplementary references should have been made to everything of importance published since the time of Cooper, and especially to all original essays and monographs. The whole of the references to each article having been thus revised and enlarged, should have been arranged chronologically.

In the present edition, the original references have been, with very rare exceptions, simply reprinted; even errors in spelling, which had probably arisen from accident in the former edition, have been carefully copied into this; in general the additions that have been made are very trifling.

The references to general treatises might almost always be made once for all, by inserting a complete list of them under some more general heading; thus all treatises on the diseases of the eye might be placed under the "Eye," and this would prevent the necessity of incessantly referring to the names of the same authors. In this way they would be rendered more exact and complete. We should accordingly find the works treating on any particular subject appended to each special article, and the rest, such as treatises, collections of cases, &c., under more general headings. For these reasons such terms as anatomy, surgical instruments, operations, &c., might be advantageously introduced.

It would also have been well to have added references to plates of diseased parts, of instruments, or of operations. Such engravings as those contained in the works of Dalrymple, Sichel, Ruete, Jäger, Von Ammon, Auvert, Lebert, Cruveilhier, Gluge, Pancoast, Bourgery et Jacob, &c. &c., must always be valuable.

Before concluding, we wish to call particular attention to a point with which we have been forcibly impressed in reading over the work under review. It is this—the extreme paucity of references to periodical literature. We believe it to be impossible for any one who is moderately acquainted with the journals and transactions of the last twenty years, to look through such a work as the present without feeling surprise, disappointment, and almost melancholy, at the little use made of the numerous papers and cases there recorded. One of the principal features of medical literature during this period has been the great extension given to periodicals, and it is really pitiable that so much labour should have been expended with merely temporary effect. The cause of this neglect seems to be, however, to a great extent, the difficulty of access and the tediousness of collecting from volume after volume the scattered portions of the same subject. If the material were rendered more accessible, there is no doubt it would be much more employed. To accomplish this object is, we think, quite

within the bounds of possibility; an index comprehending every article published in every English medical journal up to a given date, say 1860, would immensely facilitate reference to English periodical literature, and enable any one to handle it without trouble. Such an index would, we believe, exercise an important influence—our statistics would be rendered more accurate, papers of value would not run the risk of being overlooked, and the whole of the raw material hitherto collected would be probably turned to some use. If left, however, to individual effort, it will never appear; only a Society could sufficiently guarantee the publication to justify a man in undertaking such a work, which would entail much labour, but little profit. We believe the New Sydenham Society could do no greater service to English medicine than by issuing such a publication.

The reader who has followed our examination thus far will have already perceived that we consider the plan on which this work has been re-edited to be in many respects faulty, and the execution imperfect. Too much of the original text remains, the additions are too few, and the references chaotic. It is with regret that we speak in these terms, as we cannot but feel grateful to the gentlemen who have assisted in preparing this edition, which must have been a difficult and laborious task. Much allowance must be made for any imperfections existing in a work so gigantic as the present; on the other hand, Cooper's 'Dictionary' is intrinsically so good a book, and the influence of any new edition on English surgery for good or evil so great, that we feel obliged to take high grounds, and to demand that each new edition shall be brought out in a manner worthy of him who wrote that admirable passage: "My aim has been truth, wherever I could find her; and in every situation, where any glimpse of her beautiful figure presented itself, I have ardently courted her, regardless of the name, school, or country on which she might deign to shed her glory."

REVIEW VII.

Pathological and Practical Observations on Diseases of the Abdomen, comprising those of the Stomach, and other Parts of the Alimentary Canal, Œsophagus, Cæcum, Intestines, and Peritoneum. By S. O. HABERSHON, M.D. Lond., F.R.C.P., Senior Assistant-Physician to Guy's Hospital, and Lecturer on Materia Medica and Therapeutics, &c. Second Edition.—*London*, 1862. pp. 594.

OUR first word respecting this new edition of Dr. Habershon's work must be one of commendation, as our last respecting the original edition was the reverse. Some of the demerits which we then pointed out were the results of hasty composition, faults incidental to a first authorship. From these faults the new volume is free; its style will bear favourable comparison with that of almost any work in the literature of our profession. Every page bears evidence of the most careful revision; obscurities in the meaning of the author have been cleared away, in many places by a judicious rearrangement of materials, in others by the reconstruction of sentences; and where this has appeared

insufficient, Dr. Habershon has not spared himself the labour of entire recomposition. The former edition was illustrated by a record of 163 cases: the number of cases related in the present edition amounts to 235. There are few chapters which have not partaken more or less in this enrichment. A chapter has been added upon peritonitis, a subject not treated of in the first edition. The entire volume is consequently much increased in bulk.

We propose in this review to limit our remarks to the matter newly introduced. In respect to what is not new we have only one observation to make, and it is this, that on comparing the two editions, we noticed that while a few of the most brief of the illustrative cases have been withdrawn, no additional details are furnished with regard to any of those that have been retained. In our former review we found occasion to criticize the meagre character of some of them, and from the fact just mentioned, we are driven to conclude that the defects are not those which have arisen out of the making of an imperfect abstract by the author, but that the narrations contain absolutely all the facts of each case which the records of Guy's Hospital could supply. If such be the true explanation, we have simply to say that they manifest something very much allied to slovenliness in the way in which such things are there managed. It is not enough that the physicians and surgeons of a hospital attend regularly to their official duties, and record in full the history of such selected cases as chance at the moment chiefly to interest them. Possessed of almost unbounded clinical wealth, and with a school which cannot fail to supply abundant labour, nothing should be lost through negligence, all should be gathered into the common treasury. Even were the lukewarmness of the students such as to place a difficulty in the way, or were it possible to imagine that there are not a sufficient number to be found in so large a school competent to undertake a task so calculated to benefit themselves, for a rich hospital like Guy's *no valid excuse can be made for permitting a single case to enter the wards without every particular in the history of the patient being committed to writing.* From some remarks made by Mr. Holmes in a recent number of this Review,* one is led to suspect that Guy's does not stand the single culprit in this matter. Although he refers to the surgical department of our hospitals, we cannot refrain from quoting his words, so completely do we sympathize with his disappointment, and so strongly do we feel that his suggestions ought to be carried into effect.

"The want of reliable data from the great schools of surgery in this metropolis is a fact, and one which cannot but be held to be discreditable to them as places of sound surgical instruction. It is not true that there is any difficulty in collecting such statistics, though of course there is some trouble. To preserve authentic and full records of all the cases in a hospital may or may not be worth while; if it is judged worth what it costs, it is merely a question of expense. . . . . What is wanted is, that our great schools of surgery should make arrangements for preserving adequate and full details, not, however, necessarily at any great length, of the whole of some of the most important

* July, 1862.

groups of cases—arrangements which, if they were found to answer, might gradually be extended so as to embrace the whole experience of the hospital. The persons by whom such reports are compiled should be paid officers of the hospital, and paid at such a rate as to secure the services of competent persons. Offices of this kind would form suitable objects for competition between the students of each school after the completion of their course, and would prove a far more useful item of expenditure than the sums annually lavished at some schools upon the unmeaning and often mischievous system of prizes." (p. 228.)

If this had hitherto been the custom at Guy's Hospital, Dr. Habershon's book would not only have taken a different form, but many points left undetermined or only guessed upon would have been established upon a statistical foundation; and especially the therapeutics of abdominal disease would have become in Dr. Habershon's hands something more definite and authoritative than the impressions left upon the mind of an individual observer naturally not unbiassed by the traditions of his art and the practice of his early instructors. The fault, we wish it clearly to be understood, does not lie with Dr. Habershon, who appears to have made the best use in his power of the materials at his hand.

In the first chapter, the section which relates to cancerous disease of the œsophagus and pharynx has been extended, and eight new cases have been added. The author notices a peculiarity of the dysphagia in this and other organic obstructions of the gullet—namely, that the patient hesitates in making the attempt to swallow, takes a considerable time as it were to prepare for the effort, and when the attempt is made, the fluid or food is at once rejected, and sometimes suffocative cough is produced. He enumerates as sources of the hæmorrhage which sometimes occurs, ulceration into enlarged veins, into the superior intercostal artery, the right subclavian artery, and the aorta. Of the latter accident a very brief illustration is given. We relate the case as it stands, partly because it is one of those which bear out our introductory remarks.

"CASE XXXII.—*Cancer of the Œsophagus; Sloughing; Perforation of the Aorta; Sudden and Fatal Hæmorrhage.*—Margaret H——, aged sixty, was admitted April 17th, 1861, under Dr. Wilks's care, in a prostrate condition; she made no especial complaint, but had worked hard, and appeared worn out, rather than to be suffering from any positive disease. About a fortnight after admission, she spat up a little blood; but on careful examination of the chest no disease could be detected. Two days before her death she again spat up a little blood and appeared very prostrate. She rapidly sank. On inspection, a circumscribed sloughing cancer was found in the centre of the œsophagus; the disease extended into the mediastinum, and involved the lung on the left side. The sloughing had extended into the aorta, the walls of the vessel were perforated, and the stomach was distended with blood. It could not be ascertained that she had ever suffered from dysphagia." (p. 73.)

The truth taught us by this narrative is not to have its importance denied, but how much is there unsatisfactory! Can we feel sure that there never was any dysphagia at any time in the progress of the affection? Can this case be quoted as one of *latent* œsophageal cancer? for this is hinted at in the concluding remark. Was there nothing distinctive in the mode in which the blood came up, or in its appear-

ance? or are we to infer that the blood was spat up in such a manner as to simulate pulmonary hæmoptysis? Does a case thus related (if it is indeed a faithful transcript of the Hospital record) bear upon its face evidence of having been noted while the woman was living in the wards, or does it not? We hold it to be a maxim that no case which is worthy of being received into a hospital can be unworthy of the most complete investigation and record.

Again, there are two cases narrated in which the cancerous ulceration extended through the diaphragm. The second of these, of the phenomena of which during life we should have been glad to have had the fullest detail, is thus briefly narrated:—

"Case XXIX.—*Cancer of the Œsophagus; Pneumogastric Nerves truncated; Sloughing extending through the Lung and through the Diaphragm.*—John H——, aged forty-five, was admitted into Guy's Hospital, February 17th, and died March 2nd, 1858. He was a tall, emaciated man, who had been ill for several years. He had no dysphagia, but the food was generally rejected at once; sometimes, however, it was retained. He had no pain between the shoulders, nor on pressure at the region of the stomach. He gradually sank." (p. 61.)

And then follows an account of the post-mortem examination, when the œsophagus was found irregularly truncated opposite the root of the lung, and opening into a large sloughing cavity, bounded below by the pancreas, anterior surface of the stomach and the liver. Both pneumogastric nerves were similarly truncated. The physician who had charge of the case regarded it as one of pyloric disease, on account of the remarkable absence of pain and difficulty in swallowing, while the patient was under observation in the hospital, and which probably arose from the manner in which the gullet and its nerves were truncated. But how, we ask, would the narrative assist us in avoiding a similar error were a similar case to present itself to any of us? It is far from likely that, throughout all the stages of the malady, had the history of the illness been traced, Dr. Habershon would still not have been in a position to have indicated at least a clue to the solution of this practical difficulty in diagnosis.

In distinguishing between cancerous disease of the gullet and pressure on the tube by aneurismal or other tumours, Dr. Habershon believes that assistance is derived from observing in the latter instances a less persistence of the dysphagia, which varies according to the position of the patient, and from the paroxysms of dyspnœa frequently present in cases of arterial disease.

Among the illustrative cases newly introduced into this section is one in which gastrotomy was performed by Mr. Cooper Forster. An abstract of this important case in the history of therapeutical effort has already appeared in the twenty-third volume of this Review. The operation was performed at a late period, simply for the relief of inanition and to prolong life. We think it was quite justifiable, although the patient only survived it for forty-four hours. Prior to the operation, when the patient was being supported with nutrient injections, Dr. Gull suggested the propriety of using pepsine mixed with the injected food. Such a suggestion is worthy to be adopted whenever

nutrient injections are about to be used. The rectum cannot transform the aliment into a peptone; pepsine, with a dash of hydrochloric acid, can effect the necessary change. In a case of pyloric cancer with dilated stomach, we, a few years ago, carried out a somewhat similar idea. The patient was able to take animal food with which we prescribed the pepsine. He was in the habit of retaining this until night, when it was vomited in a digested condition. In the morning the vomited matters coarsely strained were injected into the rectum. The rapid improvement which took place in the strength of the patient, who was thus enabled for a time to go out and resume his business, was most remarkable. A temporary suspension of this practice, owing to an accident to the syringe, was followed by a relapse, and again by improvement when it was resumed.

In the chapter on "Organic Diseases of the Stomach," the author directs attention to the irritability of the stomach, with great prostration of strength, which constitute prominent symptoms in the so-termed Morbus Addisonii.

"So closely do the symptoms resemble those produced by poisons, and so frequent are the traces of gastric irritation found after death, that it has often been questioned how far these gastric symptoms, with bronzed discoloration of the skin, are due to sympathetic disturbance, and how far to disease of an inflammatory character." (p. 104.)

The case of a lighterman is narrated in illustration: the man had had syphilis, and had also been out on the coast of Africa. Having been for some months in ill-health, he was seized with violent vomiting after taking a dose of castor oil. When admitted into the hospital he was almost pulseless, cold, and faint, and although somewhat roused from this condition by the use of stimulants, continued to vomit, the food being rejected at once. On examination after death, in addition to the supra-renal disease, the mucous membrane of the stomach was found covered with tenacious mucus; there was arborescent injection in patches, and in some points ecchymosis was observed.

The fifty-third case is one of chronic ulcer of the stomach, which illustrates Dr. Osborne's observation respecting the variation in the pain in this disease with change of posture. Six years elapsed between the commencement of the disease and the death of the patient from phthisis, and during this period there had never been any hæmatemesis, the most prominent symptoms being anæmia, gradually increasing emaciation, and pain. The latter, referred to the left side, and increased by food, was agonizing, and only somewhat relieved by narcotic medicines. The woman always suffered from turning on her right side, her usual posture being sitting up and inclining to the left side. On examination after death, the ulcer was found to have been completely healed. It was situated in the middle of the lesser curvature of the stomach, had a raised, firm edge, and its floor was formed by tough fibrous tissue upon the liver and pancreas. The intense severity and continuance of the pains were explained on finding that branches of the pneumogastric nerves were involved in the dense fibrous tissue which bounded the ulcer.

The remarks upon the treatment of chronic ulcer of the stomach have been re-written and extended, at the same time that they have been put into a more methodical form. Two cases also are appended to show the relief which follows upon judicious management. It does not appear, however, that either of these cases were positively cured. Yet the healing of an ulcer of the stomach under prolonged dietetic and medicinal treatment is no very rare event; and although in hospital patients, who are sent away as early as possible, it may be difficult to satisfy oneself of the fact, still in private practice, where a patient may be found and his condition ascertained at much later periods, we have not infrequent opportunities of being assured, so far as prolonged immunity from pain, &c., will show it, that a cure of the ulcer has absolutely occurred. We quote the following summary of the more important facts in the history of cancer of the stomach, illustrated by the cases in the section devoted to this subject:

"1st. That the symptoms may be exceedingly slight, and the disease easily overlooked. 2nd. That the indications are more marked when the orifices are affected. 3rd. That the cachexia, the pain, the vomiting, &c., vary in almost every case, being sometimes slight, or altogether absent; in other cases intensely severe. 4th. That the onset of the severer symptoms may be very sudden; but it is generally preceded by a period of dyspeptic symptoms. 5th. That the disease is not limited to persons in advanced life. 6th. That it is sometimes associated with struma. 7th. That the occurrence of cancer with chronic ulcer of the stomach tends to explain some cases in which the disease extends (query, appears to extend) over many years. 8th. That the cancerous disease generally terminates within a year after a tumour has formed. 9th. That the mode of termination is greatly modified by the extension of disease to adjoining structures. 10th. That in most cases death takes place from exhaustion or asthenia, and that fatal hæmorrhage and peritoneal perforation are more rare than in ulceration of the stomach. 11th. That the absorption of degenerating cancer structure sometimes leads to symptoms resembling pyæmia. 12th. That some of the distressing symptoms may be alleviated, but that over-active treatment appears to hasten the fatal termination." (p. 183.)

Fibroïd degeneration of the stomach is illustrated by two cases in which the disease was confined to the pylorus and its neighbourhood, and was consequently accompanied by enlargement of the calibre of the organ. Dr. Habershon fails to refer to the less usual form of the affection, where the degeneration is more diffused and the cavity contracted. Such a case not long ago occurred in our own practice. The patient, aged thirty-six, and of spare conformation, was a solicitor: his habits were temperate and active, but like many professional men, he often permitted his business engagements to interfere with the regularity and sufficiency of his meals. He had lost a sister of phthisis, and about five years previously to consulting us, had himself had an attack of hæmoptysis. In the month of May he came to us complaining chiefly of "a sensation of fermentation" after the first morsels of food, and referred either to the hypochondriac or umbilical regions, and followed in from half-an-hour to two hours by nausea and efforts at vomiting, accompanied by a flow of water from the mouth, which his sensations led him to infer proceeded from the salivary glands.

These symptoms, which had been more or less present for a year and a half, were associated with emaciation and a haggard, aged expression of countenance. Even a glass of cold water would induce the "fermentation." The bowels acted pretty regularly, but the stools were hard and lumpy, and sometimes exhibited patches of mucus upon their surface. Occasionally, when vomiting violently, he had brought up a little blood. The tongue was white, and the epithelium peeled off in patches. He was compelled to take very small meals, since after about two ounces of any kind of food he felt that he had eaten a full meal. There was a hard tumour perceptible, passing from the median line at the lower part of the epigastric region transversely to the border of the thorax, where it was lost under the cartilages of the ribs. It appeared cylindrical in form, was slightly tender on handling, and descended about two inches on deep inspiration. From time to time a sensation of fine yeasty bubbling was conveyed by it to the hand, and at the same time a corresponding sound was audible, conveying the idea of a thin liquid oozing under pressure in fine bubbles through a narrow space. The border of the tumour was less clearly definable at its right extremity than elsewhere. The patient appeared at first to obtain some relief from the use of counter-irritants, ice internally, cod-liver oil in small doses, and of pepsine taken with his little meals. The bowels were always looser and the stools less lumpy when he took the pepsine, and were now and then even a little purged. His bodily strength also somewhat improved. He had on his mind an impression that his "stomach had lost the capacity for holding as much as it ought." As the disease progressed, the account he gave was that "the food came up without retching and by a process more allied to rumination." In the month of November, the tumour was felt to be larger, and it extended below the umbilicus. Without any remarkable alteration in his symptoms he lingered on to the following April, when he died. On examination after death, the tumour was found to consist of the stomach, omentum, and adjoining part of the transverse colon, all of which had undergone fibroïd degeneration. The stomach was rigid to the touch, and contracted to such an extent as to be incapable of containing more than about three ounces of liquid. The walls at all parts exhibited fibroïd thickening, but the change was most marked at the pyloric extremity, where the thickness of the wall measured half an inch; in other parts it measured about a third of an inch. The tip of the little finger could not pass the pyloric orifice. Bands or striations of muscular tissue were seen on the cut surface of any part of the thickened wall. The omentum was gathered into a thick indurated strip of fibroïd matter, and the corresponding part of the transverse colon, to the extent of about three inches, was thickened and contracted in calibre, so as not to admit the tip of the little finger, by a degeneration throughout its circumference similar to that of the stomach. Some spots of ecchymosis were found both on the mucous membrane of the stomach and on that of the diseased portion of the colon. The lungs exhibited masses of grey tubercle. Tuberculous disease of the lungs was also conjoined in one of Dr. Habershon's cases.

Under the heading of Hæmatemesis, in the chapter on "Functional Diseases of the Stomach," Dr. Habershon, while withdrawing his former assertion as to the frequency of the occurrence, details a second case of "Vicarious Menstruation from the Stomach." It is worthy of notice in this as in the first case, upon which we commented on a former occasion, that the occurrence of the hæmatemesis at what should have been menstrual periods, must be again accepted on the authority of the patient. The author appears unable to lay his finger upon any case where the event has happened under his own observation. In the instance referred to there was also reason to believe that ulceration of the stomach was present; and although, if recorded cases are to receive credence, such a thing has now and then happened, we hold that the occurrence of hæmorrhage from the mucous membrane of the stomach vicariously to menstruation, and only at such times, is an event among the most rare in medical experience, and whenever it happens, gives a fair presumption that the mucous membrane of the stomach is itself the seat of a morbid change. Dr. Habershon, in illustrating other diseases, has not spared labour in ransacking the records of Guy's Hospital; we give him credit, therefore, for doing the same in this instance; and after all, he can only adduce these two questionable cases. It is interesting and instructive to notice in the cases of vicarious hæmorrhage published from time to time, how much more frequently the discharge is said to have proceeded from ulcers or other diseased surfaces than from surfaces and organs undoubtedly healthy.

In this new edition Dr. Habershon undertakes the discussion of two important symptoms referrible to the stomach—namely, pain and vomiting, with the commendable view of pointing out not only how they are related to the semeiology of gastric disease, but also how they may be dependent upon some local diseased condition elsewhere, or upon general conditions, in any of which the symptom arises through the medium of the nervous system. He has acted wisely here, since the caution against immediately inferring gastric disease from their occurrence is greatly needed by the legion of practitioners who trouble themselves very little about the philosophy of their art. With regard to pain, he points out the following facts,—viz: 1. Acute inflammation, even from the most irritant poison, may exist without it. 2. Organic disease confined to the mucous membrane may exist with but little complaint of pain. 3. Disease extending to the muscular and peritoneal coats generally produces severe pain. 4. Over-distension of the stomach produces severe pain. 5. Disease, especially of the acute kind, affecting the peritoneum, is usually accompanied by severe pain. The seat of the pain, however, must not be always taken as a certain guide to that of the injury. A case is narrated in which, from the pain being seated at the scrobiculus cordis, perforation of the stomach was believed to be present, when it was actually in the appendix cæci. 6. In some cases of gastric ulcer the position of greatest ease to the patient may serve as a guide to the exact seat of the disease. Dr. Habershon says that he has seen several cases which tend to confirm

Dr. Osborne's remarks upon this subject. 7. Disease of the lower curvature near the pylorus may simulate disease at the œsophageal orifice by the pain and vomiting occurring immediately that the food enters the stomach. 8. Many conditions of functional disease are entirely free from pain. 9. In many other functional diseases the pain is exceedingly severe, this being often dependent upon a mal-condition of the nerves and nerve-centres, which may interfere also, perhaps, with the right secretion of the gastric juice. 10. Pain may arise from a diseased (irritated) condition of the pneumogastric nerve, although the author regards vomiting as its most frequent result. 11. When pain comes on three or four hours after food, it is probable that extreme irritability exists at the pyloric orifice. 12. Pain often arises from gaseous distension of the stomach consequent on chemical decomposition of the food. 13. Absence of pain may arise from destruction of the pneumogastric nerve. 14. Pain at the scrobiculus cordis simulating disease of the stomach often arises from spinal disease. 15. Severe pain in the same situation is frequently present in chronic bronchitis and obstructive valvular disease of the heart. 16. Pain of the most intense kind, resembling that from cancer of the stomach, has resulted from aneurism of the aorta.

With respect to vomiting, we quote the following list of conditions that may give rise to it, and which the author divides into those which originate in the stomach and intestines, and those which are sympathetic.

"In the first division we must place:—1. Inflammation of the stomach, gastritis, and gastro-enteritis. 2. Undigested food or foreign bodies in the stomach. 3. Irritants and medicines. 4. Great irritability of the mucous membrane. 5. Ulceration of the stomach. 6. Obstructive disease of the pylorus. 7. Cancerous disease. 8. Acute peritonitis. 9. Pressure on the stomach, as in ascites and ovarian disease, in abdominal tumours, &c. 10. Diseases of the duodenum. 11. Hernia, intestinal obstruction, intussusception. 12. Pharyngeal and œsophageal regurgitation. In the second division are—1. Diseases of the liver and gall-bladder. 2. Diseases of the kidney. 3. Diseases of the supra-renal capsules. 4. Diseases of the uterus and ovaries. 5. Diseased condition of the blood and general nervous system, as at the onset of the exanthems, fevers, pyæmia, erysipelas, &c.; ague, yellow fever, and cholera, may perhaps be classed among these, as arising from blood change. 6. Diseases of the spine. 7. Diseases of the brain. 8. Diseases of the lungs." (p. 225.)

Pregnancy should also be separately mentioned.

Dr. Habershon has introduced into the chapter relating to the duodenum the subject of cancer of this part of the bowel. Scarcely any part of the alimentary canal could be selected in which it is more necessary for the purpose of accurate diagnosis to weigh carefully not only the phenomena presented, but also their order or sequence of occurrence. The difficulty arises partly from the form, direction, and varying relations of the duodenum in the several parts of its course, and partly from the fact that cancer in this organ is mostly the result of extension of the disease from adjoining structures—such as the liver, pancreas, lymphatic glands, &c. It is, then, not to be wondered at

that an attempt to summarize the symptoms of the disease within the limits of a page should be unsatisfactory in its accomplishment, and should result in little more than such general directions as we have just hinted at. Perhaps it was some feeling of this kind that led to the entire omission of cancer of the duodenum from the first edition of the work. We could have wished that, on the present occasion, the author had given the subject, difficult and complicated as it is, a more extended discussion. He relates only one illustrative case, in which "the glands close to the duodenum were probably first affected." It was found after death that "a tumour about the size of the fist surrounded the vessels at the fissure of the liver; the duodenum was situated in front of the growth, and was adherent to it. The commencement of the duodenum was quite destroyed by cancerous ulceration, and a large slough occupied the position of the first portion. The interior of the intestine communicated with the cancerous mass beneath it." There was also secondary cancer of the liver. The patient was a man, aged forty years, and the first symptom was "shooting pains in the back and stomach." On admission, the man was emaciated, sallow, and ascitic; and "a hard tumour could be felt, situated on the level of the umbilicus and two inches to its left side; the tumour was an inch and a half to two inches in diameter, dull on percussion, but there was resonance around it; on pressure, very slight pain was produced; over the cartilage of the tenth rib there was also a minute pea-like tumour." There was no constipation, and the urine was scanty and tinged with bile. Towards the close of his life he had bilious vomiting, became jaundiced, and two days before his death brought up some coffee-ground substance.

We abridge the following case from our own note-book:—The whole of the first part of the duodenum was involved in the mass of diseased tissues; but as the pylorus was not distinguishable, it is probable that the case was either one of primary cancer of the duodenum and pylorus, or that, commencing in the latter situation, it had early extended to the duodenum. The patient was a female, aged fifty years. About three years previously she had suffered considerably from eructations of watery fluid, with occasional retching, and on one occasion a little blood appeared to have come up; but the pain for which she sought relief had only been present for two years. She applied to us on October 2nd, having on the 23rd and 24th of September vomited about two quarts of blood, and subsequently passed melænous stools. She had lost flesh, was greatly anæmiated, and the skin exhibited a pale lemon tint. She complained of aching, gnawing, sinking, severe pain about the navel and epigastrium, and also in the back opposite the lower dorsal vertebræ, induced whenever she ate sufficiently to satisfy her appetite, which was very good. She could eat mutton and tender beef with impunity, but when the pains occurred she was in the habit of inducing vomiting with her finger. She only occasionally vomited spontaneously. On physical examination there was a visible fulness, descending during inspiration, and of an oval form, in the umbilical region, corresponding with a palpable

tumour, quite superficial, over the centre of which was situated the umbilicus. The tumour extended two inches below the navel, one inch and a half to the left, and three inches to the right of it. In all these directions it was readily circumscribed, but most so at the lower margin. Above, it was continuous with the palpably enlarged liver. It was hard, nodulated on the surface, and irregular at the edges. It was the seat of a slight pulsation, but not in a lateral direction, and there was no thrill. On percussion, the dulness of the liver became modified, as it was continued over the tumour by some resonance, as if the tumour embraced a portion of intestine. There was no constipation, but pain before, during, and after a stool. Conjunctivæ slightly tinged with yellow, and the urine with bile. There was at first no ascites, but towards the close of the month a little ascitic effusion was discoverable. At the beginning of November she vomited some black matter, and from that time till her death (on November 22nd) the stools were always black. During the last few days she became more jaundiced. On examination after death, the peritoneal cavity was found to contain a few ounces of turbid serum. The tumour felt during life occupied a considerable space, and extended beneath the liver, to which and to the distended gall-bladder it was adherent. Its surface was irregular from nodulations. The stomach descended vertically from beneath the left false ribs to the tumour, and the transverse colon formed a loop in the right hypochondriac region, the beginning and end of which loop were adherent to the tumour, and the distal end of it was narrowed. The liver was of a pale yellow colour, and softened, the biliary ducts within it being dilated and thickened. The tumour consisted of a cancerous mass occupying the situation of the first part of the duodenum and pylorus, and posteriorly enveloped the vessels and bile-ducts on their passage to the liver. The canal of the first part of the duodenum was represented by an irregular, broad, ulcerated passage through this mass, which was bounded on the one side by the stomach, the pyloric valve of which had been destroyed by the ulceration, and was thus undistinguishable, and at the other by the second part of the duodenum. On laying open this passage, the head of the pancreas was found exposed and ulcerated, and the ductus communis choledochus was encroached upon, infiltrated with cancer, and narrowed. The ulceration was irregular, ragged, and stained yellow; and there were brown points and streaks from opened vessels. The glandular structures about the porta were recognisable by their shape, though forming a portion of the cancerous mass. In another case of our own, where, in a woman, aged sixty years, the lower portion of the second and the third parts of the duodenum were encroached upon, narrowed, and infiltrated with cancer, being enveloped in a cancerous mass formed by the mesentery, and the glands by the side of the spine, and where a large non-pulsating tumour was perceived during life, the freedom of the first part of the duodenum was indicated by a remarkable sign. The unaffected portion of the duodenum was dilated, and the stomach was so enlarged as to occupy the greater part of the abdominal cavity,

descending into the pelvis. On the right side, and over the palpable tumour, there was visible during life an oval prominence, which by turns was elevated and depressed, each depression being marked by a croaking noise as the gas escaped from it through the pylorus. The same sound could be produced also by pressure upon the oval elevation. In this case pain on the right side, referred to the region of the liver, was the earliest symptom, after which the oval, gas-filled, croaking swelling was perceived; the woman used to vomit occasionally, and once brought up some coffee-ground matter. A complete clinical history of diseases affecting the duodenum has yet to be written.

The sixth chapter, "on Enteritis," has undergone very little addition; and the same remark applies to the seventh, upon "Strumous Disease of the Alimentary Canal." A case of phthisis, however, is recorded, in which, notwithstanding extensive ulceration of the colon, diarrhœa was never a distressing symptom, the chief complaint made by the patient being of "severe pain in the course of the right sciatic nerve, extending down the thigh and calf of the leg to the foot." The patient suffered much from hæmorrhoïds, and Dr. Habershon attributes the pain to reflex irritation of the branches of the nerve supplied to the anus. With the exception of the fourteenth chapter, "on Internal Strangulation, Intussusception, and Intestinal Cancer," to which several additional cases have been appended, the remaining chapters of the old edition have undergone little alteration. We will therefore pass over them to the consideration of the last chapter, "on Peritonitis."

Two years ago, there appeared in the 'Medico-Chirurgical Transactions' a paper by Dr. Habershon, on the "Etiology and Treatment of Peritonitis." The contents of this paper are incorporated into the last chapter of the present volume. After giving a very fair account of the usual course of acute and chronic peritonitis, and of strumous and cancerous disease of this membrane, with the usual rules for diagnosis, the author passes on to the most important and original branch of his subject—namely, the etiology of the disease. Here he presents us with the conclusions he derives from an analysis of 501 cases occurring in Guy's Hospital; and the leading result is this, that among this large number there was not found a single case in which disease could be correctly regarded as existing solely in the serous membrane. Regarding peritonitis, thus, as always secondary in its origin, he refers it to the three following classes of causes—viz.: 1. Direct extension of disease from adjoining viscera, of which there were 261 instances. 2. Blood changes, of which there were 94 instances. 3. General nutritive changes in the system, of which there were 146 instances. The first of these groups embrace their local causes, which are thus enumerated (p. 559):—

"From hernia, of which 19 were internal obstruction 102
„ injuries or operations 35
„ perforations of the stomach, ileum, cæcum, and appendix, colon, &c. (other 13 mentioned with hernia or with cæcal disease) 43
„ and leading to fæcal abscess (2 cases otherwise mentioned) . 17
„ typhoid ulceration without perforation 5
„ disease or operations on the bladder and pelvic viscera, &c. . 42
„ disease of liver and gall-bladder, &c. 11
„ acute disease of the colon (3 others enumerated with perforations) 3
„ diseases of cæcum and appendix (9 others previously mentioned) 3

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He then enumerates the causes, general causes, entering into the second and third groups (p. 562):

"From Bright's disease 63
„ pyæmia, 13; erysipelas, 5; puerperal fever, 10; with pneumonia, 3 31
„ strumous disease 70
„ cancerous disease 40
„ hepatic disease 27
„ heart disease . . . . . 9"

Although Dr. Habershon does not specially include rheumatism in the above list of causes, he mentions it elsewhere as in some instances a probable cause of peritonitis, and relates the following case:—

"CASE CCXXVII.—*Hypertrophy of the Heart; Adherent Pericardium; Acute Pericarditis; Pleurisy and Peritonitis.*—James M——, aged nine, was a delicate boy, who had suffered from cough, but there was no history of rheumatism; he had been in the hospital for disease of the bones of the foot, and left nearly well; in one week he returned very ill, and was found to be suffering from pericarditis; there was slight pain in the shoulder, but no swelling of the joints generally. He died in three days. There was a cicatrix on the foot, showing the part from which the fourth metatarsal bone had been removed; but there was no suppuration. There was general pleurisy on both sides, recent lymph in small quantities being found; the lungs were congested, and the bronchi full of tenacious mucus. There were acute and chronic pericarditis, as shown by adhesions of recent lymph, and in some parts by very firm fibrinous bands. Minute vegetations were found on the valves. In the abdomen, although the serous membrane had not lost its transparency, there were some flakes of recent lymph and a small quantity of serum." (p. 560.)

Dr. Habershon asks, "Was this general disease of the character of rheumatism?" We reply, that if he had told us what was the condition of the kidneys, he would have given us one element in the formation of an opinion. Most strangely this is omitted. If, however, a form of rheumatic peritonitis is admitted—and we think there are fair grounds for allowing it—we trench very closely upon what might without any great error be designated "idiopathic" peritonitis. Checked perspiration, under the influence of cold and wet, whatever internal disease it produces—catarrh, bronchitis, pneumonia, &c.—probably in many cases operates in great part through the medium of a

blood poison. Yet "idiopathic" is a term employed when we speak of the resultant diseases, in many of which there are apt to be symptoms and conditions of the system which indicate an alliance to rheumatic disease. We overlook the undefined blood changes, and term the disease according to the organ chiefly affected. We certainly do not mean by the term "idiopathic" a disease which arises without any cause at all. A blood poisoning, even of a rheumatic character, as the first effect of the application of a cause such as we have named, would not, in our view, render the disease unworthy of the term, so long as no other definite and precedent disease were associated with the peritonitis, to which it was more immediately due. We do not say such cases of peritonitis are anything but very rare. We merely point out that while suggesting "a general disease of the character of rheumatism," which so-called idiopathic bronchitis may also result from, as a possible cause of peritonitis, Dr. Habershon almost in precise terms denies that it is ever idiopathic. "Although peritonitis is spoken of and treated as an idiopathic disease, we do not find that it has a local character, unless excited by injury to the serous membrane, or by the direct propagation of disease." (p. 554.)

Arguing as he does, we say he must deny an idiopathic character to bronchitis and pulmonary catarrh. In the case we have quoted, if there was no renal disease, there was certainly no evidence of what we commonly call an attack of rheumatism, and yet the boy may have received a chill, and consequently a rheumatic poison may have been circulating with his blood. This, if anything, is what Dr. Habershon must mean when he speaks of "general disease of the character of rheumatism."

In the first class of cases, to proceed to the subject of treatment, Dr. Habershon relies, and we think very properly, upon the production of rest, an end best served by the use of full and repeated doses of opium. Several years ago, the Griffins forcibly advocated this practice, which we have ourselves successfully pursued for many years. Our own habit is to give at first such a dose as will cause decided contraction of the pupil, and then to repeat the opium from time to time in smaller doses sufficient to keep up this effect, continuing the medicine until the peritonitis has thoroughly subsided. The most important caution in adopting this practice is not to abandon the opium too soon, and consequently we are pleased to see that Dr. Habershon recommends that when the active symptoms have subsided, and vegetable tonics or quinine are being administered, opium should still be combined. This is a safe practice. The dread of the resulting constipation is less likely to be urged nowadays, than when the opium treatment was advocated some years ago. We agree, too, with Dr. Habershon in his condemnation of mercury, as positively injurious when given by the mouth. Its advocates do not dare to rely upon it, but guard it, as it is said, with opium. The objections to its use at all, as stated by our author, are, that "it tends to prevent adhesion, it excites peristaltic action, it promotes ulcerative action, it increases the depression consequent on the disease, which is often the immediate cause of death, and lastly, it

renders the intestinal contents more fluid, thereby increasing extravasation." He includes in this condemnation the use of mercury by inunction, in which, however, we cannot entirely follow him. It may be of little comparative value, but in cases of simple and direct peritonitis, where adhesion is rather an undesirable than a desirable consummation, we cannot condemn its employment, so long as it is used moderately and with discrimination. The only cases in which Dr. Habershon permits of the use of mercurials is where peritonitis is set up in association with cirrhosis, a class of cases where we confess we have been able to see little benefit from mercury or any other drug. There are few medicines which, in cirrhosis, do not effect more or less injury, by diminishing the relish for food and disturbing the digestive process. We prefer treating the peritonitis in these cases as much as possible by local means, among which may be included the moderate use of inunction over the abdomen. At the best, we can only hope to palliate, and the administration of mercury by the mouth seems to form only a part of that routine practice which we are so apt to adopt because others have done so before us, and in order to avoid the blame of neglect which is sometimes laid upon practitioners who fail to run their wheels in the old ruts.

REVIEW VIII.

On Uterine and Ovarian Inflammation, and on the Physiology and Diseases of Menstruation. By E. J. TILT, M.D. Third Edition.—*London*, 1862. pp. 470.

THERE is no subject in the domain of our profession that has engaged more attention during the last half century than the pathology of the uterus and its appendages. Since the time when Gooch, by the publication of his valuable book, threw so much additional light upon diseases which were before as little understood as they were serious and alarming, numerous other able workers in the same field have devoted their best energies to the practical elucidation of the subject; and but few have accomplished more than the author of the work now under our notice. We have on former occasions felt it our duty to remark upon the labours of Dr. Tilt with satisfaction, and as this is the third edition published, we have but little more to say than that he fully maintains the credit before accorded him for industry, and has added to the knowledge we possessed on several important branches of inquiry. It is quite needless for us to enter upon a critical review of his work, 'On Uterine and Ovarian Inflammation,' for much of what it contains is already familiar to the public; we shall therefore confine ourselves to a few general remarks upon the subject, and some particular observations on the newer portions of Dr. Tilt's last edition.

With respect to uterine diseases in general, we may remark, *in limine*, that so far from their not being made the subjects of sufficient investigation, the fear is that so great a degree of minuteness of diagnosis, and such free and frequent manipulation, may produce both physical

and moral incertitude, and that familiarity with the nature of disease may be obtained at the cost of some of those feelings of delicacy and modesty which are so much to be admired in the weaker sex. Nevertheless, it must be admitted that too great a regard to feelings of delicacy would, and often does, entail permanency and fatality upon female diseases which might otherwise be curable; but we are fully persuaded that neither the investigation nor treatment of them ever requires to be of such a nature as to occasion distress or unhappiness to a well-regulated mind.

Were the same degree of attention paid by as many clever heads to the therapeutical action of medicines on the human body in health and in disease, what a valuable mass of practical knowledge would soon be brought to bear upon the treatment of disease! How much uncertainty would be removed, and how much empirical and useless medication abolished! We recommend those who are now occupied upon this subject to take the industry and patient research of the investigators of uterine pathology as a pattern for their own mode of action, and then we may fully expect a valuable and an abundant result. But to return to our subject. The portion of Dr. Tilt's work which we intend more particularly to notice, is that which treats of inflammation of the body of the womb, in which he states his object to be to discuss the different inflammatory affections of the lining membrane of the body of the womb, premising that it generally brings on chronic inflammation of its substance or its active congestion; and that he has never seen a case in which an inflammatory swelling of the body of the womb was unaccompanied by internal metritis.

Speaking of the symptoms and progress of internal metritis, he says:

"The most common of all its complications, and I may say its natural consequence, is an enlargement of the womb and an increased thickening of its walls. I believe that, as a rule, this increase is uniform, and that one is apt to think that side of the womb the largest which one is best able to explore. If these thickened walls of the womb are not very painful when pressed by the finger, and if the size of the womb varies, I consider its increase to be due to congestion. If the large dimensions of the womb are invariable, and not very painful when touched, I suppose the swelling to be hypertrophic; but when the womb is always found over-sized, very painful, and almost always attended by great and complicated suffering, I believe it to be in a state of chronic inflammation. Whatever may be the right interpretation of this over-weighting of the womb, it will fall backwards or forwards in ante- or retro-version, because it is heavier than intended by nature."

Again, as to diagnosis, he remarks:

"When the cervix is alone inflamed, there may be vaginitis, but not a painful spasmodic contraction of the vagina. Vaginismus is a symptom of acute internal metritis, and of chronic metritis relapsing into acute. Whenever I find this symptom coupled with a difficulty of walking, and a marked derangement of health, I suspect internal metritis, even in absence of its other signs, and I give a very guarded prognosis, however slightly the neck of the womb may appear to be diseased. (p. 239.)

With regard to the prognosis of this obscure affection, Dr. Tilt

considers it worse when pus has been passed than when the discharge was bloody, and still worse when decidual membranes, or so-termed vegetations, had been passed or removed from the womb—worse in the young than in those approaching the change of life; worse in virgins than in the married; and worse when the disease occurs without apparent cause, "for it shows the deepest-rooted of all causes—the innate disposition to morbid action."

Dr. Tilt illustrates the varieties of this disease by grouping them according to the kind of product by which they are more particularly characterized, and treats of internal metritis as 1, menorrhagia; 2, purulent; 3, exfoliative; 4, pseudo-membranous; 5, ulcerative, and 6, senile, in so many separate chapters, to which we refer our readers for further information.

A correct diagnosis of internal metritis is confessedly difficult enough, and equally so is the treatment; for if we proceed beyond general principles, there appears almost as much danger as benefit from the local remedies advised. With regard to special therapeutical measures, Dr. Tilt has "little to say that is not known by well-informed practitioners," but he believes that "if mercury is too often given in many kinds of diseases, it is frequently too timidly administered in rare cases wherein it might effectually cure the patient;" and that it is certainly justifiable to give mercury to salivation in severe intractable cases of internal metritis. "Blisters, croton oil, antimonial ointment, a silk-thread seton, or an issue, may be applied successively to the abdomen above the pubis; and if the neck of the womb be sound, it may be even advisable to try the effect of potassa c. calce, applied to it as an issue." Is this last suggestion the result of any personal experience of its effects, or merely a recommendation founded on analogy? In the absence of positive proof to the contrary, we should not believe in its efficacy, but rather strongly deprecate any attempt to produce disease in a healthy cervix for the relief of any supposed inflammation of the cavity of the uterus, the very existence of which, *with a perfectly sound cervix*, must surely be considered as very problematical. But there are various indications of local treatment which apply, our author says, to all varieties of internal metritis, which he thus divides:—

1. To cure all disease of the neck of the womb, and thereby attempt the cure of its body.

2. To freely dilate the neck of the womb, to prevent internal metritis being kept up by the distension of the cavity of the womb from accumulated fluids, and also to enable its neck to bear without injury the passing of half-organized blood clots and voluminous decidual membranes.

3. To attack the disease in its stronghold, by the surgical treatment of the inner cavity of the womb, if life be menaced.

The first of these is beyond dispute both rational and proper; the second, somewhat questionable; but as to the third, our readers will have but little faith in proceedings which in themselves menace life, even if not menaced before. Dr. Tilt, although recommending injections into the cavity of the uterus in certain cases, says he has seldom

employed them, being deterred by the knowledge of the uncertainty of their action. "Sometimes a strong solution of nitrate of silver can be injected into the womb without much reaction; at others, a decoction of nut-leaves, or a solution of alum, brings on acute peritonitis." But he prefers to injections the cauterization of the internal surface of the womb with Lallemand's caustic-holder; and he also advocates, under certain circumstances, the use of a *curette*, to be introduced into the cavity of the womb, and then gently pressed on the internal surface of the womb, so as to detach any soft foreign bodies that may be present. It appears that in several instances quoted by our author, this *curette* has been accidentally passed *through the substance of the uterus*, causing fatal peritonitis; and we confess ourselves extremely sceptical as to whether so dangerous a practice is justifiable, or whether any adequate good can be obtained by such proceedings; especially when we are told by the same authority, that "even if constitutional peculiarities are such as to cause remedies to fail, one may truly hold forth the hope of ultimate recovery at the change of life, *for internal metritis almost always disappears at this period*" (p. 292). If this be true, surely the proper practice is to wait for this favourable result, and palliate meanwhile, rather than have recourse to the inconvenient, painful, and dangerous operation of scooping out the cavity of an already inflamed uterus! Although we thus strongly discountenance the practice of Dr. Tilt in several of these particulars, and think them in some cases utterly unjustifiable, we nevertheless regard his new volume as likely to be useful to his profession.

Review IX.

1. *The Excision of Joints.* By Richard M. Hodges, M.D., Boston, Massachusetts.—1861.
2. *On the Indications, the Healing Process, and the After-Treatment of Resections of the larger Joints.* By Dr. Hugo Senftleben. (Langenbeck's Archiv, vol. iii. p. 79. 1862.)
3. *Contributions to the Study of Resections.* By Dr. A. Lücke. (Ibid. p. 291.)

Of all modern innovations in surgery, none is more exclusively English than that of excision of the joints. Not even the ligature of arteries belongs more peculiarly to the surgeons of this country. Almost all those who originally proposed such operations were English surgeons; and after the comparative neglect into which they had fallen, it is to Mr. Syme's example and practice in the case of excision of the elbow, and to Mr. Fergusson's in those of the knee and hip, that we owe the revival of resection and its common adoption as one of the regular resources of surgery. It ought, therefore, to be peculiarly interesting to English surgeons to endeavour to appreciate the value of this innovation, and all facts which tend to decide this question should be eagerly received and studied here. We owe no apology, then, for bringing under our readers' notice the works which we have placed at

the head of this article. The first is an essay printed in America for private circulation, after successful competition for the Boylston prize. The author takes care to impress upon the reader in his preface, that he is not writing from his own experience, or indeed from American experience generally, inasmuch as such operations have been little practised in America. The book, however, is something more valuable than the opinions or experience of any one man would be likely to be. It is a summary, and, as it seems to us, a careful, full, and impartial summary, of the whole published records of excision, and presents the results claimed by the operators themselves for each operation since its reintroduction into practice up to a very recent date.* We may remark, in the first place, that this record has been drawn up chiefly, if not entirely, from data furnished by the advocates of excision, and therefore that the conclusions are (to say the least) the most favourable that the facts admit of. Bearing this in mind, we propose to follow Dr. Hodges in his summary of modern experience in each particular operation. Our author has done well to separate from each other the operations for disease and those for injury. The latter have of course been few in number as yet, except in the elbow and shoulder, and stand on quite a different footing, both as to indications and prognosis, from those undertaken for chronic disease. He has also very properly excluded, or spoken separately of, the few operations left on record by the old surgeons. Nothing but confusion could have resulted from grouping together cases treated on such different principles as those which guided surgeons in their after-treatment then and now. He excludes also from his present treatise the operations for excision of individual bones (such as the jaw-bones), and those practised occasionally upon such joints as the sterno-clavicular, acromio-clavicular, costal, &c., "which are of such exceptional performance as to forbid appreciation." Thus the work before us is confined almost entirely to an examination of the success which has attended resection of the large joints of the upper and lower extremities.

We commend to the attention of our readers the very excellent remarks which Dr. Hodges has prefixed to his account of the individual operation. It is refreshing to turn from the heated partisanship of the writers, who appear to have undertaken the cause of these operations rather as advocates than as surgeons, to the cool and cautious reasoning of a man who displays the somewhat rare quality of forming his opinions upon the facts, instead of twisting the facts to suit his opinions. One or two defects we note in Dr. Hodges' facts, for which indeed he is not to be blamed, since his book is compiled from published records; and he could not put anything into it which was not to be found in those records. The first of these defects is the absence of sufficient information as to the nature of the disease for which the operations were done.

* It is perhaps to be regretted that Dr. Hodges has not distinctly specified the time up to which his compilation extends and the sources from which it is drawn. The latest date we find to any of his cases is Aug. 10, 1861. He seems to have gone carefully through all the best-known English, French, German, and American works and periodicals; but a distinct statement of authorities ought to have been made.

Most surgeons will agree that the success of excisions in future must depend mainly, we had almost said entirely, upon the proper selection of the cases to be operated upon. But in the journals and occasional publications from which these tables are compiled, such essential details as those of the condition of the bones and other parts removed, of the skin, and of the coverings of the joint, are so often omitted altogether, or still worse, stated with unmeaning and most provoking generality, that Dr. Hodges has been obliged to be content to lump all his cases together as "Excisions for Disease." Yet surely the nature and extent of the disease, as they are the first subjects which must engage the surgeon's attention, ought to be the most prominent topics of any satisfactory statement of the case; and we may be sure that such necessary data would not have escaped the record of so careful an observer as Dr. Hodges. These tables, while they are evidence of the care and labour of the author, are equally conclusive of the carelessness and inaccuracy of those who have furnished the materials. The same may be said as to the way in which the ultimate result is stated in cases where success is claimed. There is an absence of all details which renders the statements nearly worthless. When cases of excision of the shoulder end with such sentences as these: "Very useful arm,"—"Tolerably useful arm,"—"Beginning to use the arm,"—"Moves the arm in all directions,"—all that is really known to the reader is that the arm was not materially worse than if excision had not been performed; but whether the operation did any good—*i.e.*, whether the patient had a better arm than if the disease had been left to run its course,—cannot be determined in the absence of any account of the symptoms before operation, and any reliable and accurate account of the condition and movements of the parts after it. What credence can be given to the statements that the patient "moves the arm in all directions," or has "as good use as ever," when it is known that in all cases of which the results have been accurately recorded, the action of the deltoïd has been partially or entirely lost? Again, in many instances the report has evidently been published before the issue of the case could have been ascertained. We may fairly conclude that many of these "useful" limbs turned out useless, that some of the "successful" cases died, and a few suffered subsequent amputation; so that Dr. Hodges' tables represent the minimum of failures and the maximum of success. But besides the tables, the book contains appended to each a short summary of the conclusions as to the best method of operating, and of treating the case afterwards, which the perusal of such a mass of evidence on the subject has led the author to form. These conclusions are always rational, although of course we cannot be expected to subscribe implicitly to all of them, and are at any rate stated with admirable precision, in the plainest and most appropriate words which it would perhaps be possible to use.

The other two treatises whose names stand at the head of this article are written in German, by pupils of the distinguished professor at Berlin, Herr B. Langenbeck. Dr. Lücke confines himself to a tabular statement of the numerous operations which Langenbeck has per-

formed,* with a very short commentary upon each class of operations. Dr. Senftleben's paper is of a more ambitious description, and professes to discuss the general question in all its bearings. There is, however, little that is really new to English readers in this essay, but much that is both familiar and unreliable—we allude chiefly to the inferences as to the comparative mortality of amputation and excision drawn from the statistics of Mr. Butcher, Mr. Price, and others. The after-treatment, however, which Langenbeck follows is detailed. Its principal novelty consists in the early use of the plaster-of-Paris bandage, in which the limb is enveloped from the first, a hole being cut for the wound, and the liberal employment of warm baths for the limb, continued during the greater part of the day. By means of these baths, which, as we understand the account, have not been long in use, Langenbeck hopes to check the pyæmia which made such fearful havoc among the earlier cases in his list.

We shall now proceed to lay before our readers the results which Dr. Hodges alleges to have followed in general surgical practice each of the principal resections of joints—viz., the shoulder, elbow, wrist, hip, knee, and ankle ; and shall test these results by those which are given by Dr. Lücke as the experience of so eminent a surgeon as Langenbeck. We may remark that the proportion of deaths throughout Langenbeck's operations appears very heavy, pyæmia having, as Dr. Lücke remarks, been at times extremely prevalent ; and perhaps we may also venture to observe that Langenbeck's statistics are rendered somewhat more unfavourable by his having applied the operation more freely than we should consider justifiable in England. Surely such operations as excision of the knee for malignant disease of the patella can have but one issue? yet in this table several excisions are undertaken on account of tumours which are either expressly stated to have been malignant, or which in all probability were so.

In treating of excision for disease of the head of the humerus or of the entire shoulder-joint (which Dr. Hodges has very properly classed together, as being in fact identical operations), he has been able to adduce only 50 cases. Of these, 8 died ; and it is at any rate a curious circumstance, and one well worthy of attention, that all of these fatal cases with one exception were cases of complete excision, where, besides the diseased head of the humerus, the glenoïd cavity had been more or less entirely removed. Now in only 17 cases out of the 50 is it said that the glenoïd cavity was interfered with ; so that out of 17 cases of complete excision 7 proved fatal, while out of 33 cases of partial excision (or decapitation of the humerus) only 1 died. This fact seems to argue not so much the greater severity of complete excision, but rather that diseases of the joint which require complete excision are apt to be found in patients

* This list reaches the imposing total of 206 operations; but among these are included, besides resection of small joints and of portions of long bones, removal of the upper and lower jaw, of the clavicle and scapula, and oddly enough, Pirogoff's amputation at the ankle.

less able to bear a grave operation. As to the method of performing this operation, Dr. Hodges gives the preference to the proceeding of Baudens, by which the head of the bone is reached through a single longitudinal incision, as inflicting the smallest possible amount of injury on the deltoïd muscle. He justly remarks, however, that "formal incisions will often be modified by the sinuses and fistulæ, or wounds of the soft parts, if the case be a traumatic one, which may already exist." The probable amount of motion which may be expected in a successful case is thus stated :—

"The articulation usually becomes a sort of ginglymoïd, instead of an enarthrodial one, rotation being lost by the division of the muscles inserted into the tuberosities of the humerus. The limb has a certain swing or pendulum-like motion, and the power of lifting it from the side is limited. Dr. P. F. Eve reports a case where, in six months after an excision for gun-shot injury, the arm could be raised to a level with the clavicle, but the extent to which it can usually be lifted seldom exceeds 5 to 8 inches." (p. 37.)

The frequent reports which he has met with, that all the necessary movements of the limb which do not require too great an elevation of the elbow, are performed with the same facility as on the opposite side, are delicately characterized by Dr. Hodges as "evincing, perhaps, more enthusiasm than careful observation."

As to excision of the shoulder-joint for injury, the author's researches lead him to believe that secondary operations are more successful than primary. This, he says, is due to the fact that it is the less grave injuries that are reserved for the expectant treatment, and that the extent of the injury can be more easily determined after the establishment of suppuration, and so the operator can be more sure of removing the whole of the affected parts. The mortality has been considerable :—Out of 53 cases of primary resection, 16 died; and 6 out of 34 secondary resections. Adding to these a few other cases in which it is not stated whether the operation was primary or no, he finds that the mortality after traumatic excisions of the shoulder (of which the great majority were in actual warfare) was 26 per cent.; while in 60 amputations at the joint in the Crimea, the mortality was 31·6 per cent. It is thus seen that excision of this joint may be the means of saving many an arm in actual warfare, and at no expense to life; and in this way Dr. Hodges refutes Hennen's opinion, that the operation "is more imposing in the closet than applicable in the field."

In Langenbeck's practice, 10 cases of excision of the head of the humerus are recorded, 5 of which proved fatal from pyæmia. In all but two, the bone was reached by a single long incision. Of the five cases that recovered, two are said to have been able to raise the arm to a horizontal position. Another is interesting as having been an instance of sub-periosteal resection, but the slight account of its results does not appear to show that any advantage was gained by this method of proceeding, as the usefulness of the arm is only said to have been "tolerable." Dr. Lücke appears to assert (if we understand him correctly) that the head of the bone was regenerated; but, in the absence of dissection, and of all details, such an assertion cannot be implicitly

admitted. The indications for operation would surprise those educated in the cautious school of English surgery. Out of these 10 resections, 1 was undertaken for malignant disease, 4 for ankylosis, and 1 for a complicated injury, followed by partial paralysis. We cannot say that the remarks and details of cases which Dr. Lücke has appended to his table justify to our minds the operation in the first two classes of cases. It appears to us that all the evidence goes to show that in malignant disease of the humerus resection is worse than useless, and that the patient's only chance lies in amputation. In the cases of ankylosis, it seems, to say the least, very questionable whether care and *patience* in the use of passive motion would not have effected all that the operation could do, without any of its dangers. In the third class of cases (where the head of the humerus has been fractured and displaced), it may occasionally happen, as in the case here recorded, that the displaced head may be pressing on the nerves of the plexus, and require removal; and this operation appears in that case to have been followed by an improvement in motion, which may reasonably be ascribed to the removal of such pressure.

Excision of the elbow for accident or disease is so familiar an operation, and one on which all surgeons are so completely agreed, that we need not follow Dr. Hodges in any detail into the discussion of that question. He adduces sufficient evidence to justify the practice now universally followed; but he is not in possession of data which would enable him to answer the only point on which much doubt still exists—viz., as to the relative mortality of excision of the joint and amputation in chronic disease of the elbow. The fact is, that as the latter operation has fallen almost into disuse, except in cases presenting unusual features, there are no means of instituting a satisfactory comparison. Dr. Hodges gives 119 cases (excluding, for some reason which he does not state, the cases operated on by Mr. Syme), of which 30 failed, 15 having died and 15 suffered subsequent amputation; 77 regained useful arms, in the other cases the arm was less useful. Langenbeck's practice gives 35 resections, with 7 deaths. In one other case, however, death followed after amputation—the only instance in which amputation was necessary. In four cases, the parts became ankylosed. Langenbeck, in this as in other excisions, prefers the single line of incision.

Of excision of the wrist-joint, Dr. Hodges gives a very discouraging report. Out of 39 cases of excision for disease, 6 died, 8 were amputated, and in 4 the hand seemed useless; thus making 18 cases of total failure. In 7 the report leaves the case unfinished; in the other 14 cases, "a more or less serviceable hand was regained." From these facts, and the details of the cases reported, Dr. Hodges concludes that, "in the present state of our knowledge, excisions of the wrist-joint, whether partial or complete, being followed by a large proportion of failures, requiring a very long treatment, and, when successful, the usefulness of the hand being so limited, are operations not sanctioned by sound judgment or conservative surgery." As far as our own experience extends, it leads us to agree entirely with Dr. Hodges. We have never seen a case of diseased wrist, not abso-

lutely hopeless and demanding amputation, where more benefit did not seem likely to result from the expectant treatment, and from such surgical assistance as could be afforded from time to time by dilating sinuses, and so removing pieces of disorganized bone, than from any formal and extensive operation.

On the subject of excision for injury, Dr. Hodges allows that the few facts he has met with are inconclusive, and he does not announce any conclusion, except that excision of the lower end of the radius may be practised with advantage.

Langenbeck appears to have met with only one case in which he thought proper to attempt excision of this joint. The indication was ankylosis between the radius and carpus, following injury. The result, however, was not such as to encourage a repetition of the proceeding, for the patient died of pyæmia.

Of excision of the hip-joint, Dr. Hodges' report is also unsatisfactory. His tables comprise 133 cases, in 22 of which, however, the details are so imperfect as to omit all definite mention of the final result. In the remaining 111, death occurred in 53, and in 2 cases amputation was practised; the remaining 56 recovered from the operation, but in 4 of these the disease was known to have returned, and death to have occurred within three years; 26 were able to walk either with a cane or a high-heeled shoe, and 8 with crutches or other support for the limb. Dr. Hodges is in favour of the removal of the whole trochanter in all cases, on the ground, which we must say is not satisfactory to our minds, that "when left it is apt to project into the wound, prevent healing, and act as a cap to the acetabulum, obstructing the discharge of pus and of carious portions of the bone." We have always proceeded on the opposite rule, which we believe to be the more prudent, of making the section of the femur as close to the diseased part of the bone as is feasible; and have hitherto seen no reason to regret it. It appears to us of considerable importance to the after-usefulness of the limb, that the resulting union should be firm, and the limb as little shortened as possible; while the inconveniences which Dr. Hodges mentions have not occurred to us as practically important. This author condemns altogether the heroic practice of removing the whole acetabulum, or other portions of the os innominatum, and would confine his interference with the acetabulum to gouging away carious portions; but we must allow that the cases in which extensive portions of the os innominatum have been removed are as yet too few, and too loosely reported, to allow of an exact conclusion on this point. They seem to prove that these parts may be removed without any great danger to life; and that being the case, we are at a loss to see why a proceeding so rational as the entire extirpation of the disease should meet with such decided condemnation as it does at the hands of Dr. Hodges. On a review of the whole matter, he concludes that, "considering the mortality after the operation, and the success which follows less heroic methods of treatment, excision for 'hip disease' does not merit a very favourable verdict." We willingly endorse this opinion, merely observing that the "less heroic methods of treatment" involve so much

time as to be often inapplicable to the poor squalid victims of hip-disease, who have no means of obtaining the months and years of care which these methods of cure require. As to excision for injury, Dr. Hodges concludes that, "though it has been performed but a few times, and with but slight success in saving life, the history of the cases is encouraging, presents a better record than disarticulation, and therefore, as replacing the latter, deserves further repetition."

Langenbeck's cases are 12 in number, 8 of which died—4 of exhaustion, the others of pyæmia. In only two cases have we positive assurance of the usefulness of the member.

We are surprised that in neither of these statistical treatises is the influence of age on the prospects of this operation noticed. In 28 of Dr. Hodges' cases, and in 2 of Langenbeck's, the patient was above the age of sixteen. Out of all these 30 cases only 7 recovered; only 3 of these were above the age of twenty, and only 1 had attained the age of thirty-two. Experience, therefore, seems to justify the conclusion that the operation ought to be reserved, except under some very peculiar conditions not hitherto pointed out, for the treatment of children's diseases.

As to excision of the knee-joint, Dr. Hodges' statistics have been already laid before our readers.* They show 208 cases—65 from the writings of Mr. Butcher, 35 from those of O. Heyfelder, and the rest from various sources. Out of the 208 operations, the failures, as shown by death, amputation, or a useless limb, more than equalled in number the successes. On this subject we have already said enough, and shall therefore only add, that the experience of Langenbeck has not been more favourable than that of other surgeons; indeed, his list gives a startling proportion of failure. It comprises 10 cases, of which 5 died from the immediate effects of the operation, a sixth from tubercles and caries of the spine before the wound was healed; and in a seventh case, where the knee-joint was excised in order to remove a malignant tumour of the patella, the general disease (as was indeed to be expected) showed itself in the viscera before the wound had united. Perhaps it would be fairer to exclude this operation, which clearly ought never to have been performed, which happened some years ago, and which it is only charitable to conclude would not have been performed at the present day. In that case we have 9 resections with 6 deaths, and no subsequent amputations; but in only two cases have we positive assurance of the usefulness of the limb. The causes of death were, pyæmia in 4, exhaustion in 1, and general tuberculosis in the other. Dr. Lücke, however, appears still to believe that the operation of excision of the knee is not more fatal than that of amputation of the thigh. He says that, "although a large proportion of patients who suffer resection of the knee in hospitals succumb to pyæmia, yet the statistics for amputation of the thigh do not show a more favourable result." We believe that we have already proved this to be an error. At any rate, no one can deny that the failures of this resection (including cases of death, secondary amputation, and limbs which ultimately

* In our number for July, 1862, p. 225.

prove useless) not only exceed, but exceed at least threefold the failures of amputation. We dwell so much on this fact, not for the purpose of decrying the operation, or of insisting on the mistaken enthusiasm of its original promoters, but partly to endeavour to preserve patients from the indiscriminate application of an operation which has already proved so deadly, and partly to impress upon our readers that great care is required in the diagnosis and after-treatment. It seems abundantly clear, from the facts collected by Dr. Hodges, as well as from the practice of the great Berlin surgeon, that the operation has been far too confidently adopted, and that the great proportion of its failures arises from operating on diseases, or on patients, unfitted for its use. What can we say of resections for malignant disease (Langenbeck's Table, No. 183); of resections performed on children four years of age, who die of caries of the spine before the wound has had time to heal (Ibid., No. 188)*; of resections undertaken for acute abscess of the joint, when pyæmia had already commenced (Ibid., No. 184); except that, notwithstanding the reputation and authority of the surgeon in whose practice they occurred, they are merely examples of what ought to be avoided, and of a style of operating which tends to retard the progress of surgery. Nothing can be better founded than Dr. Hodges' conclusion on excision for disease of the knee: "Although occasionally yielding brilliant results, it is an operation to be practised with great reserve."

Of excision of the knee for injury and for ankylosis, Dr. Hodges speaks discouragingly; but we have not space to follow him into these matters, nor to discuss the question as to whether the patella should be removed, as Dr. Hodges contends, or left, as is Langenbeck's practice, when it appears healthy. Langenbeck's chief reason for this practice appears to be, that he trusts to obtain in some cases a moveable and useful joint, having done so in one of the patients in his Table who recovered; and of course in a moveable joint the presence of the patella, and the more or less complete restoration of the integrity of the tendon attached to its upper borders, would be most essential. We must leave our readers to balance the advantage to be thus obtained, against the probability of leaving a nidus for future disease.

As to excision of the ankle-joint for disease, an operation which Mr. Hancock and Mr. Paget seem to be re-introducing into practice in London after an interval of disuse, the figures collected by Dr. Hodges are discouraging. Out of 48 cases "there were 6 deaths, one being after amputation, or a mortality of 12·5 per cent.; 10 amputations; 5 failures, and one case in which the result was very unpromising. Of 48 cases, therefore, in 21 the object of the operation was not attained; or, in other words, there was a failure in 43·75 per cent."

For these reasons, Dr. Hodges speaks discouragingly of this operation; but it must be allowed that the cases which he cites do not settle the question, since in many of them the disease was too extensive for resection, and failure might have been predicted. Further expe-

* See also the detailed notes of this case at the end of Dr. Senftleben's paper.

rience is required to show the relative advantages of amputation and excision in those (perhaps rare) cases in which chronic disease is strictly limited to the ankle-joint. Langenbeck's tables contain no instances of this operation.

We have thus laid before our readers, in as few words as possible, and, we fear, somewhat imperfectly, the latest information on this important subject which has fallen under our notice. For many other subordinate, but still very interesting matters, we must refer to the works themselves. We could have wished, both for the sake of the reputation of operators, and still more for that of writers on surgery, that the truth upon this question of the results of excision had been somewhat more in accordance with the glowing representations of the books. But we hold that it is necessary, before and beyond anything else, to know what the truth is; and that a faithful exposition of the dangers and failures of excision will do much more to impress upon the minds of surgeons the necessity of care in diagnosis and caution in action, than obstinate denials of facts which are only too surely true, and premature claims of success for operations which are yet undecided. For the means of ascertaining the truth, the profession are greatly indebted to the industry of Dr. Hodges and to the candour of Herr Langenbeck.

REVIEW X.

1. *Memoir of George Wilson, M.D., F.R.S.E., Regius Professor of Technology in the University of Edinburgh, and Director of the Industrial Museum of Scotland.* By his Sister, JESSIE AITKEN WILSON. —*Edinburgh*, 1860. pp. 536.
2. *Memoir of Edward Forbes, F.R.S., late Regius Professor of Natural History in the University of Edinburgh.* By GEORGE WILSON, M.D., F.R.S.E., &c., and ARCHIBALD GEIKIE, F.R.S.E., F.G.S., of the Geological Survey of Great Britain.—*Cambridge and London*, 1861. pp. 589.

THOSE who are called upon to review the lives of scientific men are occasionally, in these days, subjected to no trifling task. Their difficulty arises from the so extensive biographic blending of the socio-religious with the scientific elements, as to render it an onerous matter to separate them, and lay before the general reader that which can alone interest and concern him. It will not be supposed from this remark that we wish to underrate the importance of either that which is social or that which is religious. Without some moderate introduction of these ingredients, it would perhaps be impossible, in the case of such a man as Dr. Wilson, to give a correct estimate of even his scientific character. We only wish to insist upon the necessity of giving more prominence to those qualities and acquirements which constitute the celebrity of the person written of. Whether this can be effected while it is given to those most near and dear—generally of the other

sex—to place on record their experiences of a brother or a husband, is a matter of very considerable doubt. The intimacy and closeness of these relationships appear to blind the gentle biographer to faults and failings, and lead to the exposition of private details which it is not necessary to place before the community at large. These tributes to social worth and religious character are made, undoubtedly, with the best intentions; and they seem to be the most fitting ones which affection can offer to those who are gone where love shall become more perfect and enduring. But they are not calculated to represent most truly and comprehensively the life of a philosopher who had made himself so celebrated as to have elicited from a French reviewer that—"Sa mort à un âge si peu avancé (quarante et un ans) est presque un malheur national." *

It is to be feared that the 'Memoir of George Wilson' is of the character alluded to, and one from which it will not be very easy to construct a continuous scientific narrative. We shall venture to combine with it a sketch of another labourer in the same field, which, though partly written by Dr. Wilson himself, does not carry the same disfigurements, nor present the same weaknesses. Yes, Dr. Wilson, himself dying, began to record the life of his newly-dead friend, and went to join him in the untried world before he had completed his task. Both were in the prime of life when the door closed upon their usefulness; and it might seem as if neither Edward Forbes nor George Wilson had fulfilled his mission.

We need not conduct our readers into the nursery, with the affectionate sister who has written the biography of the latter. It may be sufficient to state that the first evidence of fraternal talent was displayed in juvenile rhyming before young George quitted that prattling region. This taste was frequently indulged in after-life, with a success about which there may be great difference of opinion. For ourselves, we confess that the Technologist's poetical productions displayed in the volume before us, seem to be of a somewhat inharmonious character, although, in a jocular advertisement which he sent to a friend, George Wilson stated that "any article sent from the house of G. W. guaranteed perfect, and warranted to jingle well." To this was added an assurance, which was by no means strictly kept, that "at the same time G. W. thinks it proper to inform his friends that he is about entirely to abandon the rhyming line, and open *premises* in logic and mathematics." †

At a very early age, George Wilson began to accumulate insects in pill-boxes. "Pets of all kinds," including "hedgehogs," "reposed in undiscovered corners of his room, and appeared at twilight to be fed." Nor was Edward Forbes less given to this entomological taste; for it is deliberately stated of him, that at the early age of seven years his hat was always full of shells and dead butterflies, the very worms seeming to regard him as a friend. A tame lizard monopolizes one of his pockets, "and there seems to be a mysterious freemasonry between

* Cosmos, le 6 Janvier, 1860. † Memoir, p. 222.

him and all the cats and dogs he meets."* We have always understood it to be a fact that naturalists give evidence of their special taste at an unusually early period, a circumstance due, probably, to the objective nature of their attraction and study.

Nothing of a very remarkable kind attended the youthful prosecution of George Wilson's education. He was a general favourite at the High School at Edinburgh: he chooses medicine as his profession, and apprentices himself to the Laboratory of the Royal Infirmary. In 1837, he obtains the diploma of the Edinburgh College of Surgeons, and, proud of his new honours, writes jocularly to his cousin of the "Inquisitorial Tribunal" before which he had just appeared, and bids his friend address "to G. Wilson, Esq., Surgeon, or the other George Wilson will get the letter." He seems to have been glad, like every other young student, to be freed from prescribed books and courses, and writes, "Now that I am released, I shall turn to more congenial topics, more especially to my beloved Chemistry, in which I hope and trust to make a figure." (p. 85.) At another time he says:—"I have no time to tell you how busy I am with Christison (whose pupil he was) all day, and chemistry and physiology all night." (p. 103.)

Subsequently George Wilson spends some little time in London, where, at Westminster Abbey, his indignation is much roused at the "piles of marble raised to the memory of soldiers," while poor Sir Humphry Davy "has but a little corner of one of the subsidiary chapels, and neither figure nor allegory." (p. 162.)

The present accomplished Master of the Mint was at that period Professor of Chemistry in University College; and our young enthusiast in that science becomes one of his assistants in the laboratory, where he was associated with Lyon Playfair, and where David Livingstone was a student. When the great African adventurer returned from his interesting mission a few years since, he sent a copy of his 'Travels' to Dr. Wilson, bearing an autograph inscription—"To Professor G. Wilson, with the kindest regards of his friend and classmate, David Livingstone." In 1839 Dr. Wilson returned to Edinburgh, and emerged from a "physician grub" (as he himself expresses it) into a winged butterfly, that is, a "passed physician." He became an M.D., with "bright and beautiful visions of gold-headed canes." He seems, however, to have had an antipathy (as also had Edward Forbes) against medicine as a practical science, and he resolves to throw his energies into his favourite chemistry. After balancing his prospects of success as a teacher of the same in London and Edinburgh respectively, he decides upon the latter, as most congenial to his own tastes, and as containing a higher range of pupils than the English metropolis.†

* Memoir of Edward Forbes, p. 45.

† How much truth is there in the following statement?—"The London students are notoriously the most unscientific students on the face of the earth. My English friends need not take offence at this, for the Englishmen who come here are abundantly characterized by scientific enthusiasm; but the professional business spirit of the London schools is alien to the true study of their subjects, and in such things as chemistry they only ask what will pass the Halls. I had full opportunity of seeing this last winter, in the practical class of Griffith, of St. Bartholomew's Hospital. An

Forbes, Professor Syme, and many other friends were also of this opinion, and counselled the opening of a chemical class in Edinburgh. But, unfortunately, the commencement of George Wilson's real labours was coincident with the establishment of a state of health which seriously alarmed his friends, and indicated, even at this early stage, a fatally impaired constitution. Moreover, a casualty during a twenty-mile walk into Perthshire eventuated in disease of the foot so extensive as ultimately to require amputation. "It was while laid aside by this illness (1840) that his first course of lectures was arranged under many disadvantages." (p. 253.)

The success of Professor Wilson as a lecturer seems to have been at once established, by a purity and simplicity of style which constitute the chief beauty of all his subsequent literary achievements. Edward Forbes thus writes of his friend and his friend's lectures: "Wilson is one of the best lecturers I ever heard, reminding me more of the French school than our humdrum English, and is a man of high literary taste and general knowledge. Of his chemical views I know that Graham here [London] speaks in the highest terms, which he does not bestow on any other Edinburgh man." (p. 255.) And Professor MacDougall said of him: "In his hands every subject was felt to become not intelligible only, or even interesting, but almost enchanting."

Sad and distressing are the details of the young Professor's increasing labours and decreasing health. "A bankrupt in health, hopes, and fortune, my constitution shattered frightfully, and the almost certain prospect of being a cripple for life before me"—these are the terms in which he writes of himself to his brother. What, indeed, with his physical suffering, his chemical and many other lectures, and his "Conversion," poor Dr. Wilson seems about this time to have been fully occupied. The particulars of the latter incident are of course clothed in characteristic phraseology. For ourselves, we do not hesitate to say that, while appreciating fully the affectionate motives which have prompted these revelations, we are always sorry to see things which are of too sacred a character for parade thrust under the public eye.

After being "*prayed for as a chemist*," on the platform, in 1852, Dr. Wilson gave his lectures on "the Chemistry of a Candle," which attracted great attention. In 1853–4 he brought before the Royal Scottish Society of Arts his series of "Researches on Colour Blindness," for which it conferred upon him its highest honour, the Keith prize, valued at 30*l.*; and in addition, a grant of money, to be expended on the inquiry, was placed at his disposal. These Researches were published in 1855,* with some additions, and formed a valuable contribution to previous investigations on this subject. It came to the

experienced and popular teacher told me it was useless to discuss law or theory before them; they did not care for it." (p. 244.)

* Researches on Colour-Blindness, with a Supplement on the Danger attending the present System of Railway and Marine Coloured Signals. Sutherland & Knox, Edinburgh.

knowledge of Dr. Wilson, during his inquiries, that of a Board whose duty it was to investigate the use of coloured lights as signals, two out of its five members were colour-blind; and one day a clerk, unconscious of his defect, copied a letter in *red* ink, thinking it was *black*. After examining, in 1852–3 alone, 1154 persons, Dr. Wilson came to the conclusion that five per cent. of the community have an imperfect appreciation of colour; and two per cent are colour-blind to such an extent as to mistake red for green, brown for green, and occasionally even red for black. The great practical importance of testing the sight in reference to colour of every official, both in the marine and railway services, where coloured lights are used for signals, is sufficiently obvious.*

We do not know whether any of our readers are acquainted with Dr. Wilson's 'Text-Book of Chemistry,' forming one of 'Chambers's Educational Course.' It was written to dictation in 1849, when its author was suffering under the agonies of his unfailing summer visitant —rheumatism; and certainly places the science before the reader in a more fascinating and intelligible form than any other elementary work with which we are familiar. "There are few books," it has been truly said, "on chemical science, in our language, which so fully explain its leading features. . . . . His little work may be studied as a choice example of scientific literature."†

What can be more forcible and simple than his illustration of the difference between mechanical and chemical combinations?

"The characteristic difference between the products of mechanical attraction and chemical affinity may be illustrated thus: the least complex kind of combination being selected to be commented on. If we call the one element of the mechanical mixture A, and the other B, then the mixture itself is equal merely to A plus B, or A added to B, each of which can be traced in the compound. But when A and B represent the elements of a chemical compound, although analysis proves that they are as distinctly present in it as they are in the mechanical mixture, we lose all traces of their separate existence, and their combination is equivalent to a perfectly new substance, which, judging by its properties, we should not call A B, but distinguish by a special letter, as by naming it C." (*Chemistry*, pp. 27-8.)

Not less happy is his Epitome of the most wonderful discovery of the age, written at the request of Lord Jeffrey for the 'Edinburgh Review.' This article, entitled 'Electricity and the Electric Telegraph,' to which was added 'The Chemistry of the Stars,' published in the 'British Quarterly,' reappeared in the 'Travellers' Library,' under the auspices of Messrs. Longman. It is certainly one of the pleasantest little books it has ever been our lot to meet with, and meriting fully Lord Jeffrey's applied epithets of "admirable and luminous." Abounding in the most felicitous illustrations, it carries away the reader, and

* Sir John Herschel and others have great doubt as to whether Dr. Wilson has not given a larger per-centage of colour-blind persons that a more extended observation would justify. See 'Statistics of Colour-Blindness,' in Report of the British Association for 1859.

† Athenæum, Jan. 4, 1851.

"makes him forget that he is dealing with the most abstruse mysteries of science."

Equally successful, also, was Dr. Wilson in Biography. His 'Life of Cavendish,' as also his 'Life of Dr. John Reid,' have met with high commendation. The former is by far the superior of the two, inasmuch as it afforded no scope—Cavendish being "a man without a heart"—for the introduction of those religious platitudes which disfigure the latter work. There, Professor Wilson ventures to express a hope that he may study physiology in heaven, and prosecute his chemical experiments under the immediate direction of the Deity. "A dying minister (he adds, by way of illustration), quite ignorant of physical science, said to a brother who made it a great study, 'Samuel, Samuel! I'll know more of it in heaven in half-an-hour than you have learned all your life.'"

And now the increased impairment of Wilson's health becomes more apparent, with the call for new and extended duties.

> "I doubt my body
> Will hardly serve me through: while I have laboured
> It has decayed; and now that I demand
> Its best assistance, it will crumble fast."

It *did* crumble fast, and received additional shocks from the death of many friends, whom he could hardly have expected to outlive. "How sad (said Edward Forbes once of him) to see so splendid a jewel in such a shattered casket!" Yet that casket was more durable than the one in which was set Forbes's own jewel. The Professor of Natural History dies first, and fills his friend's bosom with sadness and dismay. He had but just come to Edinburgh to occupy that Chair which had been the goal of his ambition, when he was struck down, and the powers of his friend and fellow-labourer were yet further taxed to bear the heavy loss, and write the life of one so prematurely taken away. Wilson himself did not live to complete the biography which he began; but what little he did was a labour of real love. Its opening paragraph is perhaps one of the most elegantly descriptive which he ever penned.

"In the centre of the Irish Sea, midway between the shores of England, Scotland, Ireland, and Wales, lies that diminutive continent which, as if it were an epitome of the whole world, bears the title of the Isle of Man. On the chart it looks like one of the pieces of a child's puzzle-map, which has strayed from the adjacent shores. It can be fitted, however, into none of them, and geologists tell us that it is in its true place, and represents one of the few surviving portions of a tract of land which once united the British Islands, but has long since left only fragments above the waves."

On the morning of his thirty-seventh birthday Dr. Wilson received an official packet, containing his appointment as Director of the Scottish Industrial Museum, then in contemplation. In spite of the most shattered health, after much hesitation, he accepted an offer which was at once gratifying to himself, to his friends, and to the learned community of Edinburgh. It was largely felt that, however short might be his term of office, he was, for the time at least, the right man in

the right place. In the same year he was elected to the newly-founded Chair of Technology in the University of his native city.

It was during the following year that he wrote what has been "unquestionably the most popular of his writings," 'The Five Gateways of Knowledge.'* The following beautiful extract from the sense of 'Touch' will not be otherwise than acceptable to those who are not familiar with the book itself.

"When I think of all that man's and woman's hand has wrought, from the day when Eve put forth the erring hand to pluck the fruit of the forbidden tree, to that dark hour when the pierced hands of the Saviour of the world were nailed to the predicted tree of shame, and of all that human hands have done of good and evil since, I lift up my hand, and gaze upon it with wonder and awe. What an instrument for good it is! What an instrument for evil! and all the day long it never is idle. There is no implement which it cannot wield, and it should never in working hours be without one. We unwisely restrict the term handicraftsman, or handworker, to the more laborious callings; but it belongs to all honest, earnest men and women, and it is a title which each should covet. For the Queen's hand there is the sceptre, and for the soldier's hand the sword; for the carpenter's hand the saw, and for the smith's hand the hammer; for the farmer's hand the plough; for the miner's hand the spade; for the sailor's hand the oar; for the painter's hand the brush; for the sculptor's hand the chisel; for the poet's hand the pen; and for the woman's hand the needle. If none of these or the like will fit us, the felon's chain should be round our wrist, and our hand on the prisoner's crank. But for each willing man and woman there is a tool they may learn to handle; for all there is the command, 'Whatsoever thy hand findeth to do, do it with all thy might.'"

Truly did the subject of this memoir do with his might, from earliest youth to his dying hour, all that was possible, and tenfold more than could have been expected from one whose energies were so overtaxed, and whose physical health was so broken. But for his increasing weakness, difficulty of breathing, and hemorrhage from the lungs, he would in all probability have been elected unanimously to succeed Professor Gregory, who died in the spring of 1858, in the Chair of Chemistry. Wilson felt himself that his powers were quite unequal to it, and pathetically writes: "So farewell the dream that I should fill the Chair of Black."

In the retirement of the country he now for awhile (to adopt his own expression) "rests these troublesome bellows, so as to make them serviceable for winter's work," and enlivens himself and his little niece in the evenings with "four volumes of *Punch*." His mornings, however, were given to the work he left uncompleted—the Biography of Edward Forbes. The reading of his friend's papers was a trying labour, "bringing before me continually the fate of my fellow-students, and often saddening me beyond endurance."

The Session of 1859 is initiated in the University of Edinburgh. Wilson is at his post and gives his opening lecture on 'Technology as a Branch of Liberal Study.' It was almost his last. Death stood behind that chair, and warned the young and living generation. Even there

* Macmillan and Co., Cambridge.

could his anxious friends hear by anticipation the heavenly summons to the good and faithful servant—"Friend, come up higher." On the 22nd of November, the great ordeal was passed, and Scotland was called upon to mourn for another gallant and laborious son.

It is painful to think how similar, as regards their physical weakness, were the careers of Wilson and Forbes. Even their natural tastes, indeed, seem to have been identical. We have already recorded their love at the earliest age for every kind of animal life. We have space but for a very brief sketch of the young 'Palæontologist,' who only reached the age of thirty-nine. When the period arrived for selecting a profession, Edward Forbes resisted the importunities of some of his friends, that he should take orders in the Church. At this time his grandmother's gardener, with more freedom than sagacity, predicted, from the lad's strangeness, and from his love of snails and tadpoles, that "the whole Isle of Man could not save that boy from being a fool." In this "tiny kingdom," in this "fragment above the waves," Forbes was born, early in the present century; and there is no doubt (as Professor Wilson has observed) that the peculiarities of his sea-cradle exerted a marked influence over the development of his character. That natural taste which roused so largely the old gardener's indignation, and reduced to a minimum his estimate of young Forbes's capacity, never forsook the gallant youth who subsequently became Professor of Natural History in the University of Edinburgh. Its existence and exuberant growth became strangely manifest at every turn of his career; and we smile at reading his account of landing, in after-life, at the port of Cnidus, in the Ægean Sea:—

"This was my first step into Asia, and to a naturalist all was promising. Instead of the dearth of insects, *so disheartening* in the Græcian isles, Coleoptera abounded under every stone and on each heap of cow-dung. New shells, too, gladdened me, and several pretty plants." (Memoir, p. 297.)

Again we have evidence of the same entomological passion, in a visit which he paid to Ireland, and which is thus recorded by a friend with whom he was at the time sojourning:—

"He (i. e., Forbes) always carried a tin-box in his pocket, with half-a-dozen fat slugs in it, on the description of which he was then engaged. The vicarage, being an old, damp house, was well-adapted for a slug-preserve; the kitchen and pantry were every night baited with pieces of turnip, or other delicacies suited to the limaceous appetite, and the prey diligently secured in the morning. Our Irish servant was horribly disgusted at the *sluggish* propensities of our guest." (Memoir, p. 490.)

The career of the young naturalist was unfortunately the too common one of genius and self-education. It was a struggle to live; and when the struggle was beginning to end, came the end of the beginning, and it was time to die. Though wavering for a long time as to whether he should be a physician, the conclusion was at last forced upon Edward Forbes that he had no aptitude for medicine, his affections being completely absorbed in the more congenial study of Natural History. But Natural History does not at once gratify the intellectual tastes and supply the material wants of its disciples.

Forbes, however, writes odes, and sketches, and squibs (for his talent is very varied, and he is unusually skilful with his pencil in the delineation of elves, and sprites, and grotesque forms of every kind), in different magazines, and delivers lectures "which hardly pay their own expenses." So hopeless, indeed, appear his prospects in 1840, that he speaks of "cutting Natural History" altogether; and he writes to his friend, Mr. Thompson:—"I mean to give science another chance for a year, and if there are no better prospects at the end of it, I must bid it adieu." (Memoir, p. 265.) But now, fortunately, arrives the "acme of naturalizing happiness." He is attached to the Surveying Squadron in the Mediterranean, under Captain Graves, and "'rated on the books' as naturalist to H.M.S. *Beacon*, an honorary title on which he set a high value, from its bearings on his future prospects." During his absence on the above voyage, the Chair of Botany becomes vacant at King's College, London, by the death of Professor Don, and Forbes's friends are most anxious that he should apply for the succession thereto. But on receiving from them communications to this effect, he has doubts and misgivings as to his fitness for so special and limited a field, "the Natural History Chair of Edinburgh being the goal of his ambition." Before returning to England, however (which he now determined to do), he is seized with a fever, which greatly prostrates him, to which he nearly falls a victim, and by which his constitution is irremediably impaired. On his arrival in the Thames, on the 28th of October, 1842, being detained in quarantine for some days, he writes to his publisher, Van Voorst, to know the result of his application at King's College. The return of the post brought the intelligence that he was now Professor of Botany in that school. To this occupation were soon added the arduous duties of the Curatorship of the Geological Society, the remuneration for the professorship being too scanty to enable him to live in London without increasing his income from some other source.

The wear and tear of all this were very heavy, and sorely taxed the impaired frame of Edward Forbes. Nor did his connexion (immediately following) with the Geological Survey of Great Britain, as Palæontologist, under Sir Henry T. de la Beche, lessen his labours, though he gained thereby change of air and scene. On the 12th of January, 1846, he writes:—"The plain fact is, I have *no chance* of doing any of my own work as long as I am connected with the survey. The Edinburgh Chair of Natural History is the only outlet of escape I can see, and I have warnings that I must keep my eye open to that quarter, probably very soon." (Memoir, p. 393.)

At length his long-cherished ambition was crowned with success, and Edward Forbes quitted London to be inducted as Professor in the scene of his own academic career. Modern Athens gave her recovered pilgrim a true Scotch welcome; and his inaugural lecture was a complete ovation. But his day was all but ended when the work which he really loved began. The bowl was broken at the fountain. The fever which he caught in Greece, and which there so reduced him, had terribly undermined his constitution. In his own words, he was

"completely shattered." He was too shattered, truly, ever to work again; and before he had held for many months the appointment so long coveted, he died. "The years of his life were thirty-nine: the years of his public labours, as near as may be, twenty-five."

"He was cut off (says Professor Wilson) in the midst of his days, with his powers, so far as others could discern them, but partially evolved, and his purposes but half fulfilled, so that he never can be more in the hands of a truthful biographer, however skilful, than a magnificent torso, which, had it pleased the Great Artificer to continue his work in the world, would have grown, we do not doubt, into a noble statue, but after a model which we only can conjecture." (Memoir, p. 37.)

To us, indeed, it seems that there was a manly earnestness about Edward Forbes, which, leagued with his extensive knowledge, would have placed him, had he lived, upon the highest pinnacle of fame. Though most of his publications were of an ephemeral character, being scattered here and there in different magazines and reviews, they are very varied, and many of them very learned. Nothing seemed to come amiss to his pen; and he was equally effective in the "*deliciæ scientiarum*," in songs, in travesties, in reviews, in "Dredging Reports," or in epigrams.

As "*laudari a laudato viro* is the most engaging reward for literary inquiries," to those who live, so it is the noblest epitaph to those who die. We wish that Professor Wilson had but lived to complete the Memoir to which he gave the energies of his declining days. But it was ordered otherwise. And so, prematurely to our imperfect knowledge, pass away those of whom we have reason to be proud, and whom we cannot fail affectionately to remember.

Review XI.

Clinical Researches on different Diseases of the Larynx, Trachea, and Pharynx; examined by the Laryngoscope: preceded by Historical Remarks on the Laryngoscope. By Dr. Lewis Tuerck, Physician to the General Hospital at Vienna.—*London*, 1862. pp. 72.

This work in a measure supplements the Essay of Professor Czermak, to which, among others, we drew attention in our last number when discussing the merits of the laryngoscope. It enters more fully into the various pathological conditions which the speculum enables us, not to surmise, but to submit to inspection, and may in so far be regarded as a more complete representation of our present knowledge of laryngeal disease as displayed by the aid of that instrument. We cannot, however, say that the author has done himself or the subject justice; because, in order to insure English readers, he has chosen to clothe a number of the papers, which he has at different times published in German periodicals, in an English garb, and the tailor, if we may continue the simile, does not sufficiently understand the material he deals with. The translator is evidently unused to the kind of work he has undertaken, because every page is full of Germanisms, and the

reader is constantly arrested by the occurrence of terms which manifestly require a different interpretation than that intended by the author or translator. We have the subject too much at heart not to wish that Dr. Tuerck's views and observations should be placed before the profession in Great Britain in a form at least as attractive and readable as that in which Professor Czermak's were presented to the public. With every kind feeling for the author, we would urge the propriety of a thorough revision of the 'Clinical Researches,' so that in a new edition the reader may not be repelled by the form from benefiting by the valuable matter which the volume contains.

The extracts which we shall present to our readers will be the best proof of the friendly spirit in which the previous remarks have been made.

Having continued to avail ourselves of the laryngoscope in the numerous cases which hospital and private practice have brought before us requiring its employment, we are more than ever persuaded of its value, and would reiterate the recommendation to our professional brethren not to neglect familiarizing themselves with it.

The author, after breaking a lance with Czermak on the *vexata questio* of priority, and describing his own instruments, considers, first, the various phenomena accompanying catarrhal inflammation of the larynx. He points out, firstly, that they are the same appearances which mucous membranes ordinarily visible to the eye put on; but that they vary according to the particular locality affected. Thus the epiglottis may be more or less reddened on one or both surfaces; the amount of tumefaction it exhibits may vary in the same way; if the arytenoïd cartilages are inflamed, the corpuscula Santorini and adjacent parts look redder and more tumid than natural; the upper thyro-arytenoïd ligaments may be singly or both affected in the same way; and if the disorder has involved the vocal cords, these too will exhibit similar appearences affecting them partially or throughout their extent. We have ourselves been surprised at the amount of hoarseness and even aphonia which occurs without any visible affection of the vocal cords; while at the same time the adjacent parts showed the characteristic appearances of catarrhal inflammation. The white glistening appearances and ready contractility of a healthy vocal cord is too marked an object not to enable the observer to arrive at very definite and precise conclusions on this point. As far as our experience goes, we should say that catarrhal hoarseness more frequently depends upon an inflamed condition of the parts adjacent to the vocal cords, than of the vocal cords themselves. But it would appear from Dr. Tuerck's observation, if we understand him right, that the converse is also true, for he says (p. 16), "I once observed distinctly that the hoarseness entirely or almost entirely vanished, while a considerable swelling and redness of one of the lower ligaments of the glottis still remained."

The author concludes this part of his subject by expounding the various conditions dependent upon catarrhal inflammation of the larynx which may lead to constriction, or, as the translator has it, *straitening* of the glottis. As a sequel to catarrhal inflammation, ulcers are met with in the different parts of the vocal apparatus.

"I had several times," he says, "an opportunity of observing the development of catarrhal ulcers at the height of an acute catarrh of the larynx. In one case the covering of the mucous membrane of the Santorinian and arytenoïd cartilages was affected; and in another, the posterior segment of the left lower ligament of the glottis," or, as we should say, the left vocal cord. "Their course," he continues, "was a short one, keeping seemingly equal pace with the solution of the catarrhal inflammation."

Tuerck also speaks of other ulcers, under the term of simple ulcers, which he could not trace definitely to catarrhal inflammation, while they were devoid of any specific origin. The attention was drawn to these simple ulcers by the presence of "hoarseness and cough, accompanied in some cases by spitting of mucus striped with blood; pain was sometimes entirely absent."

The author passes next to the consideration of perichondritis of the larynx. It is stated to result in the cartilage being

"Deprived of its perichondrium, partly destroyed, the mucous membrane covering it is wanting, or whilst the mucous membrane is uninjured, there is formed, particularly on the cricoïd cartilage, an abscess, pointing outwards and into the cavity of the larynx, and therefore conducting to a fatal straitening of the glottis. Perichondritis of the larynx as it is known, in a secondary way, as a consequence of exanthematic disorders, particularly from small-pox, further from typhus fever, from syphilis, finally, very frequently when occupying the arytenoïd cartilages, by the progress of ulcers from the mucous membrane to the cartilages in tubercles of the lungs."

In the first case given by the author in which an abscess was demonstated by the autopsy, hoarseness, pain in the larynx, and dyspnœa had come on eight or ten days before the patient was examined, at which time there was also much dysphagia.

"On laryngoscopical examination, the left lower ligament of the glottis presented itself considerably protuberating, and fixed with its interior somewhat rounded border to the median line, and a little beyond it to the right side. As regards its colour and lustre, they were, however, of perfectly normal quality. The same immobility I found on the left Santorinian and arytenoïd cartilages, the covering of the mucous membrane of which is rather puffed up. The sinus formed on the one side by the plate of the thyroïd cartilage, and on the other side by the arytenoïd cartilage and by the aryepiglottic ligament, is larger on the left side than on the right. The right lower ligament of the glottis, as well as the motions of the right Santorinian and arytenoïd cartilages, are in all respects normal."

The patient died the night after; the cricoïd cartilage presented on its left half an abscess of the size of a hazel-nut, projecting below the left vocal cord, and caused by the partial denudation of the cricoïd cartilage of its perichondrium.

Dr. Tuerck also describes cases of perichondritis arising from syphilis, from typhus fever, and from diphtheria. A special section is devoted to "The Syphilitic New Formations of the Mucous Membrane," which commences with the lucid remark: "As such may be considered with security, before all, new formations resembling broad condyloms, if they are met with accompanied by other phenomena of syphilitic affection, and disappear under a general antisyphilitic treatment," which in plain

English means, that if our syphilitic patient exhibits any excrescences on the laryngeal mucous membrane, we may assume the latter also to be syphilitic, and capable of yielding to the general treatment adopted for the fundamental complaint. With regard to laryngeal ulceration accompanied by tubercular disease of the lungs, Dr. Tuerck confirms the observation of Louis, that ulcers are most frequently found on the posterior surface of the epiglottis; next in frequency he has met with superficial ulcers on the vocal cord, and less frequently still on the superior thyro-arytenoïd ligaments. Besides these parts, various sections of the inner surface of the larynx are also at times found to present ulcers; but it does not appear that there is anything characteristic in their form or appearance. The main point, we apprehend, with regard to laryngeal ulceration in regard to its connexion with phthisis pulmonalis, would be its serving as an indication for local treatment by inhalation, irrigation, or similar processes, while the general restorative and analeptic treatment is continued. In connexion with this point, we would draw attention to a case which again serves to illustrate a fact previously noticed, that impairment of the voice and aphonia may be quite independent of any morbid condition of the vocal cords. We were consulted regarding a lady suffering from complete aphonia for three years, in whom the vocal cords were perfectly white and smooth, and apparently healthy in their action. The only morbid conditions visible were small yellowish spots, like follicular ulcers, on the inner surface of the trachea, and a tumid condition of one capitulum laryngis.

Catarrhal inflammation, as our author justly observes, occurs in the acute and the chronic form. This has long since been an acknowledged doctrine, but it is a new and most valuable acquisition to medical science, that we are able to determine with certainty the diagnosis of these conditions, which we were unable to do until we became familiar with the laryngoscope. We have seen numerous cases of laryngeal inflammation, varying in degree, in which the speculum has aided our treatment. Nor is the negative evidence it affords without value. Not long since we had a case presenting symptoms of acute laryngitis, with suffocative dyspnœa, brought under our notice, in which the laryngoscope revealed an anæmic condition of the larynx, with a paralytic affection of its left vocal cord. We need scarcely say that the laryngoscope rendered a different line of treatment necessary from that which the mere symptoms would have appeared to demand.

We may pass over Dr. Tuerck's remarks on the various tumours met with in the larynx, because in our recent review of works on the laryngoscope enough was said on this subject, and we find nothing in the present memoir requiring that we should return to it. Some interesting observations follow "On Alterations of the Motions of the Larynx," in which the author draws attention to various paralytic affections of the vocal muscular apparatus. He justly remarks that the laryngoscope "often shows as causes of aphony or hoarseness an approximation of the glottic ligaments, not properly performed in the efforts of forming sound, a gaping of the glottis, and an improper oscillation of the liga-

ments of the glottis." We are able to confirm the observation that the paralytic condition varies much in extent, and that it accompanies a great variety of morbid conditions of other organs and of the system at large. After discussing the use of electricity, injections of nitrate of silver, the insufflation of powders (methods to which we would add, as particularly valuable, Matthieu's irrigator), the author speaks of the curative power of emotion in cases of aphonia dependent upon paralytic conditions. The following passage, which we extract literally, may serve at once as an illustration of Dr. Tuerck's views on the subject and of his literary style. Having stated that emotion may restore the voice, he continues :—

"This took place in a case observed by me, of phonical paralysis of the muscles closing the glottis, in consequence of catarrh. In this case, a woman, forty-seven years old, who had been since the last twelve months perfectly aphonous, on seeing a child fall from the first story, and being terrified in the highest degree, she uttered some words of alarm, and from this moment she became again the perfect use of her voice."

Instances similar to the one quoted above from our own practice, in which a paralytic condition put on the symptoms of acute laryngitis, must have occurred to our author, for he observes that—

"Among the persons treated and healed in an analogous manner till now (i. e., through the influence of emotion) under the supposition of chronic laryngitis, there may, indeed, have been some who were affected with the anomaly of mobility, which is the object of this article." (p. 49.)

A considerable portion of the memoir is devoted to the examination of the various conditions causing constriction, or, as the translator terms it, "straitening," of the larynx. This is partly a repetition of what has preceded, in a somewhat different form. Tumours within and external to the larynx; catarrhal and other forms of inflammation at and about the glottis; ulcers and cicatrices of various kinds, and abscess, are among the morbid phenomena which induce narrowing of the laryngeal passage. A complete circular stricture of the larynx has also occurred to the author, apparently resulting from the formation of a fibrous ring underneath the mucous membrane; thus, in a shoemaker's apprentice, fourteen years old, who for five months had suffered much from cough and dyspnœa, the laryngoscope "showed a circular border situated close under the glottis, whereby the opening of the larynx was straitened to the size of nearly a quill."

The work concludes with the narration of some cases of constriction of the trachea, and tracheal tumours, and of syphilitic ulcers of the pharyngo-nasal cavity, or, as we should say, of the choanæ, for which we refer the reader to the work itself.

While we thank the author for collecting the separate papers which constitute the work before us, and thus presenting us at a glance the many valuable and important results which he has attained by means of the laryngoscope, we would also express a hope, for his sake as well as for that of the topic itself, that it may go through a new edition under the hands of a gentleman properly acquainted with the English language. We have perused this so-called English version carefully,

on account of the value of its contents, and because we are working at the subject and wished that the readers of the 'British and Foreign Medico-Chirurgical Review' should be kept *au fait* of what the Germans have done; we can scarcely expect that many of our readers would undertake the same labour, and we think that it would not be an improper task for the New Sydenham Society, who have already introduced Professor Czermak's work to the English student, to re-translate Dr. Tuerck's essays, and, perhaps, to incorporate with them some other foreign treatises on the same subject—as those of Semeleder and Battaille.

Review XII.

The Commission of Inquiry and Advice in respect of the Sanitary Interests of the United States Forces.

In a former number of this Review we made favourable mention of the reports of this Commission. Having, through the courtesy of its president, the Rev. Dr. Henry Bellows, and the kindness of a friend in Liverpool, received a series of these documents, almost complete, with the exception of a few out of print, we purpose in the present article to bring the subject more fully before our readers, believing that by so doing we shall be contributing, if not to their instruction, at least to their gratification, by showing how the terrible horrors of war can be mitigated by the exertions of individuals humanely impelled; and how, notwithstanding our disappointments at the present time in the working of a government which was held up as the model of republican perfection, citizens living under it are forthcoming, self-moved, patriotically to engage in labour which, under a despotism, would be undertaken only by mercenaries influenced by the lowest motives of pay and the hope of some little glittering decoration.

The origin of this Commission deserves notice, for it is very interesting, as showing how in a good cause first efforts fructify and small beginnings grow into noble works. As soon as the civil war broke out, and there was a call to arms, three associations were formed in New York:—"The Women's Central Association of Relief for the Sick and Wounded of the Army," "The Advising Committee of the Boards of Physicians and Surgeons of the Hospitals of New York," and "The New York Medical Association for furnishing Hospital Supplies in aid of the Army." This was early in April, 1861. Soon it was found that for effective working these three might be, and required to be, united, especially for operation on a large and extended scale. Then the happy idea occurred of a great sanitary commission, into which the ones mentioned might be incorporated, so as to act with greater ease and effect. The matter was brought under the consideration of the acting surgeon-general, the head of the medical department of the army. The plan proposed had his approval and recommendation, and was accordingly quickly organized. The Com-

mission dates its beginning from the 9th of June, 1861, when an authority from the Secretary of War was given for its formation in a document in which were stated the motives requiring its aid, and the duties to which it was to confine itself. The assigned motives were the vast and sudden increase of the army from a force less than 20,000 men to one of many hundred thousands, and these chiefly volunteers—thereby occasioning a pressure on the medical bureau that it was quite inadequate to meet. Its propounded duties were to be of a mixed kind, mainly to inquire and advise, in anticipation of abuses and errors and neglects which commonly occur at the beginning of every great war—to quote the words of the authority—"as to the principles and practice connected with the inspection of recruits and enlisted men; to the sanitary condition of the volunteers; to the means of preserving and restoring the health and of securing the general comfort and efficiency of troops; to the proper provision of cooks, nurses, and hospitals, and to the objects of the like nature" —all these certainly of the first importance as regards the health of an army, and one of the chief elements of its efficiency.

As finally organized, the Association consisted of eighteen members, and of about four hundred associated members, with many subsections and committees, especially of ladies, in all the principal towns. Its officers were a president, a vice-president, a general secretary, and a treasurer, each with specified duties, and all unpaid, their "motives being humane and patriotic, their labours (they say) will be their own reward." All the Commission asked for was, "No legal powers, only the official recognition and moral countenance of the Government, with a recommendatory order to all officers to further it in its inquiries, and permission to correspond and confer on a confidential footing with the Medical Bureau and the War Department, proffering such suggestions and counsel as its investigations and studies may from time to time enable it to offer." Such funds as were needed to allow it to act were to be raised by voluntary subscription.

Altogether independent, merely thus acknowledged and countenanced by the Government, the Commission appointed its own agents, a certain number of inspectors to act under it. The manner in which this resolution is expressed is noteworthy. "It has declined asking or receiving money from the Government, for fear it might thus forfeit its independent position, and lose in moral strength what it gained in Government patronage." Adding, "If the Government supported it, its members would be appointed by the Government, and acquire a political character, or be chosen, not for their competency to the work, but for local and partisan reasons." Its duration was to last "until the Secretary of War shall otherwise direct, unless sooner dissolved by its own action."

The first effort made by the Commission after its formation was an appeal to the public to obtain aid and support. This was done at public meetings called for the occasion, and by written addresses. As throwing light on the principles on which the war was commenced, and on the predominant feeling, and as descriptive of the volunteer force

called out, and the sudden change to which they were subjected on entering on a campaign, we shall make a few extracts, and these we shall give without immediate comment. The first we shall offer is part of a speech of the Hon. Hannibal Hamlin, Vice-President of the United States, at the "Ladies' Military Relief Meeting, April 30th, 1861," the first, we believe, that was held at New York.

"He expressed the delight with which he witnessed the uprising of the people to sustain the Government and defend the country. Here was a vast assemblage collected from humble and luxurious homes. The occasion was one that warranted this. All that we hold dear, whether in social or commercial life, is at stake, is in peril. There is nothing in commerce, nothing in domestic life, that is not in issue. What are they, if they are not guarded and protected by law. Our stars and stripes have been ignominiously treated; our fortifications have been taken by rebels. We have no other course but to vindicate the integrity of our Government. False is the humanity that could falter now in this hour of trouble. Our safety is the loyalty of the people; our destruction with those who hesitate. The contest is said to be a sectional one. The actual question is one of government or no government, and we have got that to settle; whether we have a government, whether we have received one from our fathers, and whether we will transmit it to our posterity?" Ending: "They were met to systematize their efforts to relieve the sick and wounded. God bless the women."

The next we give is part of a letter from the President of the Commission to a committee formed for devising ways and means for supplying funds. He commences:

"Could I transfer to your hearts and minds the rich experience of the last fortnight passed in the camps of the West, you would need nothing further to animate you to the most earnest, immediate, and unwearied efforts to provide our Commission with money. the only thing it now lacks, to give it a benignant power to diminish and control the malignant influences that hang darkly round our troops, and threaten to make out of the most precious portion of our whole population another 'noble army of martyrs.' Money! money! promptly and liberally expended in supplying our officers and men with instructions, the warnings and the aids which their inexperienced and unfurnished condition demands, and which only an Association like our own—of an extraordinary character, unhampered by routine, and with special rights and privileges granted by the Government, with express reference to the exigencies of this exceptional case—can hope to impart with promptness enough to secure the end."

He goes on to describe the volunteers: though too long a quotation, we are tempted to give it, as it is truthful and so generally applicable:

"Consider the prospects of 250,000 troops, chiefly volunteers, gathered, not only from out-door, but still more from in-door occupations of life; farmers, clerks, students, mechanics, lawyers, doctors, accustomed for the most part to regularity of life, and those comforts of home which, above any recorded experience, bless our own prosperous land and benignant institutions: consider these men, used to the tender providence of mothers, wives, and sisters, to varied and well-prepared food, separate and commodious houses, moderate toil, to careful medical supervision in all their ailments—consider these men, many of them not yet hardened into the bone of rugged manhood, suddenly precipitated by unexpected events into the field of war, at the very season of the greatest heat, transferred to climates to which they are unwonted, driven to

the use of food and water to which they are not accustomed, living in crowded barracks and tents, sleeping on the bare earth, broken of rest, called on to bear arms six and eight hours a day, to make rapid marches over rough roads in July and August, wearing their thick uniforms, and carrying heavy knapsacks on their backs—and what can be looked for but men falling by the dozen in the ranks from sheer exhaustion, hundreds prostrated with relaxing disorders, and, finally, thousands swept off by camp diseases, the result of irregularity of life, exposure, filth, heat, and inability to take care of themselves under such novel conditions. If you add the reflection that the brave and worthy officers who command these men are, from the very nature of the case, wholly inexperienced in camp-life, that they are usually no more than the social equals of those they are set over, that the excellent and devoted medical men selected to watch over our volunteers are equally unaccustomed to the field and to the military hospital, that their commissaries and quartermasters have been summoned from civil life, and that our whole military array, with so small an exception as not to be worth noting, is the product of a rare necessity, extemporized almost as miraculously as the armed men that sprang from the teeth that Cadmus sowed, you will at once feel how inevitable must be the defects, the friction, the mistakes, the delays, the dreadful consequences to health and life attending the very collection and existence of such a body of troops, so officered and so provided for."

In a circular asking contributions, dated June 22nd, 1861, it is remarked:

"It is hardly necessary to state that every soldier who survives the exposure of the heat four months, will be worth for military purposes two fresh recruits; that every man lost by neglect makes a complaining family, and forms a ground of unpopularity for the war; that every sick man deprives the ranks of one or two well men detailed to take care of him; that pestilence will demoralize and frighten those whom armed enemies cannot scare; that the men now in the field are the flower of the nation; that their places cannot be filled, either at home or in the ranks; and that the patriotic, the humane, the economical, the successful conduct of this war, and its speedy termination, is now more dependent on the *health* of the troops than on any and all other conditions combined." Concluding, "Help us, then, to do this work, for which our machinery is now complete! Help us generously; help us at once! In the name of God, of humanity, and our country!"

For the main duties of the Commission, those of inspection and advice, a certain number of competent men were selected, and sent to the several camps. Twenty were first chosen, many of them declining any remuneration, satisfied if their actual expenses were defrayed. They are thus described:

"Fourteen qualified physicians are now employed by the Commission, each having a defined portion of the army under his observation. Six other gentlemen, each possessed of special acquirements, are engaged on special duties." It is added: "It is proper to record the facts, that they have in several cases withdrawn from positions far more remunerative than that now occupied by them, and have undertaken their present duty from motives of the highest benevolence and patriotism. Others have declined the office of brigade surgeon, to enter on what they considered a wider field of usefulness in the service of the Commission. No one is now employed on this duty who is not entitled by education, experience, and social standing to speak with a certain degree of moral authority, and whatever success the Commission may have attained in

the execution of its duties, is believed to be due as much to the high character and intelligence of the inspectors as to all the other advantages it has enjoyed."

The reports of these inspectors are many of them minute, and all of them display ability and sound judgment. We have marked portions of them which we wished to give as *excerpta*, but reluctantly refrain from want of space. They would help to convey some idea of the condition of the Federal army of volunteers, and yet but an imperfect idea. It is fortunate for mankind that efficient armies cannot be extemporized so as to make war easy, and that no force can be carried into the field and led through a campaign with any chance of success without laborious and irksome training, without rules and order—those which constitute discipline—and those even more stringent than are required in any civil association of men ; and without good conduct, the result of the discipline, that which constitutes the *morale* of the troops themselves. Want of discipline, as might be expected, is one of the great defects of a volunteer army. It is a subject on the part of the Commission of most frequent comment and animadversion ; in successive sessions, in repeated resolutions, the matter of discipline is insisted on and urged as a *sine quâ non*. We shall quote one made at its fourth session :

"31. Resolved—That the Sanitary Commission assure Major-General M'Clellan in advance, of all the moral support and sympathy of their numerous constituents, and beg him to believe that the humane, the intelligent, the religious, the patriotic, will uphold his hands in every endeavour to communicate a spirit of subordination, fidelity, and obedience to the troops, even by resort, if found necessary, to the utmost rigour of military law, believing that the health, comfort, and efficiency of the army are all united in their dependence on a strict, uniform, and all-pervading military discipline."

Of the results of the inspections, we can readily believe what is stated by the Commission—viz., that "There has scarcely been a company of volunteers in the field, with regard to which some special defects, errors, or negligence endangering health, has not been pointed out by its agents, and its removal or abatement effected." And the statement which follows is equally creditable to the Commission and its inspectors, and to the army :—"There has not been a single instance in which its services or advice offered through all its various agencies have been repulsed ; not a single complaint has been received of its embarrassing any officer in his duty, or of interfering with discipline in the slightest degree." For our part, forming our opinion from the documents before us, we cannot but express our admiration at the manner in which the inspectorial duties were performed ; the reports on the several armies and corps, particularizing even regiments, are so minutely and carefully drawn up, and with perfect regard to truth, and a freedom, as well as we can judge, from bias. That they should have been comprehensive might have been anticipated from the form printed for the guidance of the inspectors, extending to one hundred and ninety-nine questions, beginning with inquiries about the exact locality of the camp, and ending with the question, "Are the Articles of War

2nd and 3rd enacted upon occasion ?—for indecent behaviour in any place of divine worship ?—for profane language ?" And that the inspecting officers would perform their part well, is only what might have been anticipated from the manner in which they were wisely selected. The good, indeed, that the Commission has done by the advice and suggestions tendered to commanding officers must have been great, and can hardly be appreciated, and this, irrespectively of the aid in the way of medical comforts and necessaries, which, from the funds at its disposal, voluntarily subscribed, it was enabled to render to the soldiers in their necessity. We had expected that the losses from sickness and mortality from disease in the volunteer force would have been heavy in the extreme, and are agreeably surprised to find that comparatively they have been but moderate. From an authentic document with which we have been favoured, it appears that during the first year of the war the deaths from disease have not exceeded 53 per 1000 of the full strength, and the number invalided in consequence of disability not over 100 per 1000. Such a low rate of mortality—low war-rate, be it remembered—speaks well for the exertions of the Commission, and tends to confirm what the reports of its inspectors commonly vouch for, that the men were amply supplied with wholesome provisions. During the worst period of the Crimean campaign—January, February, March, in 1855—our army before Sebastopol sustained a loss from disease alone in deaths of 892 per 1000 !

As we read we marked other passages in the reports of such interest as to suggest their transcription, but they have proved too many to admit of this without exceeding our limits. We must not, however, omit altogether, mention of the attention which the Commission has paid to the rations of the volunteers and the cooking of them, a subject, this, which in our own army has even yet been too much neglected. The addition of butter to the ration is suggested, and of pepper, and where fresh meat is not procurable and fresh vegetables, desiccated beef and mutton and desiccated beef soup and desiccated vegetables. Beans, it is stated, and we believe correctly, "boiled five hours with salt pork, make a soup or porridge savoury, exceedingly nutritious and wholesome for most men." We hope this may meet the eye of some one of our army authorities. The great evil of our soldiers' diet is its want of variety.

Besides being of essential service in the manner already described, there is another method which the Commission has adopted in the good cause of checking the evils of war—viz., by the publication of a series of tracts on the principal diseases of the army, and on the best mode of preserving the health of the men. The subjects of these tracts are the following :—Military hygiene and therapeutics ; on the value of vaccination in armies; on the nature and treatment of miasmatic fevers; on continued fevers; on quinine as a prophylactic against malarious diseases; on pneumonia; scurvy; dysentery; on venereal diseases; on the treatment of fractures; on amputations and other surgical operations; on pain and anæsthetics: and, in addition to these, there are 'Culinary Hints for the Soldier,' 'Advice as to Camping,'

'Rules for Preserving the Health of the Soldier.' All these tracts are well printed, in 8vo size, with the exception of the last mentioned, the Rules for the Soldier, which is in 12mo; it is comprised in 16 pages, and has reached a fourth edition. All the others are as brief as clearness permits, and so portable that a copy of each of them would occupy little space in a medical officer's baggage. They are written by men of ability, some of European reputation, and all are excellently written. Were we to refer to one more than another for the ability which it displays, it would be the essay of Dr. Valentine Mott on 'Pain and Anæsthetics,' in which he forcibly points out the injurious depressing power of pain, increasing the risk of every operation, and the admirable influence of anæsthetics, ether and chloroform, in removing this element of danger, and in adding to the facility of operating in cases of difficulty. To most medical officers these tracts would be acceptable and useful; and to some, the least instructed, they should be invaluable. So highly do we think of them, that we consider them deserving of a special article, which we hope to be able to give in a future number, and in which we shall bring under the notice of our readers some of the valuable experience of the agents of the Commission contained in their inspectorial reports.

Of the medical officers generally employed attached to the volunteer forces the Commission reports favourably, and when otherwise, as chiefly deficient in experience of routine duties and the knowledge of the forms to be observed. Some exceptions, however, are noticed; nor is this surprising, considering the sudden call at the beginning of the war for medical aid, and the vast amount required. We are told by a French writer on military surgery, in a work published in 1823, that in the then late wars of the Empire, and the earlier ones of the Republic, when the civil hospitals and medical schools were emptied, and the wants of the service yet inadequately supplied, many youths under the conscription, to avoid carrying a musket, "se jettaient dans le service de santé, quoiqu'aucune vocation ne les y appelât," and were not rejected. In one report we find the like of this:—To a regiment 1040 strong it is stated "there is one surgeon and one assistant, father and son, who were appointed by the colonel, and have not been examined by any medical board. The * * * informed me that the former had been a barber in * * *, and an occasional cupper and leecher, and had no medical degree. The son's medical education was also doubted." And further on the reporter makes mention of the surgeon providing himself "with a box of homœopathic medicine," and "administering homœopathic doses promiscuously to the sick and well."

We are glad to see that the Commission takes a just view of the medical service of the army, and of the importance of giving encouragement to men of ability to enter it; this is strongly shown in the Bill which it has been instrumental in introducing for giving a higher status, as to rank, to medical officers, and better pay and allowances than hitherto. Should the Bill be passed, as doubtless it will be, there is little chance of unfair dealing with it to the disadvantage of those

concerned, or of complaints being made, as we see recently have been made by the same class of officers in our army.

In addition to the reports and tracts of which we have made mention, there are some others which have been published by the Commission. Of these we must mention two or three which describe an excellent function, that of affording "aid and comfort" to distressed volunteers separated from their regiments; and this to an amount hardly credible, except under the peculiar circumstances of the war, and the limited means of the Government, so suddenly called to act. It is pleasing, too, to see how often they are followed by expressions of gratitude from the relieved, and from "wives and parents who appreciate the kindness bestowed on husbands and sons."

The last Reports we shall advert to are not of all the least deserving of notice, or least characteristic of the patriotic and humane feeling existing amongst the people of the Federal States: they are those of 'The Soldiers' Aid Society,' and of 'The Women's Central Relief Association;' the former in the west, at Cleveland, Ohio; the other in the north, at New York. Of the latter we have already made mention, as the beneficent mother of all the others. The former, instituted about the same time, was similarly organized, and became connected with a part of the great Association, acting in conjunction with the Commission. It had its lady president, vice-presidents, secretary, and treasurers. Here is the first address of their secretary, Mary Clark Brayton, with which her Report commences:—"Not more eagerly did 75,000 brave men spring to the defence of our beloved country and its insulted flag, when, on the 15th April, 1861, the call 'to arms' flashed along the electric wires of this broad land, than did the women of the North arise in their holy purpose to strengthen and sustain the patriot soldiers thus summoned from their peaceful homes to untried duties of the battle-field." What this society and its branches attempted, and effected indeed on a large scale, was to supplement deficiences of Government supplies, chiefly for the use of the hospitals—such as lint, blankets, hospital dresses, the latter made by the ladies themselves. From the treasurer's account it appears that 1,785·46 dollars had been received as subscriptions and donations, and 1,717·58 dollars expended, not a cent of which any official received. Further, it appears that for the same period, viz., from 20th April to 1st December, 1861, as many as 69,333 articles had been received into store, and 41,062 distributed. Thirty-four different articles are named, these chiefly pertaining to hospital-dresses and dressings, and medical comforts. We shall mention a few:—Shirts, 4794; towels and handkerchiefs, 9648; pairs of socks, 2782; lint, bandages, compresses, 4743 lbs.; fans, 83; dried fruit, 7944 lbs.; bottles of wine and other liquors, 106; books and papers, 2444. The contributions to and from the other society were on a like large scale. There were received, it is stated, up to the 10th October, 1861:

Hospital garments	32,295	Jelly and preserves . .	2088 pkgs.
Bedding	15,147	Wines and other liquors	601 qts.
Havelocks	6,112	Farina, tea, sugar . .	623 pkgs.
Miscellaneous articles . . .	4,475		

The ladies of this Central Relief Association early directed their attention to the supplying of nurses, such as was presumed would be needed in the general hospitals of the army, and formed a committee specially for this purpose; proceeding on the principle, that only trained nurses, and of the best character, strong and active, and over thirty years of age, were to be considered eligible. One hundred persons at the time the report was made, selected from a vast number of candidates, were receiving instruction in the hospitals of New York. No more than 32 had been drafted to hospitals; and we regret to see that the account of the reception they met with, and the treatment they received, was not what might have been expected, excepting that the patients universally were grateful for their attentions, and that their services were at least appreciated by the medical officers most competent to judge of them. In their high commendation it is stated:

"We are convinced of the value and importance of supplying the hospitals with nurses. Those which have been sent have done a work of unspeakable importance; indeed, have been indispensable. It is impossible to tell what increase of suffering and mortality would have occurred but for their incessant exertions. Some of these women have brought the blessings of those ready to perish abundantly upon their heads, and their names will be held in undying reverence and affection by wounded soldiers saved to their country and their families by their watchful and tender devotion."

One remark made in the Report respecting them is deserving of attention, "They have been only *too refined* for their places." This is a great danger, this refinement: the danger to be apprehended is, that it will lead to disgust of the duties and the relinquishment of them, or give rise to a feeling of disappointment and sorrow that will be fatal to the happiness of the individuals. We are satisfied, from such experience as we have had, that the ladies of New York are right in limiting the services of nurses in military hospitals to the higher and least menial duties. They should be, if we may be allowed the expression, as ministering angels in the wards.

From the tenor of what we have written, it must be inferred that we view with the greatest respect the exertions of the Sanitary Commission in all its branches. We hold its doings to be a redeeming circumstance in this terrible fratricidal war. The proof of their worth is their humanity, their respect and regard for their fellow-men. Throughout all the reports not one brutal word is to be met with, not one aggravating expression; all their appeals are in support of order, propriety, and morals. If this be a redeeming circumstance, we trust there will be another; that as France after the destructive wars of the First Empire hungered for peace, and continued at peace for so long a period, the Federal people, whether effecting a reunion with the Confederates or not, will be satiated with war, and be glad to end it, and recur to those habits of quiet life, and to those pursuits in which and by which they have flourished and become a great nation.

We are promised by the Commission, when the war is finished, a work on its Statistics, for which it is now collecting materials. We are satisfied that it will be, whenever it appears, of very great value

and highly instructive. Never before was so vast an army of volunteers brought into the field, and under the observation of those prepared and fully competent to record their deeds, with all the details required to make known the qualities of such a force, and the power of the Government that called them out. Much there will be to blame, much, we believe, to admire; and most of all, much to deplore, as is the case in all wars, but more especially in civil wars; and may we not have to add, in servile war?—that of all wars the most dreadful.

Perhaps some of our readers may say, Have not already many evils equal to any that can occur in a servile war been witnessed in this civil war? They may quote the doings of a Butler at New Orleans, of a M'Neil at Palmyra, of a Turchin at Athens, in proof. Granted that the conduct of these officers deserves the highest reprobation, yet it does not follow of necessity that the mass of the people are participators. We may surely believe that the high-minded and patriotic men and women—those who have organized the sanitary commission, and the like of them—will view the acts of these men with the same horror as we do, and would rejoice in their being called to a severe account. The misfortune is—and it is common to all wars—that there will always be men to do brutal deeds, and too often an expediency on the part of the government to pass over these deeds when coupled with commanding energy. War on higher natures acts heroically, elevating the character; on lower natures it acts in the reverse manner, degrading and brutalizing it.

Review XIII.

1. *De la Thrombose et de l'Embolie Cérébrales, considérées principalement dans leurs rapports avec le Ramollissement du Cerveau.* Par E. Lancereaux, Docteur en Médecine de la Faculté de Paris, &c. &c.—*Paris*, 1862.

On Cerebral Thrombosis and Embolism, considered chiefly in their relations to Softening of the Brain. By E. Lancereaux, M.D. With appended Tables.—pp. 137.

2. *Lectures on the Anatomy, Injuries, and Diseases of the Head.* By Prescott Hewett, Professor of Anatomy and Surgery to the Royal College of Surgeons of England. ('Medical Times and Gazette,' Feb. and March, 1858, pp. 185 and 235.)
3. *On the Coagulation of the Blood in the Venous System during Life.* By George Murray Humphry, M.D., F.R.S., &c. &c.—*Cambridge*, 1859. 8vo, pp. 42, with a Plate.
4. *Cases in the Transactions of the Pathological Society of London.* By John W. Ogle, M.D (Vols. iv., p. 142; vi., p. 31; x., p. 28; and xii., p. 4.)

In our twenty-eighth volume* we considered, in reviewing the works of Drs. Cohn, Lindström, and Brünniche, the subject of embolism in general; the work at the head of the above list will confine us, as its

* July, 1861, p. 70.

title indicates, to cerebral thrombosis and embolism in relation to softening of the brain.

"By *thrombosis* we understand the obstruction of vascular canals by a morbid product developed in the very locality of the obliterated point. The coagulum, which in such a case is usually fibrinous, is known by the name of *autochthonous clot* or *thrombus*.

"The term *embolism* is applied to vascular obstructions caused by any body detached from the internal surface of the heart or of the vessels themselves. The migratory body has received the name of embolus." (p. 7.)

The author divides his work into three parts; in the first he treats of thrombosis and embolism of the arteries of the encephalon; in the second, of the same lesions of the cerebral capillaries; and in the third, of thrombosis of the sinuses of the dura mater.

The *anatomical conditions* of arterial occlusion by thrombosis are—

a. Atheromatous and calcareous degeneration.—The vascular constriction which these lesions at first produce, and the ulceration which is the usual effect of their pathological development, contribute to retard the course of the blood, and thus favour the coagulation of its fibrin.

b. Arteritis.—Some writers, resting on the absence of vessels in the inner and middle coats of arteries, deny the existence of arteritis as a cause of arterial occlusion. The author states that in a case where membranous productions covered the inner surface of several of the secondary divisions of one of the branches of the pulmonary artery, and formed septa which interrupted the sanguineous current in the greater part of the lung, he was fortunate enough to ascertain that there entered into their structure not only elements of connective tissue, nuclei, cells or fibres, but also capillaries.

c. Thrombus.—The characters of the thrombus vary accordingly as it is the product of arteritis or the result of atheroma. In the former case it is generally more complicated, its form is less regular. It may be in great part composed of fibrin, but other elements are found in it. Drs. Peacock and Bristowe indicate globules, which are neither pus globules nor white blood globules; finally, elements of connective tissue, more or less altered, may be met with, and sometimes the thrombus has been formed of a fibrous cord, a membranous exudation; it is then always adherent to, and commingled with, the wall of the vessel, which is not usually the case in atheroma. Thrombus, variable as to its seat, is met with nearly equally in all the arteries of the encephalon.

Embolism.—The arterial walls, contrary to what we have just seen, are often intact in cases of embolism; several observers mention their integrity, even when death has not been rapid. Any of the cerebral arteries may be the seat of the embolus; but the internal carotid and middle cerebral are those which most frequently enclose it.

The author next proceeds to treat of the alterations of the encephalon consequent upon cerebral thrombosis and embolism. These are, in the great majority of cases, comprised under the specific denomination of softening of the brain. The division of cerebral ramollissement into red, yellow, and white, applies not to distinct species, but to states corresponding to different phases of the same pathological process.

"We find, in fact, that in cases where death has supervened in the course of the first week or fortnight, the softening is red, roseate, studded with, or surrounded by ecchymosed points, while at a more advanced period, it is always yellowish and pulpy; or, lastly, after several months it is white and diffluent." (p. 20.)

In the *first* stage, on microscopic examination, some of the nerve-cells and fibres are found to be intact, others are broken and have already become granular; the walls of the capillaries are most usually intact, but in several of these vessels the blood is coagulated. In the *second* stage the nerve-fibres and cells are broken, displaced, granular, in a state of retrogressive alteration and fatty metamorphosis. The walls of the capillaries are covered with grey and fatty granulations; in the cavity of these vessels we find elements of the blood in process of change. The hæmatosin is, in part, separated from the globules, which are red, altered in shape and granular; as to the white globules, they are increased in size and loaded with granulations, constituting the granular corpuscles, granular spherical corpuscles, corpuscles of Gluge. These little bodies, often regarded as a specific character of inflammation, are, according to the author, frequently found under circumstances where it is impossible to suppose the existence of the slightest trace of inflammation. Dr. Lancereaux considers them to be, in the majority of instances, constituted by cells in a state of retrogression, sometimes by white corpuscles and nerve-cells, sometimes by epithelial cells, as in the colostrum, or by corpuscles of connective tissue, as in some tumours, &c. In the *third* stage, the softened substance is white, diffluent, lactescent, to the naked eye as well as under the microscope, presenting the strongest analogy to milk.

"Fibres and nerve-cells have disappeared, and scarcely can we discover any detritus; the capillaries and the corpuscles of the blood are, in great part, metamorphosed, and under the microscope are seen numerous granulations, for the most part fatty, many globules of oil and granular cells, analogous to those of the colostrum; whence the great resemblance existing between the two fluids, the one pathological, the other physiological." (p. 24.)

In some cases of arterial occlusion, where death has been rapid, the brain has been found to all appearance perfectly healthy. In this case death, no doubt, took place in the period precursory to the pathological process. In other instances the brain, without being softened, is, as has been observed by Dr. Bristowe, dotted, or is the seat of sanguineous infarction.

The seat of the softening is variable, but it always corresponds to an obturated artery. That the softening is consecutive to the obstruction, and not *vice versâ*, is evident in cases where one of the carotids, the middle or anterior cerebral artery, one of the vertebral arteries, or even the basilar trunk, is the seat of the obstruction; that is to say, where the vessel is situated without the focus of the softening, and often has not the slightest contact with it.

It is, however, usually in cases where the arterial occlusion is situated in one of the arteries beyond the circle of Willis, that it is accompanied with cerebral softening, and inasmuch as obliteration of the carotid alone may exist without alteration of the substance of

the brain, there is reason to believe that softening ensues only when the carotidean plug is prolonged into one of the middle or anterior cerebral arteries. Apoplectic attacks have, nevertheless, been met with consecutive to ligature of one of the carotids; but in general, the symptoms subside as soon as the arteries of the circle of Willis have re-established the circulation. It doubtless is by the re-establishment of the circulation by means of these arterial branches, that the transient attacks are to be explained, which sometimes precede by several days the decisive seizure.

"If, finally, in some rare cases, cerebral softening accompanies obliteration of the carotid, may not the cause be found in an alteration of the arteries of the circle of Willis, which no longer permits the establishment of the collateral circulation?" (p. 28.)

"A last remark which is, perhaps, not without importance is, that the softening of the brain never occupies the entire portion of nervous substance nourished by the obturated artery. Most frequently the extreme parts of the vascular division are healthy; thus, with obturation of the artery of Sylvius we usually find softening of the corpus striatum and of the adjoining medullary substance, while the grey matter is often intact, as well as the wall of the ventricle. The cause of this is evidently the collateral circulation established by the final ramifications of the obliterated vessel." (p. 29.)

The author, while he admits that obstruction of the corresponding artery does not necessarily exist wherever there is softening of the cerebral substance, expresses his opinion that this anatomical lesion is destined to hold a prominent place in cerebral pathology, that it is much more frequent than has hitherto been supposed, and that it will absorb a large proportion of the softenings called essential. The following is his classification of softening of the brain:

"1. Softening by vascular occlusion (arteries, capillaries, veins).
"2. Softening by inflammation, or encephalitis.
"3. Softening by plastic exudation or alteration of the elements of the connective tissue of the brain.
"4. Mechanical softening (tumours, hæmorrhagic clot, &c. &c.)" (p. 34.)

The third section of the first chapter is devoted to the consideration of the alterations of other parts than the encephalon in cases of cerebral thrombosis and emboli. Alteration of the right side of the *heart* is very rare, the left side of that organ is almost always impaired. In 8 cases only, out of 61, is the integrity of the latter mentioned. In 6 it was simply hypertrophied or dilated, in 40 there was endocarditis or valvular lesion, with constriction or insufficiency of the orifices. In the majority of instances, the valves were covered with fibrinous vegetations, warty concretions, calcareous corpuscles, &c. The *aorta* was often found dilated, atheromatous, ulcerated. Other arteries than those of the brain are frequently obturated, more particularly those of the spleen, kidneys, and limbs. In no case was there lesion or obstruction of the pulmonary veins.

The *visceral* lesions which accompany softening of the brain have been designated by the names of capillary phlebitis, hæmorrhagic or fibrinous infarctions, multiple fibrinous deposits, capillary emboli. In-

farctions of the spleen and kidneys are the most common. *Gangrene of the limbs* is often met with.

The remote *causes* of cerebral softening are those of thrombosis and emboli. They may be enumerated as—old age, syphilis, the abuse of alcoholic drinks, alterations of the heart and great vessels, acute articular rheumatism. Of 22 cases of encephalomalacia observed by the author, the softening was in 16 connected with arterial obliteration.

Whether the arterial occlusion be due to an autochthonous, or, on the contrary, to a migratory clot, the *symptoms* are much the same. In all the cases quoted or given by the author, with the exception of three, there was paralysis of motion, always on the side opposite to the obliterated artery and cerebral lesion; consequently the right side was more frequently affected than the left. The general sensibility, intact in the majority of cases, is sometimes diminished, but never completely annihilated. Rarely is it exaggerated or perverted. Sensibility appears to be especially affected in cases where the obstruction bears upon the basilar trunk or its branches.

The senses, and more particularly sight and hearing, may be the seat of pathological phenomena, the origin of which is rather in the want of sanguineous excitation of these organs, than in the concomitant cerebral lesion. The sight is especially liable to these disturbances, and this is easily understood when we remember that the carotidean clot is frequently continued into the ophthalmic artery. The author believes that it is owing to the incapability of the patients to give an account of their sensations that these disturbances are not more frequently complained of.

In general, loss of consciousness is of shorter duration and slighter in these cases than when it depends upon cerebral hæmorrhage. It appears to be due to the sudden suppression of the sanguineous circulation throughout a greater or lesser extent of the encephalon, to be, in fact, the result of anæmia. The intellectual faculties are more rarely altered and less severely affected than movement is—a circumstance probably attributable to the integrity of the cortical substance in many cases.

The author has some interesting remarks on the lesions of speech which attend the morbid condition under consideration. Thickness of speech is evidently due to paralysis of the muscles of the tongue; but total loss of speech would seem in many cases to be attributable to intellectual disturbance. Loss of speech, as M. Bouillaud points out, appears to proceed from alterations of different situations.

"We see this phenomenon coincide sometimes with occlusion of the artery of Sylvius and softening of the anterior or even of the middle lobe of the brain; sometimes with obturation of the posterior cerebral artery and softening of the cornu ammonis. In two cases which occurred to myself, and where this latter lesion existed, there was paralysis of the tongue; in other cases where the artery of Sylvius or the anterior cerebral artery was stopped, the tongue appeared to have in a great measure preserved its movements, and the loss of speech was referrible to intellectual disturbance. I am thus led to admit, with the learned Professor of la Charité, that there is an organ of formation and an organ of production of speech, the seat of which is, moreover, the convolutions of the brain." (p. 61.)

The latter statement is not very definite. Many of our readers will, no doubt, remember that the late Professor Schroeder van der Kolk referred the function of co-ordinating the movements of the tongue in speech to the corpora olivaria, an opinion which he seemed to have established by pathological observation.*

With respect to the advantages to be derived by the pathologist from the careful comparison of the symptoms during life with the post-mortem appearance, the author justly remarks that—

"Each particular case is, so to speak, an experiment tried by nature, and is destined to reveal to us the function which the portion of cerebral substance corresponding to the obliterated arterial branches or subdivisions is called upon to fulfil." (p. 62.)

When the attacks are not immediately fatal, they generally have but little influence upon the other functions. The pulse is normal, or rather increased in frequency, beating from 80 to 100 in the minute. The retardation which sometimes accompanies certain cerebral affections, especially tumours, and above all meningitis, has not been established. This is a circumstance which appears to the author to be explicable by the absence of irritation in the healthy parts around the softened focus, and which seems to him to support his view respecting the nature of cerebral softening from arterial obliteration. "It is, in fact, to the irritation determined by a sanguineous clot, a tumour or focus of inflammation, that we must attribute the retardation of the heart and the frequency of respiration observed in certain cases."

As to *cure*, it is doubtful if it be possible. With reference to this question, the cases where cerebral softening accompanies arterial obliteration must be distinguished from those where it does not yet exist. In these latter cases recovery may certainly take place, and accordingly in many instances, where there was every reason to suspect the existence of a carotidean embolus, serious apoplectic symptoms have completely ceased at the end of some days, or even of some hours. The author quotes, from the 'Dublin Quarterly Journal' for August, 1856, an interesting case of this nature, by Professor von Düben, of Stockholm. Dr. Lancereaux, however, suggests a different explanation of the case from that offered by the Professor, and supposes that a clot had been arrested in one of the carotid arteries, producing the symptoms, which latter disappeared immediately after the establishment of the collateral circulation. But it is difficult to imagine that the collateral circulation should be so perfectly established within so short a time. We are, therefore, inclined to consider Baron von Düben's theory to be the more satisfactory one—namely, that a plug suddenly detached from the aortic valves had been at first arrested in the aorta at the origin of one of the carotids, whence it was subsequently carried away by the current of the blood.

"Death is, however, the mode of termination most frequently observed; it sometimes follows very close upon the apoplectic attack, and the patient is, as

* On the Spinal Cord and Medulla Oblongata (New Sydenham Society's translation), pp. 147 et seq.

it were, *foudroyé*. At other times he momentarily recovers consciousness and seems to get better, but at the end of some minutes, or of several days, the serious symptoms reappear, and death finally supervenes.

"Under other circumstances, lastly, the cerebral symptoms continue stationary, and the fatal termination is the effect not of softening of the brain, but of the concomitant alterations, chiefly of the cardiac affection, of gangrene of the extremities or even of infarction of the viscera; at other times it is determined by an intercurrent or coincident disease—phthisis, Bright's disease, or even pneumonia." (p. 71.)

The author has an excellent chapter upon the diagnosis of the lesions in question, some observations upon treatment, and a number of illustrative cases, with remarks upon each; but we have dwelt so long upon the preceding parts of his interesting memoir, that we must upon these points refer the reader to the original, and proceed to indicate the arrangement of the second and third divisions of the work, treating respectively of thrombosis and embolism of the capillary vessels of the encephalon, and of thrombosis of the sinuses of the dura mater.

"The different substances capable of obstructing the capillaries are more varied in their nature than those which plug the arteries; they are sometimes fatty, atheromatous, or calcareous matters; sometimes pigmentary granules or cells; sometimes pus, portions of fibrin proceeding from a purulent or gangrenous focus, &c. Accordingly as one or other of these substances is engaged, the lesions and phenomena may be different; when the embolus proceeds from a purulent or gangrenous focus, we sometimes observe derangements affecting the whole system, and occasionally imprinting upon the malady a special stamp." (p. 95.)

Hence Dr. Lancereaux divides the subject of this section into fatty and atheromatous thrombosis and embolism, calcareous degeneration, melanemic thrombosis and embolism. Lastly, he treats of the so-called specific, gangrenous or pyæmic embolism.

The third and last section of the work is, as we have stated, devoted to the consideration of thrombosis of the cerebral sinuses, a subject which has hitherto not sufficiently attracted the attention of writers. The most important work upon it which has as yet appeared, is, according to Dr. Lancereaux, that of von Dusch, recently translated by Dr. Whitley into English for the New Sydenham Society, which contains, in addition to the author's own observations, the greater part of the materials furnished by the other principal writers upon the same subject—viz., Tonnelé, Lebert, and Gerhard.

"With the aid of these works, and from my own personal researches, I have been able to collect 74 cases which serve as the basis of this latter part of my essay. The comparison and analysis of these facts have led me to adopt the following division, and to study comparatively:

"A. Thrombosis due to obstruction or to retardation of the circulation in the sinuses, with or without alteration of the blood—*non-inflammatory thrombosis*.

"B. Thrombosis connected with alteration of the external parts, and more particularly with an inflammatory process—*inflammatory thrombosis*.

"The facts of the first category present a great analogy to those which have just occupied us; they generally produce no other phenomena than such as

result from vascular obstruction. Those of the second, on the contrary, are usually the starting-point of symptoms which we refer to purulent infection." (p. 117.)

A. The cases of non-inflammatory thrombosis on record amount in number to 35; they present themselves under two different forms. Sometimes the contents of the cerebral sinuses are constituted exclusively of fibrin in a more or less advanced stage of alteration; sometimes, on the contrary, and, more rarely, in addition to the thrombus there exists a false membrane. In the first case, when it lasts long enough, the thrombus contracts adhesions which, very probably, are formed of the elements of connective-tissue; in the second, beside the fibrinous plug, and in front of it, exist pseudo-membranous products.

"These new membranous productions, in all cases, obstruct the course of the blood, and lead to the formation of fibrinous concretions. Other productions external to the sinuses also induce thrombosis; these are tuberculous tumours compressing the jugular veins or the sinuses themselves—hypertrophy of the Pacchionian glands. It is evident that a great number of other tumours may produce the same result." (p. 121.)

The most usual seat of this variety of thrombosis is the superior longitudinal sinus. From this vessel the thrombus is frequently continued into the torcular Herophili and the lateral sinuses. The thrombus usually presents a symmetrical form and arrangement, which seems to indicate that its cause is rather general than local. In these cases the brain or its membranes are seldom or never inflamed, but distension of the veins of the meninges, or of the cerebrum (passive congestion), numerous apoplectic foci of small volume, well described by Cruveilhier under the name of capillary apoplexy, and the softening of a more or less extensive portion of the brain, with or without sanguineous infiltration, have often been noted.

B. *Inflammatory Thrombosis.*—The cases on record are thirty-nine in number.

"In all, the thrombosis was consecutive to and connected with an alteration of the scalp, or of the bones of the head, caries, wounds, or injuries. In thirty instances out of thirty-nine, there was caries of the bones of the cranium; in twenty-four, the temporal bone was affected in consequence of internal otitis; and invariably it was the corresponding sinus which was the seat of the thrombosis. In a case observed by Stannius, the cavernous sinus was affected with suppuration extending into the ophthalmic vein and its branches. Rarely are the two lateral sinuses at the same time affected with thrombosis; rarely also is the superior longitudinal sinus affected with it, contrary to what existed in the preceding category.

"In these cases, too, the thrombi were no longer composed exclusively of fibrin; most of them were in a state of suppuration. In the interior of the sinus was found a mixture of fibrin, pus, and sometimes of false membranes. In four instances only suppuration did not exist.

"The walls of the sinus were often altered; their colour was brownish or yellowish; they were thickened, friable, sometimes destroyed, and the perforated sinus communicated with the portion of carious bone.* The thrombus

* Hensinger: Virchow's Archiv, Band xi. S. 93; Hooper, Lebert, loc. cit., pp. 419 and 421.

which, in these cases, occasionally exists before the perforation, may prevent hæmorrhage." (p. 124.)

The connexion between purulent infection and lesions of the external parts of the head is also alluded to by Mr. Prescott Hewett, in his admirable lectures.* He, however, necessarily considers the subject from a different point of view:

"Thus, in twenty-three cases of simple scalp wound, or contusion of the bone, which ended fatally at St. George's Hospital, within the space of ten years, purulent infection was noticed in fourteen instances; whereas, in seventy-eight cases of fracture terminating fatally within the same period, it was noticed in six cases only, and even of these, five were compound fractures. Such a statement as this may at first sight appear strange, but it is explained by the fact that in far the greater number of fractures, the patient died long before the period at which purulent infection usually sets in. In the vast majority of these cases, it was an extensive extravasation of blood, or some serious lesion of the brain, which led to the death of the patient, and there was no suppuration either about the fracture or other parts of the cranial region.

"Purulent infection deserves, then, to be especially and most prominently noticed in connexion with the simpler forms of injuries of the head, that is, with scalp wounds and contusions of the bones." (p. 235.)

Dr. Lancereaux's concluding chapters are devoted to the symptomatology, diagnosis, etiology, prognosis, and treatment of thrombosis of the cerebral sinuses. He has well worked out his subject; and his book will be found to contain a vast deal of information on a highly interesting topic. A very valuable series of tabulated cases is appended to the work.

The greater part of Dr. Humphry's comprehensive essay is devoted to the subject of "clots in the veins." From this portion of the work the author draws the following conclusions:

"1. The great veins are very liable to become obstructed by clots forming in them when the patient is greatly debilitated, and when the circulation is enfeebled—by inflammatory affections, by discharging abscesses, difficult labours, and other causes.

"2. The clots result from an altered state of the blood, disposing the fibrin to solidify; and are found in those parts of the veins which offer the greatest facilities for its so doing.

"3. The inflammation of the veins is in consequence of the presence of the clot, and is chiefly confined to their outer coats, and to the surrounding cellular tissue.

"4. The clots may soften and become intimately connected with the walls of the vessels, and may lead to the complete and permanent obliteration of their canals; more commonly, however, they are removed, or shrink into delicate bands or fibres, which offer little or no obstruction to the circulation.

"5. The affection rarely leads to any serious result. It may be associated with so-called pyæmia; but has no necessary or frequent connexion with it." (p. 23.)

With respect to the altered state of the blood disposing the fibrin to solidify, Dr. Humphry observes that—

"The researches of Dr. Richardson, continued with great assiduity and care through a long period, give strong reason for his view that the fibrin is held

* We are waiting for an opportunity of noticing these lectures *in extenso*, and hope they may be republished in a separate form.

in solution by the presence of ammonia, and that its tendency to coagulate in the body is increased, and its coagulation out of the body is accelerated, by a diminution of the volatile alkali of the blood: and it is quite probable that, in the cases which we are discussing, an insufficient quantity of this solvent medium is one of the proximate causes leading to the clotting of the blood in the vessels." (p. 19.)

Further on he says:

"I have given ammonia in some cases in which I thought there might be a predisposition to the formation of clots; and where the general condition of the patient is likely to be benefited by the use of such a medicine, we should not ignore the evidences which have been afforded of its influence in retarding coagulation of the fibrin. If given in a pure form, it is probable that some of it will enter the blood; and that it will operate in the living vessels, more or less, in the same manner as it is found to do when mixed with blood which has been removed from the body." (p. 20.)

Dr. Humphry appears to consider that the clots often found in the pulmonary arteries are, in the great majority of cases, *autochthonous;* in our opinion, he underrates the part played by emboli in their production, as well as the extent and frequency of the formation of the latter throughout the system generally; thus he observes that—

"Virchow attributes the formation of these plugs in the pulmonary arteries to the lodgment there of small clots or fragments of clots ('emboli'), which have been formed in the veins, and have been wafted with the blood through the right cavities of the heart, towards the lungs. These fragments, he thinks, become detached from the ends of the clots which project into the great venous trunks; thus, in any case where the end of a clot formed in one iliac vein, projected into the vena cava, a portion may be washed off by the blood flowing against it from the other iliac vein, and being carried into the pulmonary artery, may lodge upon one of the projecting angles of the vessel, and constitute a nucleus for the formation of a plug. It is not improbable that this may sometimes occur. It must, however, be remembered that the surface of the venous clots is usually quite smooth, and therefore not very likely to be disintegrated by the slowly flowing current of blood; secondly, that in many cases, as in Nos. I., II., III., there was no reason to suppose that the pulmonary clots were preceded by clots in the veins; and, thirdly, that the effects of a preternatural tendency of the venous blood to coagulate are, for the reasons just given, likely to be exhibited in the pulmonary arteries as well as in other parts of the system." (p. 30.)

Dr. Humphry relates some cases which certainly prove that clots often form in the veins, and subsequently disappear without leading to any bad result; but our opinion remains unchanged that, in the following paragraph, for example, he takes too favourable a view of the whole subject:

"I have already said," he remarks, "that the affection is rarely attended with any serious consequences. It does not commonly seem to aggravate the patient's condition, or to diminish his chance of recovery; indeed, I have sometimes observed an amelioration in the general condition of the patient to be coincident with the swelling of a limb which indicated an obstruction in the great vein; as though the general mass of the blood had become thereby relieved of a certain quantity of its redundant fibrin, and was consequently better fitted to minister to the healthy nutrition of the body. If the obstruction of a vein occur during the course of an inflammatory disease, it generally

takes place when the disease is subsiding; it may therefore be regarded as an attendant on recovery, though it is an evidence of a low or cachectic state of system. I may again remark, that it seems to have no relation to the malady called 'pyæmia;' and though necropsies prove that it is sometimes associated with the formation of clots in the pulmonary arteries, I have not in any case had clinical evidence of its being followed by that formidable affection." (p. 20.)

While we thus express our dissent from some of the opinions put forward by Dr. Humphry, we have no hesitation in strongly recommending his interesting essay as one that will amply repay a careful perusal.

Among the cases by Dr. Ogle to which we have referred, will be found some interesting examples of the tendency in the blood to a spontaneous deposition of its fibrin, so often observed in diseases of an atonic character. In his commentary on the cases in the tenth volume, the author makes some important remarks upon the existence "of a plugging-up, and, it may be, of other conditions also, of the intervening venous channels," as a connecting link between suppurative disease of the inner ear and the similar state of the brain tissue which so often follows it, for example, after scarlatina. We are not aware that this connexion has been before pointed out, and Dr. Ogle's observations prove the necessity which exists of carefully examining the condition of the cerebral veins in all such cases.

Review XIV.

Guy's Hospital Reports Edited by Samuel Wilks, M.D., and Alfred Poland. Third Series. Vol. VIII.—*London*, 1862. pp. 325.

The opening article, by Dr. Wilks, one of the Editors, is of considerable length, and is devoted to the author's experience regarding that peculiar form of disease which has been denominated morbus Addisonii, and to which we invited the attention of our readers on a former occasion.* The initial paragraph in this paper led us to anticipate a more exhaustive treatment of the subject than that which we really obtain; for our author, considering, as we think rightly, that experience may have enabled us to judge much more correctly upon the matter, speaks of the arrival of a fit opportunity "to undertake an examination of the additional facts which have in the mean time (i. e., since the publication of Dr. Addison's 'Treatise on Diseases of the Supra-renal Capsules') been collected, in order to discover whether they tend to strengthen or to weaken his conclusions.

Any comprehensive examination, however, of such additional published cases or specimens illustrating the disease as have not been brought under Dr. Wilks' own notice is not entered into, inasmuch as the author "found cases not sufficiently well reported, or the necroscopic inspections too vague to enable him to make use of them with justice to that subject." He strictly limits himself (and this we cannot

* See Review, Oct. 1856, p. 404.

but regret) to the consideration of the twenty-five cases of which he has a personal knowledge. We will, however, place our readers in possession of the scope and intention of the paper.

Dr. Wilks prefaces his general observations by remarking that the scepticism which so widely prevails in the profession respecting the disease in question, is the necessary consequence of a want of definition and precision as regards its true pathological character; for whereas Dr. Addison's belief was, at the time of the publication of his work, that any disease which affected the integrity of the supra-renal capsules would be attended by the remarkable phenomena which he described, Dr. Wilks endeavours to show that the affection in question is NOT connected with cancer, scrofulous deposit, or any other morbid change in the supra-renal capsules than that particular condition of these bodies which was found in the early genuine cases which Dr. Addison first described, and on which his own opinions were originally based.

Dr. Wilks laments deeply that Dr. Addison should have been led, "in the ardour of a fresh discovery, to include cases of which he had no opportunity of proving their genuineness," and endeavours, by eliminating such doubtful cases, to rescue Dr. Addison from himself, and to rest his discovery upon a more stable, albeit a narrower, foundation. He hints that Dr. Addison himself was prepared, in a future edition, to clear the ground of such extraneous matter as he had allowed himself, detrimentally to the safety of his theory, to introduce into his monograph.

The author discusses his subject under the following headings:—General Features of the Disease; Constitutional Symptoms; Special Nervous Symptoms; Order and Duration of Symptoms; Discoloration or Pigmentation of the Skin; Age; Sex; Nature of the Disease of the Capsules; Objections against Addison's Observations, &c. Respective of the general or constitutional symptoms of the disease, of course, it is well known that Dr. Addison pointed it out as being indicated most conspicuously by a strongly marked and progressive asthenia, a pearly eye and feeble pulse, associated (and this appears to have been a *sinê qua non*) with the characteristic discoloration of the skin—and all these symptoms dependent in some inexplicable way or other upon disorganization of the supra-renal capsules; no other organ in the body apparently being the seat of disease.

As regards the existence and identification of this disease, Dr. Wilks still accords with Dr. Addison as much as he did on a former occasion, when, in the 'Guy's Hospital Reports,' he wrote on the subject; but a further and more extended experience, by reason of an examination of supplementary cases, compels him to make at least two very important qualifications in its description. Thus it appears, in the *first* place, that, according to Mr. Wilks' own cases, the change of colour in the skin is not, as formerly thought, a necessary element of the disease; and, in the *second* place, that, in order to have the genuine Addisonian malady, we must have the supra-renal capsules diseased in one way only, and that is, by their being the seat of a peculiar deposit, which, when

recent, is of a translucent, softish, homogeneous character, and subsequently degenerates into a yellowish-white opaque matter, afterwards softening into so-called abscess, or drying up in the course of time into a chalky mass. Dr. Wilks states that nothing is known of any other lesion of the capsules producing the disease.* The discoloration of the skin, which is only veritable and characteristic when it resembles that of a native of some southern country, appears to occur only "if the case has been of long duration;" but when it does appear it possesses the following peculiarity—viz., that it implicates, to a greater or less degree, the entire surface of the body, being more marked, as in the case of the Southerner, in the axillæ, over the pubes, &c., whilst, also, it makes its appearance the earliest in the parts most exposed, as the face and hands.

These are the main exceptions which, as far as we can gather, Dr. Wilks has been induced to take to Dr. Addison's statements, and we are given to understand that Dr. Addison's original and unaltered views with regard to the disease were exactly such as Dr. Wilks now sees reason to entertain; and that the modifications made by him, in accordance with an extended study of its pathology, are just such as Dr. Addison had the wish and intention to make previous to his death.

As regards the connexion between symptoms and the solitary post mortem lesion upon which they are hypothetically made dependent, Dr. Wilks seeks, with Dr. Addison, to refer the gradual asthenia to some failure of nervous force acting on the heart, brought about by injury to the ganglionic system of nerves, in virtue of implication of sympathetic branches, or of injury rendered to them by the enlarged and diseased supra-renal capsules. He conjectures, also, that the more or less sudden death which may occur in such cases is analogous to that which not uncommonly attends a number of diseases in which the ganglionic system of nerves is affected by contiguity, and that the pain in the back often complained of is referrible to an implication of nerves in connexion with the capsules.

Respective of the duration and order of symptoms, the average of Dr. Wilks' cases exhibited symptoms for one and a half year before death, the discoloration of the skin being, as a rule, observed about the same time that the patient began to feel ill. Upon this last point, Dr. Addison, it will be remembered, strongly held an opposite opinion, as the disease always appeared to him to be manifested long before the pigmentary changes.

Dr. Wilks then notices the connexion between the melasma suprarenale and tubercle, observing that in his best marked cases there was no appearance of tubercle in any part of the body; in four only was tubercle encountered in the lungs. He evidently is strongly inclined to

* At page 18 Dr. Wilks observes: "Nor do we recognise any degeneration of the tissue (of the capsules) itself." We suppose from this that Dr. Wilks has never met with a fatty condition of these tissues. This state we have frequently noticed, and the changes observed were quite as great as in instances of ordinarily termed "fatty degeneration" of the heart. A fatty and cirrhosed state of the supra-renal capsules will be found described in vol. ix. of the 'London Pathological Society's Transactions,' p. 409.

the view that the disease is not of a scrofulous character, and evidently favours the supposition that it is of a simple, so called inflammatory nature. Without defining the relationship which may exist between the disease and any peculiar state of the intestinal tract, Dr. Wilks observes that in many cases a condition of the mucous membrane of the stomach and bowels is found "which may be called one of irritation."

Dr. Wilks then proceeds to notice the objections with which Dr. Addison's views have been met at various times, remarking that—

"The objections which have been raised against the accuracy of Addison's conclusions are mostly of this nature:—That if a large collection of cases be made where disease of the supra-renal capsules has been met with, and also that if a large number of cases be collected of discoloration of the skin, and the whole of such cases be put together, these instances where disease of the capsules and discoloration of the skin are combined are so few that the occurrence cannot be regarded in any other light than a coincidence. This argument has appeared to some conclusive.

"Also, that a complete destruction of the capsules, such as Addison has described, has been met with accidentally or in patients who have died of various diseases.

"Also, that the supposed inference of Addison that these organs are vital is incorrect, since they can be removed from the living animal with impunity." (p. 21.)

These objections are to be met entirely, in our author's opinion—Firstly, by limiting Addison's disease to those cases in which the peculiar change in the supra-renal capsules above mentioned exists, excluding strictly all cases of tubercle, cancer, &c., of those organs. Secondly, by considering how few the cases are in which the uniform discoloration observed by Addison has occurred, and how frequently other kinds of discoloration have been mistaken for the true one. Thirdly, by the consideration that Dr. Addison never considered the supra-renal capsules to be vital, but that their disease proved injurious by reason of "implication of the adjacent organic nerves, and there is every reason to believe that his opinion was correct."

Dr. Wilks closes with the detailed particulars of his twenty-five cases, some of which have been already published, including all those which have come before him when the organs have been found affected.

Such is the paper by Dr. Wilks on the so termed morbus Addisonii or melasma supra-renale, conclusive, in the author's mind, in discomfiting all opponents to the doctrine which underlies this designation If we do not at once accept Dr. Wilks' propositions, it will no doubt be thought that we are forgetful of what our opinion was when Dr. Addison's original work was reviewed in these pages. We can only say that we fear our opinion, as then expressed, was open to the suspicion of being more favourable than it would have been could the additional cases which have come to light since, and the experiments which have been performed, have been foreknown by us. Dr. Wilks must at any rate think that our full acquiescence was premature, inasmuch as he has found reason, as we have seen, to prune and purge Dr. Addison's work of much that its author offered and many accepted, as positive proof of his correctness; and in like manner limiting the true disease to those cases in which the capsules were the seat of the fibroïd

and calcareous deposit, Dr. Wilks must of necessity ignore entirely many of the cases which various writers had produced or collected together in support of Dr. Addison's views.

But although we may not at once accord with the results arrived at by Dr. Wilks, we are by no means wishful to reject them altogether, or, indeed, to come at present to any definite conclusion on the subject. So many cases bearing on the question have been scattered through our medical literature, both foreign and domestic, since the appearance of Dr. Addison's work, in addition to the Guy's Hospital cases, that we cannot legitimately arrive at any result until we shall have the opportunity of comparing these cases and carefully collating all their particulars—thus forming a larger induction than has hitherto, as far as we know, been made.

One or two points, however, so strike us, in reading over Dr. Wilks' cases and remarks that we must say a few words upon them at the present time.

Let it be remembered that, according to the "revised code," the true disease only exists when the supra-renal capsules are the seat of a fibroïd or calcareous deposit (not considered to be of a strumous nature); and again, that the asthenia and other symptoms of the disease are produced by some injury to the organic (or sympathetic) nerves in the structure of, or in the neighbourhood of, the diseased capsules—the latter case being most likely the true one. Now we would ask, if all this be so, how are we to understand that the organic nerves adjacent to the supra-renal capsules would run more risk if these capsules were the seat of, and enlarged by, fibroïd deposit than if they were occupied and enlarged by scrofulous or by cancerous deposit of any kind? We should have thought that they would have been involved equally in any of these conditions. Then again, considering the close contiguity of the supra-renal capsules and the kidneys, it might surely have been expected that in the many cases wherein the kidneys are extensively enlarged from various causes (hypertrophy, the presence of abscesses, cysts of numerous kinds, calculi, &c. &c.), and in cases of tumours of different kinds in the renal regions, we should have had the adjacent organic nerves implicated quite as much as in those cases of enlarged supra-renal capsules, which are described as being "twice their ordinary size," or "as large as a hazel nut or walnut" (very few apparently being much larger), and yet we are not wont to look for the symptoms of Addison's disease where the kidneys are so diseased.*

Moreover, on reviewing Dr. Wilks' cases, and bearing in mind the view entertained both by him and by Dr. Addison, that the disease was the result of implication of the organic nerves within the substance of, or external to, the supra-renal bodies, we could not fail to notice how very slightly these capsules in several of his capital cases must have been increased in size, and how slightly the enlargement which existed

* Neither do we look (though the necessity for the existence of bronzing of the skin is now relinquished) for such skin pigmentation when the organic nerves are interfered with or implicated by disease in other parts of the body, although probably the asthenic symptoms may arise from such implication.

would suffice to produce the required implication of adjacent parts. For example, in case 5 we only have it said that "tubercular deposit was also found in one of the supra-renal capsules;" in case 10 the capsules are said to be quite disorganized, and none of the original structure left, "the masses of disease corresponding in SIZE and SHAPE to the organs themselves, though not quite so regular in form, and slightly larger." In case 14 we find that the "right supra-renal capsule was diseased, containing a SMALL collection of cheesy matter, with a drop or so of thinner fluid in the centre." In case 16 the left capsule is described as being "RATHER LARGER than usual, and much altered in character." In case 18 these organs were "SLIGHTLY LARGER than natural, and were wholly converted into a tough yellow amorphous matter." In case 21 it is stated that "the supra-renal bodies, or rather the diseased masses which took their places, were NOT VERY LARGE—in length about that of the organs themselves, but not so broad."

Then, again, with respect to other cases; bearing in mind that the facts on which we are now commenting are adduced as illustrating implication of adjacent parts, we should certainly have expected more precision in the descriptions as to dimensions, &c. of the supra-renal bodies; for is it not, indeed, a very slight amount of assistance that we derive (in our desire to trace an accordance between the instances related and the inferences gathered therefrom) when we find, as in case 2, these organs merely mentioned as containing fibrinous concretions; or, as in case 5, where it is merely said that "tubercular deposit was also found in one of the supra-renal capsules;" or, as in case 6, where the capsule is described as being "enlarged and occupied" by deposit, &c.; or, as in case 17, as being quite destroyed by the peculiar organizable matter in all stages, &c. (no mention existing of the dimensions of the organ); or, as in case 17, where one capsule is said to "consist of a hard mass of fibro-albuminous tissue, degenerating in parts," &c.; or, as in case 20, where the PLACE of the organs is described as being occupied by scrofulous deposit;" or, as in case 22, where they are noticed as "much enlarged;" or, as in case 23, where the left capsule was found "large, hard," &c.—the capsule being converted "into a roundish mass;" or, as in case 24, where it is stated that "these organs were considerably enlarged," &c.? We do not think that the various descriptions which we have just quoted tend to lead us to any very definite conclusions in either one direction or another, as to whether the surrounding organic nerves were encroached upon or not. It must not be overlooked that where the nervous ganglia in the vicinity of the diseased capsules were examined by aid of the microscope, they were found to present no morbid appearance.

We have ventured thus to draw attention to certain parts of Dr. Wilks' paper, not with any view, as before said, of now offering any critical opinion as regards this field of inquiry, modified as it must be considered to be since the death of Dr. Addison (for which critical opinion possibly we may not even yet have sufficient or sufficiently satisfactory data), but simply to point out the salient points of that which in our own country has most recently been written concerning it. With these observations we pass on to the consideration of the next communication in the volume.

II. *Case of Tumour at the Base of the Brain; with Ophthalmoscopic and Post-mortem Examination of the Eyes.*—By C. BADER. —This case was that of a man, aged thirty-two, of regular habits, never having had syphilis, who was admitted into Guy's Hospital in a semicomatose state, with eyelids half closed and "pupils dilated, contracting only a little and sluggishly." He had had several "fits" during the last five or six years, and been the subject of symptoms showing that some cerebral disease was most likely present. In 1861 there was slight intolerance of light, with impairment of the sight of both eyes, and a complaint of "flashes of lightning going through the eyes." On ophthalmoscopic examination, the bloodvessels (veins) of the retina were found

"Gorged with blood and tortuous (elongated). The optic nerve (at the choro-retinal aperture) of the left eye appeared almost as red as the adjoining choroïd, especially its temporal portion (inverted image), thus appearing ill-defined, i.e., the adjoining choroïdal structure not well marked off. There was no change in the retinal arteries where they pass through the nerves; the veins were as numerous and gorged, &c. as in the retina. In the right eye a similar state of the veins existed in a still higher degree. The situation of the optic nerve (of the choro-retinal aperture) could only be recognised by the vessels of the retina converging together and passing through it; the contours of the aperture were observed by the great vascularity of the nerve thus blending in colour with the choroïd, and probably changing the reflection from the retina." (p. 66.)

Mr. Bader proceeds to remark that—

"The other cerebral symptoms, together with the enlarged tortuous state of the veins of both the retinæ, made it probable that an undue accumulation of blood at the base of the brain was the cause of the state of the veins of the retinæ," and that ophthalmoscopically "it was interesting to find the retina and optic nerve apparently unchanged in structure with such considerable venous congestion of the retina." (p. 67.)

On post-mortem examination the cerebral ventricles were found distended by clear serum, and a tumour of the same colour as the cineritious part of the brain, which had sprung apparently from the membranes, was found at the base of, and indenting that organ on the inner and lower surface of the right lobe of the cerebellum. This tumour, of the size of a small hen's egg, was so situated that it also compressed the pons Varolii, together with the upper part of the medulla oblongata. It proved to possess mainly a fibrous structure, and was composed of a number of nodules, in which the fibres were "placed in a concentric manner, just as in the fibrous tumours of the uterus, which, indeed, it much resembled." "The right vertebral artery, which had been compressed, was considerably smaller than the other." The optic nerve and other parts of the eye were normal, except that the central retinal vein appeared enlarged where it passed the lower margin of the choroïdal aperture. The lungs were congested, and in parts in a state of grey hepatization—a condition attributed by the author to pressure upon the pneumogastric nerves by the tumour.

Mr. Bader suggests that "it would be interesting in cases of brain disease, whether vision be impaired or not, to examine the retina for its vascularity, with a view of watching cerebral changes and establishing the value of this diagnostical aid. In connexion with this subject we

may refer to a communication by Dr. Ogle in the 'Medical Times and Gazette,' June 9th, 1860, p. 752, wherein a similar suggestion in connexion with diseases of the brain is made *apropos* of certain cases there related.

III. This paper contains Section I. *Remarks on the Stereoscopic Theory of Vision; with Observations on the Experiments of Professor Wheatstone:* and Section II. *The Stereoscope and Stereoscopic Results.* By JOSEPH TOWNE.—These papers, which contain the accounts of several experiments undertaken with a view of illustrating the phenomena of vision, can only be fully understood in connexion with the numerous figures which are introduced, and are of such a nature that we could not possibly condense them. The author describes and depicts an "adjustive stereoscope" which he has invented, and which for his method of investigation he found superior either to Sir D. Brewster's lenticular stereoscope, or the original reflecting stereoscope of Professor Wheatstone.

IV. *Clinical Notes on some cases of Disease of the Heart.* By S. O. HABERSHON, M.D.—The author points to the effect which in chronic cases of disease of the heart, removal from small houses to large hospital wards often has in bringing on bronchitis, and thus an increased embarrassment of the heart's movement. He very justly remarks that—

"In chronic disease of the heart the regulation of the muscular exercise of the patient, care as to the diet and the state of the bowels, so as to avoid hepatic congestion and flatulence, and attention to the atmospheric condition, so as to guard against recurrent attacks of bronchitis, are amongst the most important curative means which we possess, or rather the means by which to retard the rapid increase and speedy termination of the disease." (p. 99.)

Eight cases are given in detail, reported by Mr. Herbert B. Spurgin, along with "Remarks." Of these we would point to cases I. and VII. as being more unusual in their phenomena than the rest. In the first of these cases we have an instance of aneurysm of the aorta, opening into the pulmonary artery, in a soldier, aged twenty-four. The aneurysmal aperture in the aorta was situate on the right of that vessel, about half an inch above the aortic valve, and that communicating with the pulmonary artery was immediately above the valves of the vessel. There was also aortic and mitral valvular disease, one of the aortic valvular crescents being cribriform and another aneurysmal; and there was also aneurysm of one of the communications. On stethoscopic examination "over the aortic valves, there was a prolonged systole or bruit, and a second regurgitative bruit was faintly audible, with a feeble click of the second sound of the heart. Below the nipple was a loud systolic bruit, continuous with the second sound."

Speaking of the manner in which the physical signs had reference to the lesions as noticed in the post-mortem examination, Dr. Habershon observes:

"The examination after death, however, rendered it probable that the entrance of the blood into the aneurism synchronously with the systole of the

heart was in part the cause of the first sound, and it is possible that an extrusion of blood from the less distended sac might partly cause the less distinct diastolic bruit. These sounds were not found to follow the course of the pulmonary towards the left side, as in imperfect ventricular septum, or in open ductus arteriosus, but were heard in the course of the aorta towards the right side." (p. 103.)

In this case there was deep lividity of the face along with other symptoms of organic cardiac disease.

In Dr. Habershon's seventh case we have an example of that peculiarity not frequently encountered—viz., a triple sound at the heart, the ordinary systole being followed by a *double* shorter sound. The patient was aged fifty-five, of temperate habits, and had had cholera and a slight attack of rheumatism. About a year before admission into Guy's Hospital he had an attack of hæmoptysis, and cough and dyspnœa, which lasted six months. The respiration was generally free and normal, but there were numerous râles at the base of the left lung. The pulse was 108, regular but small; respiration, when at rest, 24. The pericardial dulness was increased, but no murmur was audible. Under the use of small doses of steel, digitalis, &c., and complete rest, "the pulse became more full, and the triple sound entirely ceased."

The author looks upon this triple sound "as being produced by want of proper consentaneous action in the muscular fibres connected with the mitral." Accompanying this paper is a lithograph, well illustrating the case of aneurysm of the aorta opening into the pulmonary artery.

V. *Notes of several cases in which Podophyllin was used as a Purgative.* By S. O. Habershon, M.D.—These cases are 12 in number (all differing in nature), and illustrate the use of this remedy, in doses ranging from one-fourth of a grain up to one grain, combined with extract of henbane. Dr. Habershon has found it "more active than jalap" (does he mean Jalapine?), and when given in the above doses, "directly after a meal, the bowels have acted efficiently and without pain in about twenty-four hours." Sometimes, however, pain was produced, and an irritable condition (of the bowels). Dr. Habershon mentions a case in which by mistake from seven to ten pills were taken instead of one, and the violent symptoms which follow a full dose of elaterium were produced.

Referring to the supposed action of this remedy upon the liver, two cases are quoted of jaundice and liver-disease, in which the motions, which were pale, became of deeper colour, "so far tending to confirm the theory of its cholagogue action, although bile elements may be discharged without great depth of colour in fæces."

Dr. Habershon thinks that in "the constipation of children we could not recommend its use;" we have, on the other hand, once or twice found podophyllin act in the case of children with complete satisfaction. Our own experience, both in hospital and private practice, corresponds pretty much, on the whole, with Dr. Habershon's as to the uses of this lately introduced medicine. We must say, however, that we have found it vari-

able in action—that is to say, the same dose has produced on patients of a similar age and under circumstances tolerably akin, very different results as regards activity and amount of purgation. It is a question worthy of solution whether this variability should be attributed to difference in the individuals or to difference in the strength of the drug.

VI. *Two cases of Extra-Uterine Fœtation treated by Abdominal Section.* By J. Braxton Hicks, M.D., F.R.S.—These cases are full of interest, and very systematically recorded. Among other preliminary observations, the author has the following respective of the class of cases of which his two are specimens. He remarks:

"We cannot extract from statistics the revelation of a sure guide as to the mode of treatment to be employed in any given case of disease, and particularly in this class, where the conditions are exceedingly variable. Hence it is imperative that, independently of the information to be derived from statistics, every symptom should be carefully considered and well balanced with the others before we determine our line of practice." (p. 127.)

Case I. has the following heading:—"Extra-uterine fœtation, and communication with intestine a few months after full term; putridity of fœtus; extreme depression of the patient; treated by abdominal section; cyst not adherent; death in twelve hours."

Case II. was as follows:—"Extra-uterine fœtation of four years' standing; communication with bladder, and cystitis; removal of bones by abdominal section. Recovery."

After a series of remarks upon the characteristics of these particular cases, and the various circumstances connected with the subject in general, Dr. Hicks promulgates the four following rules:

"1st. If the patient be in good health, without any irritation of the bladder or bowels, it would be better to wait and watch till any such symptom arose.

"2nd. Should there be unmistakeable evidence of communication having taken place with the intestine, the more particularly if the child be but recently dead, then there can be no question as to the propriety of abdominal section at an early period, with the mode of management above suggested,* if no adhesion exist anteriorly.

"3rd. Should time have elapsed, and there be distinct evidence of pointing into rectum, vagina, or through abdominal parietes, in such a position that we can assist in withdrawing the fœtal bones, then Mattei recommends the enlargement of the opening and gentle assistance. This would be the more advantageous plan if some bones had already escaped.

"4th. In case communication has taken place with the bladder, the necessity of operation is as strong as in any case, for the reasons above stated. However, in regard to the danger from constitutional symptoms, there is less urgency in the performance of it, if we can by rest, opiates, and judicious management, subdue the symptoms for a time; for in that case we shall have an increased chance of adhesions and diminution of contents. If, however,

* This alludes to the procedure of sewing the free lips of the wound in the cyst to the corresponding one of the abdominal section before attempting to extract the fœtus, which is necessary provided there is no adhesion, or only a partial one, between the cyst and the parietes. Dr. Hicks (p. 138) describes the steps and the precautions to be taken in accomplishing this end.

they continue to be severe, or are on the increase, then we shall gain nothing by postponing the extraction of the fœtus." (p. 140.)

VII. *Notes on two cases of Uterine Polypi.* By J. Braxton Hicks, M.D., F.R.S.—Dr. Hicks anticipates the description of his cases by remarking upon the want of any "definite boundary-line between any of the adventitious growths," observing that numerous hints may be found, not only in the course of life-history during the progress of many of these growths, "but that some of them continue, we may say permanently, as an intermediate condition throughout their whole existence."

In the first of these two cases was exemplified the combination of the "malignant fibroïd," and "fibro-nucleated" growth. The so termed semi-malignant polypus was removed in a patient aged forty-seven, from the os uteri, by a wire-rope noose, and found to consist of a "portion of the cervical mucous membrane, hypertrophied, and increased in bulk principally by the addition of connective and fibrous tissue. The only indication of any tendency to malignant disease existed in the layers immediately underlying the epithelium;"—a layer of irregularly small caudate cells, arranged more or less in the manner of a network, almost all the cells containing two or three nuclei of different sizes amongst granular contents.

After the removal of the polypus, the extensive hæmorrhage which it had produced entirely ceased, and the os uteri resumed its natural condition. In about a year and a half the patient applied, "on account of a tumour which was attached to the uterus, extending nearly to the umbilicus." Hæmorrhage had been produced by this, but had ceased. There was, however, pain and a chloronæmic aspect. The patient died suddenly, as it afterwards appeared, from fatty heart.

On examination after death, the tumour was found to involve all the anterior and upper part of the uterus, to extend secondarily to the lumbar glands, and to adhere to and penetrate into the calibre of the ilium as a reddish mass of the size of a walnut. On minute examination, the growth was found at its lower parts to consist of firm fibrous and connective tissue, gradually towards the upper part assuming a cerebriform character, the softer parts being made up of broader nucleate fibre-cells combined with a few cells similar to those shown beneath the epithelium of the polypus; the fibre-cell, however, everywhere predominating.

Dr. Hicks' second case was one of intra-uterine polypus, removed by annealed steel-wire-rope ecraseur—recovery; and is quoted as an instance of the ease and rapidity with which the removal of such can be effected.

VIII. *On Stricture, Retention of Urine, Stone in the Bladder, and other Diseases of the Urinary Organs.* By T. Bryant.—This is a very comprehensive communication, and occupies no less than between ninety and one hundred pages of the volume. In it the author has proposed "to consider the surgery of the genito-urinary

system, being guided in its consideration simply by the facts which the analysis of the mass of materials before him may yield." That this mass of materials is considerable will be evident from the following table of the surgical diseases of the bladder and urethra admitted into Guy's Hospital between October 1st, 1853, and March 30th, 1861, the details of which furnish the source from which his inferences have been drawn :

Diseases.	Cured or relieved.	Died.	Total.
Simple organic stricture	336	9	345
„ „ with retention	106	3	109
„ „ with extravasation of urine	30	15	45
Simple organic stricture, with urinary fistulæ	46	1	47
Traumatic stricture and its complications	34	1	35
Cases of "external division" and "perineal section"	36	7	43
Cases of puncture of bladder per rectum	20	3	23
Retention of urine	76	4	80
Ruptured urethra	19	—	19
Urethral calculus	12	2	14
Irritable bladder	134	2	136
Incontinence of urine	22	—	22
Hæmaturia	19	—	19
Inflammation of the prostate	6	—	6
Calculus vesicæ	112	22	134
Total	1008	69	1077

To give any analysis or epitome of so lengthy and complicated a paper is unfortunately out of our present limits, and we are obliged merely to confine our notice to one or two points which Mr. Bryant has here illustrated, noticing by the way his own observation, that many of the conclusions to which he has been led "have materially differed from those which he had previously entertained," owing to the irresistible evidence of definite data. Following, then, our author, in the divisions of his subject, we will first quote the formularized statements in which he sums up the results of his investigations as to the causes of "stricture." He gives them as follows :

"1. That chronic gonorrhœal inflammation may fairly be ascribed as its cause in 42 per cent. of the cases; direct injury to the urethra in 6·6 per cent.; and that in at least half the cases no definite cause can be assigned.

"2. That the use of injections in the cure of gonorrhœa, does not appear to have any decided action in the production of a stricture; such injections having been employed in but 28 per cent. of the cases in which a previous gonorrhœa had been regarded as the assigned cause; and in about 13 per cent. of the whole number of cases of simple organic stricture.

"3. That whatever influence an irritating hyper-acid or alkaline urine may possess in exciting a spasmodic condition of the urethra, there is no positive evidence to be obtained that it has any power in producing organic stricture." (p. 152.)

With regard to the "Treatment of Stricture," Mr. Bryant answers the question, "Can a stricture be ever completely cured?" by remarking that it is

"Perfectly conceivable that such a result might be obtained, and cases do unquestionably occur of *simple* organic stricture, in which treatment has restored the normal patency of the canal, and in which no subsequent return has ever been observed. Still, for practical purposes it is as well to believe that strictures are not absolutely curable, but that after the canal has been restored to its natural calibre, occasional surgical treatment will be required to maintain the patency of the passage which the primary treatment may have secured." (p. 159.)

Of the 603 cases of simple organic stricture which are included in Mr. Bryant's *répertoire* it seems that, disregarding the immediate treatment which an attack of retention of urine may have required, "565 cases were treated by simple dilatation, and 38 by some operation opening the urethra in the perineum," and of the 43 cases of traumatic stricture, "37 were treated by dilatation, and 6 by opening the urethra in the perineum."

Five cases, four of which are out of the practice of Mr. Birkett, are given, in which stricture was treated by internal division, with success. In all these cases the stricture existed either at the urethral orifice, or within the terminal inch of the passage.

No case is related in which benefit followed the treatment of stricture by caustics.

Passing over several sections of the paper, we find a chapter (viii.), page 187, containing a general summary on "Perineal Section," and "Symes' Operation." Regarding the very limited class of cases in which these operations are called for, Mr. Bryant draws up the following "practical conclusions:"

"1. That in any case of stricture requiring operative measures, the operation of 'external division' is to be selected whenever it can be applied, in preference to the more difficult and uncertain operation of 'perineal section.'

"2. That in those cases of stricture which are permeable, and in which, therefore, a grooved staff can be passed, it has been shown that in only exceptional cases are any operative measures called for; in the cases upon which the remarks have been based, the operation was required only in 1·44 per cent., or hardly 1½ per cent.

"3. That the very irritable and contractile strictures are the only cases of permeable stricture requiring such treatment.

"4. That in stricture complicated with urinary abscess, or with extravasation, in which some free incision is always demanded to give exit to the pus, or extravasated urine, the best and most scientific practice is to divide the stricture at the same time; the operation of external division of the stricture being selected when a grooved staff can be passed, and of perineal section when it cannot.

"5. That in strictures complicated with perineal fistula, operative measures are only required when humbler means have failed. If the stricture be a permeable one, the operation of external division is only called for under the same conditions which have been held to be sufficient to demand such measures when no such complications existed; when connected, however, with impermeable or obliterated urethra, the operation of perineal section is of great value.

"6. That in *traumatic stricture* these operative measures are required at least twice as frequently as they are in the simpler cases. The same principles of treatment are applicable, however, to both cases; but as impermeable and

obliterated urethras are more common as a result of injury, the operation of perineal section is most frequently required." (p. 188.)

As regards cases of stricture in which the operation of puncturing the bladder through the rectum was performed, of the twenty-three examples noticed in the table of diseases already quoted, relief was readily secured by the operation, and in no one instance did any evil result follow from its practice.

In the chapter on "Stone in the Bladder," allusion is made to the author's paper in the 'Medico-Chirurgical Transactions,' vol. xlv., wherein it is shown that even in the fatal cases of lithotomy (one case only in every twenty), the result is in almost every case due to organic disease, and not to the dangers of the operation. Speaking of lithotrity in the adult, the author states that, according to his experience in those cases of calculus which are associated with an inflamed bladder and enlarged prostate, the apparently more severe operation of lithotomy is at least as successful and hardly more dangerous than that of lithotrity, which was in these cases advocated by Sir Benjamin Brodie.

At the close of the table is appended an analysis of 230 cases of lithotomy, which formed the basis of the paper in the 'Medico-Chirurgical Transactions,' just cited.

The above communication of Mr. Bryant's, containing much valuable matter, might, we think, have been made shorter and less diffuse. Moreover, we found a deficiency as to systematic arrangement in its construction which was embarrassing. It wanted more kneading.

IX. *Case of Progressive Atrophy of the Muscles of the Hands; Enlargement of the Ventricle of the Cord in the Cervical Region, with Atrophy of the Grey Matter* (*Hydromyelus*). By W. Gull, M.D.—After allusion to the three well-known forms of so-termed progressive muscular atrophy, and to that form of atrophy of which Dr. Meryon's ('Med.-Chir. Transactions,' vol. xxxv. p. 73) are good examples, which begins in and is peculiar, as well as limited to childhood, being allied to rickets, Dr. Gull proceeds to narrate his case. It was that of a hardworking, sober tailor, aged forty-four, whose first symptom, thirteen months previously, was deficiency of power to move the fourth and little finger of the right hand, which became flexed; the hand being cold and the fingers feeling numb (no pain).

Feb. 5, 1862.—"Two months ago the middle finger of the same hand became suddenly affected, and three weeks ago the three inner fingers of the left hand became weak and flexed in the same way, but without any numbness. The hands gradually wasted. The arms are not affected. Seven weeks ago he had pains through his chest, and a feeling of tightness across the upper part. He is hale; has no pain in his hands, but the right is cold, with a feeling of numbness. The left hand is not so cold, and the sensation in it is perfect. He can move both thumbs and index fingers freely; he can also extend the first phalanges of the other fingers of both hands, but not in the least degree the second and third phalanges, which are gently flexed towards the palm. The interosseous spaces on the backs of the hands are sunken; palm of hands hollow, and the flexor tendons very prominent. . . . He can move the arms freely in all directions;

can walk perfectly well. At the upper part of the dorsal region there is slight flattening of the natural curve of the spine, from the lung muscles of the back being at this part wasted. Pressure on the fourth dorsal spinous process causes a sharp, prickling pain, as of a knife running into the part; but when the part is not touched he has no pain. No pain on pressing the other spinous processes; no affection of sensation in any part, except the feeling of numbness in the right hand; sphincters good; urine normal; appetite and digestion good. He was put upon a full diet, and the wasted muscles were daily galvanised by an intermittent current. A fortnight after admission he had gained power in the hands. It was noted that, with a moderate current, the contractility of the muscles of both hands was good, but more particularly in the short muscles of the thumb, which were least wasted. Sensibility less acute in the right hand than in the left, but no marked anæsthesia of either. A few days after this report the patient sickened with typhus fever, and died the 8th of March." (p. 247.)

On post-mortem examination, the cervical enlargement of the spinal cord appeared broader and somewhat flattened.

"On making transverse sections, the white columns had their normal consistence and texture, but the centre of the cord had a large cavity, beginning at the fifth cervical, enlarging downwards to the seventh, and from thence tapering, as in the accompanying woodcut (*i.e.*, to the fourth dorsal). . . . . The only remains of the grey matter were at the anterior part of the cavity behind the anterior columns. Here the caudate vesicles had their normal size and structure; the pigment, nucleus, and nucleolus being well marked, and the tubular structure unaltered. The cavity in the cord was bounded by a layer of condensed grey substance, which could be separated as a distinct membrane. On its interior surface, forming the lining of the cavity, were a number of delicate, elongated, nuclear bodies, apparently epithelium. One or two granule-cells were found scattered amongst the white columns, but no further traces of any active tissue change. The roots of the nerves appeared normal, and contained healthy tubules. The character of the fluid filling the cavity could not be ascertained, as it escaped in the removal of the cord from the spinal canal." (p. 249.)

In his comments upon this case, Dr. Gull observes that it shows—

"How great morbid changes the central grey matter of the cord may undergo, with but slight and limited and only slowly progressive peripheral effects. . . . This case is therefore another instance of atrophy progressing from muscle to muscle in the slowest way, and unattended by any of the common proofs of central disease, though depending upon it." (p. 246.)

He proceeds to remark :—"It also suggests some doubt respecting the validity of the present theories of the function of the grey matter of the cord;" and refers to the proof afforded by the case, "how large a part of the grey matter may be slowly removed, without affecting sensation to any corresponding extent, without disturbing the general functions of the cord, or the influence of the brain upon the parts below."

The change in the cord, "so far as it affected the grey matter, seemed to be no more than atrophy from distension of the ventricle of the cord, by an accumulation of fluid in it."

The form of the cavity on transverse section was seen to correspond "to the general disposition of the grey matter and its cornua," and was not a simple circular dilatation. Dr. Gull accounts for the peripheral effects

being chiefly marked in the branches of the ulnar nerve, by the fact of their chiefly arising opposite the part where the cavity was the widest.

The paper is accompanied by an interesting and well-executed lithograph, showing a transverse section of the cord and the enlargement of its ventricle.

X. *A Case of Arrest of Development of the Humerus.* By JOHN BIRKETT.—The patient was twenty-five years old, enjoying good health, and in other respects well developed. The right humerus was only seven inches long, whilst the left measured thirteen inches. The diameter of the different parts of the shafts of bone felt equal. The right scapula and clavicle slightly less developed than the left, and the right and left radius and ulna were of equal development. The muscular movements and developments equal in both arms. There was found a single slight depression or dimple, and a small cicatrix, about two inches below the right acromion process, at which place an abscess had opened during infancy, but no bone had exfoliated or been removed. Mr. Birkett, very ingeniously, and, as it appears to us, very justly, finds an explanation of the arrest of development in the supposition that inflammation, from injury or disease, had been excited at the line of junction of the temporary cartilage with the superior extremity of the ossified shaft of the humerus; and thus the development of new bone was arrested at the upper extremity of the shaft, and the longitudinal increase of this bone interfered with. A lithograph accompanies the description.

XI. *Case illustrating the Arrest of Development of the Right Humerus after an Injury received in Infancy.* By THOMAS BRYANT.—After referring to the investigations of Dr. Humphry, of Cambridge, upon the mode of growth of the long bones, and the effects of injury and disease upon their development, Mr. Bryant relates the above-mentioned case, which forms a good "pendant" to that of Mr. Birkett, which precedes it. The case was that of a woman, aged thirty, whose right humerus had been arrested in its growth lengthwise, when an infant, by a fall and injury to the right shoulder. The injury was not followed by suppuration or exfoliation of bone, but was succeeded by stiffness of the joints and arrest of growth of the right arm. The woman had grown up in good health, but the right humerus had continued firmly ankylosed to the scapula. "The head of the humerus, in point of magnitude, the shaft of the bone, as regards its diameter, with the condyles, appeared to be of their normal dimensions." (p. 254.) And "the right elbow-joint, fore-arm, and hand were well-developed."

Mr. Bryant was unable to affirm what was the exact nature of the injury received during infancy which prevented "the subsequent growth and development of that soft and vascular cartilaginous layer which is situated between the shaft of the long bones and their epiphyses." This case is also illustrated by a lithograph.

XII. *Description of a remarkable Enlargement of the Nerves.* By

Walter Moxon, M.D.—The peculiarities of this very remarkable case were casually observed (in the dissecting-room) in the body of a female who had died of fever, the phenomena of whose nervous system during life were unknown. The extraordinary enlargement alluded to was not confined to any nerve or set of nerves, but all the nerves throughout her body—

"Were found to be uniformly increased in size throughout their entire extent, in such a way that they had nearly three times their usual diameter; they were all enlarged in just proportion to their proper size, and there was no irregular swelling or tumours of them, or connected with them, at any part; the fasciculi of which they were composed were individually larger than usual, so that these nerves looked coarse in texture; when one of the larger of them was cut across, the great size of the fasciculi was plainly seen; there was no increase of the interstitial neurilemma, but rather a proportional decrease, so that the coarse component fasciculi were more than ordinarily independent of and moveable upon each other. The nerves were enlarged in this extraordinary manner as far as the naked eye could trace them, and were not easily broken, so that branches, usually so small as to be very difficult of manipulation, could with great facility be followed close up to their ultimate distribution." (p. 260.)

On microscopical investigation it was found that in every portion of nerve examined "the average diameter of the ultimate fibrils was $\frac{1}{900}$th to $\frac{1}{350}$th inch, some as large as $\frac{1}{800}$th inch were measured, have been found smaller than $\frac{1}{1000}$th. This enlarged size contrasts strongly with that of the ultimate nerve-tubules ordinarily observed, which are in size "about $\frac{1}{2000}$th to $\frac{1}{1500}$th inch, rarely a little larger, often much smaller."

Dr. Moxon observes—

"It is this enormous size of the elementary fibrils which renders the case so remarkable. If the great size of the nerve trunks had depended upon an unusually large number of these elements, the case would have been worthy of note, but we should have had some analogy for it in the large muscles of an unusually muscular man, or even, more distinctly, in the numerous blood corpuscles of one who is plethoric, or in the multiplied adipose vesicles of a very fat person." (p. 260.)

A lithograph, from a drawing (*ad naturam*) by Mr. Hurst, attached to the report of the case, shows remarkably well the exaggerated size of five of these nerves.

XIII. *Description of some new Wax Models lately added to the Museum.* By the Curator.—These models illustrate "Disease of the Skin by post-mortem examination, or Verruca Necrogenica," "Arsenical Eruption on Face," "Glanders," "Melanotic Tumours of Leg," and "Diseases of the Heart and of the other viscera in Cardiac Disease."

XIV. *Some Points in the Toxicology of Copper.* By Wm. Odling, M.B., F.R.S.

XV. *On the Nomenclature of Organic Compounds.* By Wm. Odling, M.B., F.R.S.—We can only refer our readers to this and the

previous papers, the first very interesting and practical, the latter most abstruse. Want of space precludes our giving an epitome of them.

XVI. *Case of Deformity of the Mouth after Sloughing of the Cheek from Fever—Operation and Recovery.* By T. BRYANT.—The case was one of necrosis of the upper jaw in a child. The mode of re-formation of the mouth is minutely described, and forcibly illustrated by three lithographs, showing the patient's face before the operation, after the first and after the second operation.

XVII. *Almond Food as a Substitute for Bread in Diabetes.* By F. W. PAVY, M.D.—The indigestibility of the almond, so well known, is to be removed by having been thoroughly ground, and the slight trace of sugar and gum which it contains to be removed by water. We have then the remaining constituents which, along with eggs, may be made into food admirably adapted to the diabetic, and "as unexceptionable as animal food."

We are informed that Mr. Hill, of 60 and 61, Bishopsgate-street, is prepared to supply this kind of food.

XVIII. *On the Water of Guy's Hospital Well.* By AUGUSTE DUPRÉ, Ph. D., F.C.S.—By the analyses made from time to time, it appears that the water is liable to minute variations of composition. Dr. Dupré confirms the existence of potassium in the well-water by spectrum analysis, and "discovers the previously unsuspected presence of lithium and strontium."

The volume closes with the following communication:

XIX. *Spontaneous Aneurysm of the Brachial Artery, cured by Compression.* By JOHN BIRKETT.—This highly interesting case occurred in the person of a hard-working medical man, aged twenty-nine. Compression was used for above four months. At the last date mentioned, September 12th, the tumour, which had continued to decrease, was of the size of a hazel-nut. Pulsation had not returned. Mr. Birkett, observing of the rarity of this form of aneurysm, remarks, that he could not hear of a single instance being placed on record, and that Sir B. Brodie, who gave his advice in this case, had never met with one.

PART SECOND.

Bibliographical Record.

ART. I.—1. *On the Nature, Causes, Variety, and Treatment of Bodily Deformities; in a Series of Lectures delivered at the City Orthopædic Hospital in the Year* 1852, *and subsequently.* By E. J. CHANCE, F.R.C.S., &c. In Two Parts. Part I.—*London*, 1862. pp. 304.

2. *On the Mechanical Appliances necessary for the Treatment of Deformities.* By HENRY HEATHER BIGG, &c. Part II.—*The Spine and Upper Extremities.—London*, 1862. pp. 303.

WE have placed these two works together, inasmuch as they relate to cognate subjects; but they are quite different in their method of treating those subjects. Mr. Chance's book is a scientific treatise on the method of production of all deformities, both congenital and acquired. Mr. Biggs' on the contrary, is an account of what his art (that of a surgical-instrument maker) can do to remedy two classes of deformities only—those of the spine and upper extremity. The former treatise is very readable, and in some parts very amusing, but the practical result of it is trifling. Mr. Chance spends a large space in enumerating the various causes which, as he supposes, may produce congenital deformity or malformation, the chief of which he makes to consist in "error in the primary impulse of development," which surely makes the matter very little clearer; the second is "hereditary influence," on which head Mr. Chance broaches some very singular theories. For instance, in commenting on a case in which eight members of the same family were born successively with club-foot, he gives the following explanation :—"The first impregnation not only fecundated and imbued the first ovum with an impulse that gave rise to club-feet in the first-born, but *also partially fecundated seven other* ova, all of which, in due time, on fecundation being subsequently completed, gave rise to children with club-feet like the eldest." (p. 76.) (The italics are the author's.) The proofs which Mr. Chance brings forward of this curious assertion are slender enough—viz., 1st, that mothers have been said to have produced, to one male, offspring bearing some resemblance to another male by whom they had been previously impregnated; and, 2ndly, that Mr. Newport convinced himself that the contact of a certain number of spermatozoa is necessary for complete fecundation, but that fecundation may be effected partially (so as to occasion some, though not all, of the normal changes in the ovum) by a smaller amount. How does Mr. Chance supply the third link which

(admitting the value of his two first) his chain would require—viz., that such ova remain unchanged, but capable of further fecundation in the ovary for an indefinite period? Mental emotion on the part of the mother, Mr. Chance altogether rejects as a cause of deformity, devoting to it a lively chapter which is at any rate amusing, if not perfectly convincing, on this vexed question. Arrest of development he classes as a separate cause, treating of it independently of his first, for some reason which is hardly made clear to us. He then proceeds to discuss the more practically interesting causes of deformity arising from mechanical interference with the embryo, by the pressure of the funis, by the position in utero (one of the most interesting parts of the book), and by disease. This slight sketch of the contents of the larger part of Mr. Chance's work will show our readers what they may expect to find in it. The latter part, which treats of acquired deformities, is far less fully worked out, but probably if Mr. Chance should complete his work by a second volume devoted to the treatment of the deformities, whose causes he has considered in this, the proportion would be reversed. We trust that Mr. Chance will do so; his practical experience appears to have been great, and his style of writing is clear, pleasant, and forcible. We believe that the second part of Mr. Chance's work will much exceed the first both in interest and value.

Mr. Bigg's volume may be described as an advertisement of the instruments which he constructs for the relief of spinal curvatures, &c., and looked at in that light it does very considerable credit to its author, and may be very advantageously consulted by surgeons undertaking to give opinions in such cases. When we denominate Mr. Bigg's book an advertisement, we do not for a moment mean the slightest disrespect to the author, or the least censure of the work. Such an advertisement is a perfectly legitimate one, and the ample details into which it goes will account for the notorious success which Mr. Bigg has attained as a mechanist. The explanation of the production of spinal curvatures is intelligible and sufficient for its purpose, and many of the instruments which Mr. Bigg describes seem perfectly adapted for their relief, especially those which are intended to be worn, and which act on the rack-and-pinion principle. The efficacy of the complicated couches which he has figured, is, we should think, too dubious to justify a recommendation of such expensive machinery in ordinary cases. An ingenious machine, however, for gymnastic exercises (figured at p. 253), certainly appears worthy of a patient trial. Clear and succinct directions are given as to the form of instrument recommended in each class of deformities.

ART. II.—*On Teething of Infants.* By HENRY HANKS. *London*, 1862. Small 8vo, pp. 124.

THERE is nothing in this book that any well educated or experienced practitioner did not know before it was printed; there is nothing in it that has not been told to the non-professional public over and over again, in fewer words and more intelligible phraseology.

ART. III.—1. *An Introduction to Clinical Medicine; being Lectures on the Method of Examining Patients, and the Means necessary for arriving at an Exact Diagnosis.* By JOHN HUGHES BENNETT, M.D., F.R.S.E., Professor of the Institutes of Medicine, and Senior Professor of Clinical Medicine in the University of Edinburgh, &c. Fourth Edition.—*Edinburgh*, 1862. pp. 182.

2. *Hints for Clinical Clerks in Medical Cases.—London*, 1862. (Anonymous Pamphlet.)

ANY work on practical subjects from the pen of Dr. Bennett which has attained a fourth edition, must be too well known to our readers to require any recommendation in this place. We may, nevertheless, observe, that the author has not failed to add a chapter on Professor Czermak's method of examining the larynx, pharynx, and nares; but any comments upon this addition to our means of diagnosis would here be superfluous, inasmuch as the last as well as the present number of the Review contains an article entirely devoted to the subject of laryngoscopy, &c. This edition is illustrated by an increased number of woodcuts.

Useful as Dr. Bennett's little work may be to the student, it is, however, not free from some of the deficiencies which so frequently attend the construction of anything like an elementary treatise. Thus, at p. 162, where directions exist for detecting albumen in the urine, we have no mention whatever of a most necessary precaution, one from the neglect of which we have not infrequently seen students at the bedside completely miss their path in searching for albumen in the urine; and that is the precaution lest the test-tube used in the observation be not a *clean* one. We certainly think ("for we are nothing if not critical") that any teaching claiming to be systematic and accurate on the detection of albumen, must be considered as deficient unless warning be given that the precipitation of this substance by heat may be entirely defeated if the urine be slightly acidified by any nitric acid inadvertently left in an unwashed tube, or, indeed, even if the urine be naturally of a very highly acid character. The student should also be advised that the coagulation of albumen may be interfered with if the urine possess naturally an *alkaline* reaction.

The pamphlet (professing no parentage) which we have bracketed with Dr. Bennett's, one evidently calculated to yield considerable help to those who may be learning how to elicit data necessary for arriving at a correct diagnosis, also falls into the same error; for on referring, at p. 23, to a description of the mode of showing the presence of albumen in the urine, we find that the fallacy above adverted to is completely overlooked. Moreover, we find that whilst a distinct precaution is given as to the avoidance of any breakage of the test-tube in the application of heat, no allusion whatever is made to the manner in which this accident perhaps most frequently happens, and that is by allowing the outside of the tube to be wet during the use of the spirit-lamp.

ART. IV.—*The Pathology and Treatment of the Venereal Diseases.* By FREEMAN J. BUMSTEAD, M.D.—*Philadelphia,* 1861. 8vo, pp. 686.

To attempt to place before our readers anything like an adequate representation of the contents of this work, it would be requisite to reiterate what has already been given from time to time in the pages of this Journal—viz., a discussion on the modern doctrines of syphilis. It must suffice that we assure our readers that it contains a well-digested, well-written, practical, and impartial review of the latest researches and investigations upon the subjects of which it treats. No less valuable is the historical sketch which forms its "Introduction." It has not fallen to our lot to meet elsewhere with a more lucid and interesting summary of all that is known with regard to venereal diseases. It possesses, moreover, the somewhat rare merit in Transatlantic works, of being written in pure and classical Anglo-Saxon.

ART. V.—*A Manual of Midwifery.* By ALFRED MEADOWS, M.D. *London,* 1862. pp. 319.

IF the student will only make himself master of the contents of Dr. Meadows' little manual, he cannot fail to approach the practice of midwifery with well-grounded confidence. Closely printed in a small type, and small as to bulk, this work deserves to be called "little" only as to the last-mentioned point, for it is very large as to its amount of information, condensed as to the arrangement of that information, and marvellously clear as to the manner in which it is put before the reader. It is the very reverse of a mere handbook of routine practice, to be available at the bedside, in order to supply the deficiencies of neglected opportunities. It demands an attentive study, and by the rich stores of scientific knowledge that it will impart, will amply repay the labour bestowed.

ART. VI.—*Spinal Debility; its Prevention, Pathology, and Cure, in relation to Curvatures, Paralysis, Epilepsy, and Various Deformities.* By EDWARD W. TUSON, F.R.C.S.—*London,* 1862. 8vo, pp. 155.

THE main point of this essay is the dependence of spinal distortion on a morbid condition of the intervertebral substance with softening of the vertebræ, whence it follows that the chief aim in treatment must be to support the spinal column, so that the weight shall be removed therefrom. To attain this object, the means advised are sound and judicious. Mr. Tuson inclines to the supine horizontal posture, in preference to the inclined plane, in cases of spinal curvature. At the same time that he speaks of the utility of the prone position in many cases, he denounces its indiscriminate use. Conjoined with the particular posture, either prone or supine, according to the circumstances of each case, the author devotes a due share of attention to various

kinds of exercise, and to the medical and hygienic care of the general health. In this essay there is contained much valuable practical matter in small compass.

ART. VII.—*The Physiological Method of Treating Consumption.* By HENRY R. SILVESTER, B.A., M.D.—*London*, 1862. pp. 24.

THE object of this well-composed pamphlet is to show that the superior lobes of the lungs are the primary seat of tubercles; and this in consequence of the function of respiration being less active in these portions than in the parts inferior to them.

His mode of treatment of the disease, limited to its early stage—he taking it for granted that this early stage is capable of being ascertained—is founded on the hypothesis of deficient aeration, and consists in such measures mainly which conduce to the free action of the lungs, and especially of their superior portions.

We have called this view an hypothesis, for other we cannot consider it. It is ingeniously put forth, in the manner of the special pleader, though we do not doubt, in all sincerity. Unfortunately for its soundness, it leaves a vast number of cases unexplained. Were it true, pulmonary consumption should be a rare disease amongst labourers working in the open air, and women should be vastly more subject to it than men, and the performers on wind instruments should be exempt from it. One omission is the passing over entirely the tubercular diathesis.

In justice to the author we are ready to admit that he hardly lays too much stress on exercise in the open air, and on such means as conduce to the free action of the lungs, such action implying of course the free passage of air through the superior lobes. What he holds to be a *sine quâ non* as a prophylactic, or as he would express it, a remedial means, we view merely as ancillary.

In the October number of the 'Journal de Médecine et de Chirurgie Pratiques,' a doctrine is advocated but little different from that of Dr. Silvester. M. Gintrac, its author, recommends the expansion of the chest in all its dimensions by attention to "hygiéne et une gymnastique spéciale des organs respiratoires," in which the upper extremities should be most exercised, and in acts of *abduction*, a recommendation which appears to us more rational than that of Dr. Silvester, of taking the weight of these extremities off by the uplifting of the arms in forced respiration.

ART. VIII.—*On the Treatment of Gonorrhœa without Specifics.* By J. L. MILTON. Second Edition. 1862.

THIS is a re-edition of a work which has proved a success as far as its author is concerned, and which is no doubt sufficiently known to those interested in the subject of which it treats; since it was originally a reproduction of papers published in the 'Medical Times' and 'Medical

Circular.' We need not, therefore, spend much space upon the discussion of Mr. Milton's views as to the treatment of gonorrhœa. That which is most peculiar to himself in Mr. Milton's plan is that he entirely rejects the use of copaiba and cubebs, and trusts almost exclusively to injections, assisted, however, by sedative and diuretic medicine. He teaches that the common belief as to the tendency of injections to produce stricture and swelled testicle is entirely imaginary. Mr. Milton does not, however, deny that the so-called specifics do sometimes cure the disease. All that he wishes to show is that the treatment by injection is so far more satisfactory, simple, and pleasant, that the use of drugs so uncertain and so nauseous as copaiba and cubebs should be given up. This is a matter of individual opinion and experience; for ourselves, though inclined to agree with Mr. Milton in condemning the indiscriminate use of specifics, and in believing that much mischief has been attributed to the use of injections, especially in the production of stricture, of which they were perfectly guiltless, we still have met with cases in which even the mildest injection given with the greatest care has produced considerable aggravation of the inflammation, while the disease has yielded immediately to the use of copaiba. Mr. Milton's whole work is well worth reading, and the treatment he recommends would, we feel sure, obtain a large measure of success upon careful and persevering trial. The difficulty of cases of this kind, and most probably the cause of the great diversity of opinion which still exists as to the treatment of the complaint, is that the surgeon has so seldom the opportunity of being sure that his treatment really obtains a fair and complete trial. When we have had the opportunity of treating cases of gonorrhœa under circumstances such as placed the patient under our complete supervision, we have not found it by any means so intractable as it is allowed to be in the average of practice.

But the thing that will strike the readers most in perusing Mr. Milton's books is his peculiar style of writing. He seems in a state of chronic irritation throughout with some one who has denied or neglected his doctrines or his claims to originality in propounding them. This is a pity, for the doctrines are sensible enough in themselves, and if they will stand the test of experience, will make their own way; but this fussy sort of style always makes the reader suspect that his author has found reasoning insufficient to support his views, and hence has been driven to try scolding. Mr. Milton need not descend to this sort of writing, since what he has to say is sensible and good in itself, and would make more impression on the reader if urged in a sensible business-like way, like any other ordinary medical topic, than when set off by irrelevant digressions and patched with yet more irrelevant quotations from Homer, &c.

The preface of this work is an example much in point. We had occasion, in noticing Mr. Milton's last book, to give him a gentle hint that he was wasting an unnecessary amount of indignation on some one who had criticized him in the 'Dublin Quarterly Journal.' Mr. Milton replies that the article in question was "a piece of low coarse

insult," and then dashes off into a tirade against anonymous criticism in general; declaring, with the exquisite inconsistency which seems always to characterize authors smarting under the lash—*first*, that the system is detestable, abominable, and the like; *next*, that it is quite innocuous, as it never stopped the progress of a really good book; *further*, that it is beneath the notice of the present writer, and he will not say a word about it; and *finally*, that his opinion is as under, and then follow three pages of raving declamation against anonymous criticism and critics; of which we shall say no more than that Mr. Milton's opinion is that no anonymous critic ever "gave a masterpiece to the world," and that he supports this opinion by the examples of Macaulay and Scott, who certainly did a good deal in the way of anonymous criticism, and the latter of whom was one of the very creators of Mr. Milton's special *bête noire*, the 'Quarterly Review,' yet whose "masterpieces" are the avowed delight of this hater of anonymous criticism. The truth of the matter is that editors would be only too happy to allow their critics to sign their names to their articles, were it not that such a plan must lead either to a system of indiscriminate and unmeaning laudation, or to a perpetual wrangle, so wearisome that no man fit to do anything else would engage in the task. Even under the present system, the fact is very far indeed from being as Mr. Milton wishes to put it. Criticism is very seldom over severe, still more seldom coarse or vulgar. In fact, it could not be so unless the public delighted in coarseness and vulgarity, which, as far as our experience goes, they do not; and whatever may be the case with literary criticism, we are bold to say that in the criticism of medical works, no book of the highest class is severely handled, and few which have much merit are ill-spoken of at all (though the lash is sometimes laid on, as it seems to have been by Mr. Milton's critic, with too unsparing a hand); but many worthless works are praised, because the critic is loth to wound the feelings of an author whom he knows to be in other respects a man of merit, or because the author's friends (sometimes it is said even himself) are called in to sit in judgment on his production. If all criticisms were to be signed, these evils would be immensely increased, while others still more formidable would also be created. If Mr. Milton again appears before the public, we hope he will be contented with having, in this slashing preface of his, given his critics "as good as they brought;" and, leaving all personal questions, address himself in a quiet and sober way to the business in hand. Above all, let him give the proof sheets into the hand of some friend, selected especially for his lack of all enthusiasm, with strict injunctions to run his pen through every passage, however smart, which does not directly bear on the main subject of the work, and every word which is not in plain English. If Italian and Greek are necessary to illustrate the homely subject of Mr. Milton's lucubrations, they should surely be printed correctly; whereas the printer has been permitted to render the motto to this work unintelligible by writing "esercito" for "esercino," and to present a very familiar Greek word to us under the singular form of χύδος.

ART. IX.—*The Pathology and Treatment of Phlegmasia Dolens.* By W. F. MACKENZIE, M.D., &c.—*London*, 1862. 8vo, pp. 131.

THE following propositions are put forth by Dr. Mackenzie, and we may add, are fully supported by physiological and clinical proof:

"1. Crural phlebitis, in a pure and uncomplicated form, cannot give rise to all the local and general phenomena of the disease, and therefore cannot be its proximate cause.

"2. Phlebitis itself is, for the most part, not a primary, but a secondary affection; and in the majority of cases is a consequence of the circulation of impure morbid blood in the veins.

"3. The proximate cause of the disease is therefore presumably a morbific condition of the blood, which I have experimentally shown to be capable of producing not only the lesions of the veins met with in the disease, but all its other phenomena."

The results of our own personal observation so exactly correspond with the inferences drawn by Dr. Mackenzie, that we entirely subscribe his views on the nature of the disease—that it is a blood disease, having its local manifestation in the crural and pelvic veins—that the phlebitis is an effect and not a cause operating to the production of symptoms. The same view has been forced upon us also with reference to a form of puerperal fever known as *uterine phlebitis*, in which affection there is an absence of local symptoms sufficiently distinct to indicate inflammation of the organ, while at the same time we have the presence of the gravest general disturbance of the vascular and nervous systems. Dr. Mackenzie's experiments are so perfectly conclusive as to the relation of the morbid state of the veins to the other phenomena, that we see in these an explanation of other analogous disorders, as well as a surer guide to more scientific treatment.

Thirty years ago Dr. Robert Lee made an advance towards a correct pathology of phlegmasia dolens, by showing a close connexion with inflammation of the crural veins; Dr. Mackenzie has now taken the final step which has shown the precise nature of that connexion. The study of the essays of these authors on this subject, especially of Dr. Mackenzie's, we consider essential to the obstetric or other medical practitioner.

ART. X.—*De la Chute de l'Utérus.* Par le Dr. E. Q. LE GENDRE. *Paris*, 1860. 8vo, pp. 170. Avec 8 planches.

On Prolapsus of the Womb. By Dr. E. Q. LE GENDRE, &c. With 8 plates.

THE most important portion of this essay, which embraces an elaborate discussion of the causes and treatment of prolapsus uteri, consists in the experimental investigations which the author has made with reference thereto on the dead body. These experiments have enabled him to follow the different phases of displacement of this organ, to trace the causes of the formation of cystocele and rectocele which fre-

quently accompany or precede prolapsus uteri, and to determine the altered relations of adjacent organs. This *physiologie pathologique*, as Dr. Gendre terms it, is then compared by him with the pathological anatomy of the lesion—the morbid alterations effected in the several tissues of the organ under the influence of its ordinary causes.

Dr. Gendre has given an outline sketch of the history of the opinions of various authorities as to the nature of prolapsus uteri, from Hippocrates down to those of M. Depaul in 1859; and showing that considerable confusion has existed on these topics, points out that the malady admits of only two varieties or divisions—viz., the *complete* and the *incomplete*. In the first, the entire organ is external to the vulva, and in the second a portion only of the organ protrudes. We pass over the sections which fully detail the symptoms, special and general, and lay before our readers an abstract of the author's experimental researches into the mechanism of prolapsus, which, assisted by his colleague, Dr. Bastien, the author has made upon the dead subject, with a view to elucidating the phenomenon attendant on this affection in the living body.

Having ascertained that the pelvic organs were in their normal condition, the body being placed in a horizontal position, the os uteri was seized, drawn down by means of forceps so fixed that no portion of the vagina was included in their grasp. In some instances the force applied by the hand in drawing upon the uterus was ascertained by a dynamometer; in the greater number a weight, gradually increased, was employed through four days and nights, so as, as nearly as possible, to imitate the gradual and progressive descent of the organ through a long period of time. The alterations in position and relationship of the uterus and adjacent parts were preserved by casts of the pelvic cavity. The organs being transfixed by copper wires at the period when it was desirable to ascertain the exact nature and extent of the displacement they had undergone, sections of the pelvis were made, and accurate drawings of the parts *in situ* executed. These illustrations, twenty in number, are given in the plates which accompany the essay. In order fully to appreciate the value of these experiments, the engravings should be consulted. We may, however, present some points of interest in Dr. Gendre's observations.

The force required to draw the uterus to the vulva equals from thirteen to fifteen kilogrammes (= about from forty to sixty-five pounds troy). Thus, when in the living being, for operative purposes the uterus is forcibly drawn to the vulva, the assistant drawing with both hands exerts a force at least equal to the above. If the force be applied only during a short period, so as to bring down the uterus rapidly, the organ will resume its normal position; if, however, the traction be slowly effected, the tissues lose their elasticity and the displacement is permanent. The greater length of time that was employed in the traction, the less the force required, to the extent even of three-fourths. The same result follows repeated rapid tractions upon the organ. We can understand that during an ex-

periment of this kind, prolonged over four days, the pelvic structures would lose some of their resilience by reason of natural post-mortem changes.

With reference to the effects produced upon the uterus and adjacent structures by traction, it was observed that when slowly performed, the organ became gradually elongated, so as to admit of the section to the extent of four centimetres (= about an inch and a half) without entering the peritoneal cavity. The rectum remained in its natural position. The anterior wall of the vagina was drawn down and inverted, the posterior wall retaining nearly its normal relations. The bladder undergoes several degrees of displacement; in the first, the fundus is drawn downwards and forwards below the anterior wall of the vagina, the vesical orifice of the urethra directed upwards and backwards. In the second degree the bladder becomes divided into two sacs, an upper, larger, and a lower, smaller, portion. In a third degree these two pouches are more distinctly separated, and a cystocele is formed below the symphysis pubis; the canal of the urethra, forcibly curved, is directed downwards. The peritoneal coverings follow these displacements, and form bands analogous to the uterine ligaments.

All these displacements are well shown in the plates accompanying Dr. Gendre's treatise, to which, for details of the modifications in form and structure of the uterus, and of their comparison with observed pathological conditions, we must refer our readers, having, we think, placed before those who are interested in uterine pathology very sufficient inducement for them to consult this treatise.

We must not, however, omit to state, that Dr. Gendre has also given an excellent and impartial summary of the various modes of treatment that have been employed for the relief of this distressing malady.

ART. XI.—*Illustrations of Puerperal Diseases.* By R. UVEDALE WEST, M.D.—*London*, 1862. pp. 201.

DR. UVEDALE WEST has produced a practical commentary on cases of puerperal disease that have occurred in the course of his own practice. From the very nature of the work, consisting as it does of the detailed narrative of a series of cases, we cannot give more than our general impression of the entire work, and that is, that its perusal may be of much service to the student and junior practitioner. We should, however, not omit to express more strongly than by faint praise, our admiration of the candour and ingenuousness which mark Dr. West's narratives. Intentionally or unintentionally be it, herein is clearly an autobiographic sketch such as we have not too often the opportunity of studying. The lesson which is conveyed by the author's experience, that either disease may change its type, or that the physician may become more scientific in his treatment of disease, may well be read, marked, learnt, and digested, by many into whose hands this treatise by Dr. Uvedale West may fall.

ART. XII.—*Traité Pratique de la Pustule Maligne et de l'Œdème Malin, ou des Deux Formes du Charbon Externe chez l'Homme.* Par J. BOURGEOIS, M.D.—*Paris*, 1861. 8vo, pp. 316.

Practical Treatise on Malignant Pustule and Malignant Œdema, &c. By J. BOURGEOIS, M.D.

TRUE "malignant pustule" is not very frequently met with, as it appears to require certain obscure local conditions for the development of its cause. Hence its true nature has sometimes been overlooked, and cases of gangrenous carbuncle have been mistaken for the more grave malady, "malignant pustule." M. Bourgeois, practising in a province of France where this disease only too frequently occurs, has had numerous opportunities of becoming acquainted with all its appearances, its history, and its treatment. The experience derived from several hundred cases, spread over thirty years, has convinced M. Bourgeois that in a large proportion of alleged cases an error of diagnosis had been committed. Until the publication of the present treatise, no complete history of the affection had been written. It has already done some service in directing attention to a malady so grave and so little within the control of medical science, more particularly if the earlier stage be allowed to pass by.

The symptoms are clearly, we may say graphically, described by M. Bourgeois, all its accompaniments and consequences are carefully noticed, its distinction from malignant œdema, and other forms of carbuncle, are accurately drawn; its pathology and its etiology are all so elaborately yet so practically treated by M. Bourgeois, that he has left but little for others to do than to copy from his picture. This we are disposed to believe has been done; and judging from cases recently reported as instances of "malignant pustule," may be done again with advantage as to diagnosis. We have not the space, neither could we do justice to the author, by sufficiently long extracts to satisfy the requirements of our readers. We may, however, attempt an outline of the author's theory of the source of the disease.

Malignant pustule, M. Bourgeois observes, originates in a special poison, not developed in the human organism, but is known to have been communicated from a similar morbid condition in herbivorous mammalia—e.g., the ox, calf, sheep, goat, horse, ass, hare, rabbit; the wild ruminants, stags, &c., may also doubtless be the medium of transmission of the virus. Of other domestic animals, as the pig, the dog, the cat, &c., it is less certain that they may originate this virus, the cases recorded not having been sufficiently clearly distinguished from gangrenous erysipelas or carbuncle. It has been found that the dog and cat resist the effects of the inoculation of the virus, thus proving that the herbivora only are capable of originating the malady. The morbid condition to which this virus owes its origin has, M. Bourgeois states, been proved by observation and by experiment to be one and the same with that known in the lower animals as the *fièvre charbonneuse*, but which is susceptible of modification in its symptoms, according to the animal which becomes its seat. It appears not to be

an essential condition of its communication to man that it shall be fully developed in the beast.

Contrary to what has been stated of this disease in animals, it is found by M. Bourgeois to be more prevalent in dry and, to a certain extent, elevated, than in low and marshy districts. Low plains, exposed to the scorching heat of the sun, present conditions analogous to those of elevated districts deficient in water, and yielding only dry herbage or provender. Hence, to remove affected cattle to the higher and moister regions of mountains, arrests the spread of disease in the same way that it is checked by descent to well watered valleys. Excess of moisture in low-lying plains, however, M. Bourgeois points out, favours the development of a cachexia which has not unfrequently been mistaken for the *fièvre charbonneuse*, and hence the error in its etiology. Hot weather, accompanied with a dry wind, favours the development and spread of this affection. There are no trustworthy facts to prove the transmission of this affection from man to man, but the inoculation of the virus from the human being has been found to generate in the lower animals the carbuncular fever. It has been observed, that eating the flesh of animals affected with this condition does not develop the malignant pustule in man, although it produces serious symptoms of general blood-poisoning.

ART. XIII.—*The Mammary Signs of Pregnancy and of Recent Delivery.* By J. LUMLEY EARLE, M.D. Lond. pp. 34.

DR. LUMLEY EARLE is of opinion that the infallible signs of pregnancy and of recent delivery are to be found in the condition of the mammæ —viz., in the enlargement of their veins; the presence of white streaks; increased size of the breasts; increase of the areola, and its elevation; the existence of the secondary areola; the presence of sebaceous matter in the follicles; and the presence of milk in the breasts. Six coloured drawings of the nipple and areola illustrate the author's observations.

ART. XIV.—1. *Did James the First of England Die from the Effects of Poison, or from Natural Causes?* By NORMAN CHEVERS, M.D. —Pamphlet. 1862.

2. *An Inquiry into the Circumstances of the Death of King Charles the Second of England.* By NORMAN CHEVERS, M.D.—Pamphlet. 1861.

FUTURE historians may thank Dr. Chevers for the pains he has taken to dispose of two historic doubts. First, whether James I. was poisoned by the Duke of Buckingham or his agents; and secondly, what was actually the disease of which Charles II. died. In both cases death by poisoning was imputed; in neither, as Dr. Chevers has shown, was it the cause of death.

Political events, the universal unpopularity of Buckingham, and the

absolutism of Charles I., produced a ready credence for malicious reports as to the decease of the former, based to a certain extent on medical testimony. That testimony, however, Dr. Chevers has closely examined, and found not trustworthy. After extended research, and an exact analysis of the medical and other circumstances connected therewith, Dr. Chevers concludes—

"That there is not a vestige of evidence which would be accepted in the present day, to show that King James was poisoned; and that, scanty and very imperfect as they are, the medical facts of the case render it in the highest degree probable that the king's death resulted from natural disease, the severity of which appears to have been aggravated by the use of common but inappropriate medicines."

Bringing to his historic research high scientific attainments, and a practical acquaintance with disease as seen in Europe and in India, Dr. Chevers has cleared up the mystery which has ever shrouded the death-bed of Charles II., and has satisfactorily proved that the cause of his death was neither apoplexy, as surmised by some, nor poison, as alleged by others, but an intermittent fever with convulsions, assuming a periodic character.

ART. XV.—*Parturition without Pain.* By JAMES TOWNLEY, F.R.C.S. *London*, 1862. pp. 56.

IF the gratitude of Dr. Townley's patients should not have evaporated in the fulsome and extravagant letters that he has thought fit to publish, but should have taken the more solid and available form of fees proportionate thereto, we should not wonder if the result were representable by the tawdry gilt pyramid which disfigured one entrance of the International Exhibition. The "most beautiful method," which produces such "marvellous effects," and confers such an "inestimable boon," consists in the administration of the vapour of chloroform, combined with an aromatic tincture, through an inhaler, the invention of Dr. Townley. Those who desire further information on the mode of securing the very desirable object of "parturition without pain," must be referred to the half-dozen pages of this book wherein is described the mode of use, &c.; the remaining fifty pages, containing the letters laudatory and recommendatory of the author's patients, we submit, would, if the work be intended for the profession, have been suppressed without detriment to the readers, and with better taste on the part of the author.

ART. XVI.—*On the Anatomy of Muscular Fibre.* By SAMUEL MARTYN, M.D., &c. (Pamphlet, reprinted from 'Beale's Archives.') 1862.

IN this paper Dr. Martyn has described the appearances presented by muscular fibre under various conditions, and examined with the highest powers of the microscope. He has succeeded in resolving the fibrillæ into their sarcous elements and intervening connecting medium. The former are discs, which alter their form according as they are more or

less elongated. The intervals of the discs present optical phenomena, which have been interpreted with various degrees of error.

"The main fact is this: the bright semi-fluid substance interposed between the sarcous elements, is composed of two substances, each of which is capable of assuming a solid form. This happens in natural maceration of muscle, at all events, in crustaceans and in higher animals, under the influence of certain preservative solutions. In the ordinary undisturbed state of fibrillæ, this change is accompanied only by a contraction and diminution of the interposed spaces, nothing being seen of the two elements separately. If, however, a fibre or fibrilla be stretched, the two elements become evident; the one, a small transverse body, coagulum; the other, an elastic, and, under the circumstances, extended band.

"There is no line of demarcation between 'non-striated' and 'striated' muscle, and the less we use for this classification such terms as 'voluntary' and 'involuntary,' and the like, the better. In structure, from the fusiform cells which traverse the foot of the hydra up to a fibre of the biceps, there is a steady transition, a series in which is included whatever exhibits irritability —'*quæ ab externo aliquo contactu brevior fit.*'"

Dr. Martyn's researches will, without doubt, be received by histologists with the attention they merit.

Art. XVII.—*Researches and Observations on Pelvic Hæmatocele.* By J. Byrne, M.D.—*New York*, 1862. pp. 44.

In his *brochure* on pelvic hæmatocele, Dr. Byrne has related an interesting case that occurred in his own practice, and in commenting thereon has not omitted a brief historical notice of this rare accident. The instance related by Dr. Byrne affords an excellent example, and well illustrates the difficulty which must attend its diagnosis. Under the latter head the following quotation may be cited to the author's honour. A married woman, aged forty, had been under the care of Dr. Byrne:

"A vaginal examination disclosed a tumour in the post-uterine space, about the size of a small orange, but very irregular in shape, hard, and extremely sensitive to pressure. The uterus was pressed upwards and towards the pubes, but was slightly movable. The case was pronounced to be one of malignant disease, and anodynes were ordered. A few months afterwards, I saw the patient in the street, to all appearances in the enjoyment of good health, and not long since I caught a glimpse of her again, a hearty rugged-looking subject. I did not stop to ask after her 'cancer,' unwilling to afford her an opportunity of expressing her opinion on the subject of medical diagnosis, and my own abilities in that line particularly."

A few more such candid narratives would tend towards the improvement of our diagnosis of many maladies.

Art. XVIII.—*A Handbook of Volumetrical Analysis.* By R. H. Scott, M.A.—*London*, 1862.

In many cases easy and rapid processes of volumetrical analysis are replacing difficult and tedious gravimetrical methods. For determining

the value of many commercial products, and for tracing the quantitative variations of certain organic bodies in chemico-physiological inquiries, the newer plan is in constant and general use. Although nearly all our chemical text-books contain some account of volumetrical analysis, a work clearly and simply explaining its principle and practice ought to be welcome, not to students and professional chemists only, but to many other persons interested in special chemical questions. In Mr. Greville Williams's copious 'Handbook of Chemical Manipulation,' and in the last English edition of Fresenius' 'Quantitative Analysis' (not to cite a dozen other works), there are numerous well-described examples of analysis by volume. To those, therefore, who possess such works, Mr. Scott's little treatise may not prove very useful. And we cannot but think that it might have been made more generally acceptable had it included a few processes of volumetry *par excellence*—namely, gas-analysis. For the terms volumetry and gasometry are by no means mutually exclusive, the former comprising the latter, though we find no allusion to this fact in our author's definition of his subject; nor does he give his reasons for omitting to detail a few of the beautiful and important processes by which gaseous mixtures and compounds may be quantitatively examined. Two or three plain examples would have served to introduce the student to more elaborate and special treatises on gas-analysis, without unnecessarily enlarging or complicating the plan of Mr. Scott's work. The author might, for instance, in a couple of pages, have described with sufficient fulness Petenkofer's easy and accurate process for estimating carbonic acid in air by means of lime water of known strength and a standard oxalic-acid solution, as well as the methods of determining the per-centage of atmospheric oxygen by means of phosphorus or an alkaline pyrogallate.

We think it a pity that Mr. Scott should have purposely excluded almost all processes where the termination of the action is shown by testing a drop taken out of the solution. He considers such processes to be attended with "great inconvenience and delay, entailed by the necessary washing of the watch-glass" used in testing the drops taken from time to time out of the bulk of the solution operated upon. But the employment of a series of watch-glasses (by no means costly vessels), obviates in great measure these drawbacks; while in very many plans it is requisite merely to let the drops fall upon suitable test-papers.

Some of the illustrations are decidedly inferior to the excellent woodcuts in Williams's 'Manipulation' and Bunsen's 'Gasometry.'

But, after all, there is no difficulty in discovering the merits of our author's compendium. We are especially glad to observe the adoption of the French metrical system of weights and measures, and of the Centigrade thermometric scale. There is no way in which the relation between the grain and the gallon can be easily adapted to volumetrical analysis, except by the use of Mr. Griffin's "septem" standard, a septem being the volume occupied by seven grains of water at the temperature of 60° Fahr.; it is therefore $\frac{1}{10000}$th of a gallon. Now the addition of a new standard, the *septimal*, to the dozen or more at

present in use in this country, is to be deplored, and we should regret its general adoption. Nevertheless, the plan is not without its advantages, and its basis is no doubt less unscientific than the use of standard barleycorns, three of which make one inch, or the inaccurate method employed by Fahrenheit to fix the zero in his thermometer. We trust that no national or other prejudice will prevent the universal adoption of the French system of weights and measures, and of the Centigrade scale.

In Chapter I. the apparatus is described. Chapter II. includes various "saturation analyses," or the processes usually known as alkalimetry and acidimetry. For estimating free carbonic acid in a mineral water—in Seltzer water, for instance—a clever contrivance is described on p. 22. Attached to one of Mohr's cork-borers is a piece of india-rubber tubing, in the other end of which is inserted a glass tube, plunging into a vessel filled with water of ammonia. At a distance from the end of the borer slightly greater than the thickness of the cork, a small hole is pierced in the side of the borer. On boring the cork the plug carried down stops the tube, until the lateral hole comes below the lower surface of the cork, when the effervescence commences. The carbonic acid set free is conducted into the water of ammonia, where it is at once saturated. When the effervescence has ceased, the cork is drawn, and the bottle emptied into the water of ammonia, and well rinsed with a fresh portion of that liquid. The carbonic acid is then determined in the usual way. A tubular corkscrew with a stop-cock may be obtained in the shops, and might be made to answer the same purpose as the above-described contrivance.

Mr. Scott directs us (p. 15) to "*blow* air through the liquid with a glass tube, to remove the last traces of carbonic acid," in the estimation of pearlash. It is far better to cause the atmospheric air to bubble through the liquid by sucking; otherwise, the expired air from the lungs will certainly not accomplish "the removal of the last traces of carbonic acid."

To "Oxidation and Reduction Analyses," Chapter III., constituting nearly half the book, is devoted; while the concluding chapter contains a selection of "Precipitation Analyses." Among these we notice Liebig's method of determining cyanogen, whether present in the form of hydrocyanic acid, or of a soluble cyanide, by means of nitrate of silver: the process invented by the same chemist, for estimating chlorides and urea with nitrate of mercury: and various plans for ascertaining the per-centage and variety of sugar present in certain solutions.

We feel sure that Mr. Scott's compact volume will be found of considerable service. His small collection of trustworthy processes having a recognised value, will prove of more practical use than a larger assemblage of more varied and original methods. But our author has not only recognised and selected many excellent processes from the works of others, but adds, in his instructions how to carry them out, several novel suggestions of his own.

The book is well and concisely written, while the chemical knowledge which it indicates is accurate and extensive.

ART. XIX.—*On the Rain-Fall in the Lake District in* 1861. *With some Observations on the Composition of Rain-Water.* By JOHN DAVY, M.D.—*Edinburgh*, 1862. ('Transactions of Royal Society of Edinburgh,' vol. xxiii.)

FROM the interesting experiments and observations recorded in this paper, Dr. Davy shows that rain-water, such as falls in England, is never perfectly pure, but constantly contains something derived either from sea or land, from town or country.

ART. XX.—*Vorstudien zu einer Wissenschaftlichen Morphologie und Physiologie des Menschlichen Gehirns als Seelen Organ.* Von RUDOLPH WAGNER. Zweite Abtheilung. Mit fünf Steintafeln.—*Gottingen*, 1862.

On the Scientific Morphology and Physiology of the Human Brain as an Organ of the Mind. &c.

WE noticed the first part of this valuable monograph some time since. The second is now before us, and pursues the subject of the morphology of the human brain from a different point of view—viz., particularly with reference to microcephalous brains and to those of the quadrumana. Consequently it is a production most pertinent to the great question now being agitated among comparative anatomists with respect to the differences obtaining between the brain of man and that of the apes.

The author has given minute attention to the direction, depth, and ramifications of the cerebral convolutions, and has endeavoured so to describe and classify them as to constitute a standard for reference in researches on their comparative development in different individuals and in various animals. In an appendix he passes under review the valuable observations recorded by Drs. Boyd and Peacock relative to the weight of the brain as a whole, and of its principal segments after separation.

The engravings in illustration of the author's descriptions are most carefully and clearly executed.

PART THIRD.

Original Communications.

Art. I.

On Leprosy, as seen in India: with Remarks on the Eruption and Anæsthesia. By Assistant-Surgeon H. V. Carter, M.D. Lond., Teacher of Anatomy and Physiology in the Medical College, Bombay.

In the Bombay Presidency leprosy is sufficiently common.* A large proportion of the cases seen in the Presidency Town consists of residents of the numerous fishing villages and small towns situated on the sea-coast, but in the Deccan and Northern provinces the disease is by no means unfrequent. The following observations are based upon facts derived from the examination of about 180 cases, and from 13 post-mortem dissections, conducted entirely by myself.

An asylum for the homeless, called the Dharmsala (placed under the control of the Local District Benevolent Society), lodges, and partly feeds nearly one hundred lepers; in the Jamsetjee Jejeebhoy Hospital (native) are annually treated from sixty to seventy, and as out-patients, a somewhat larger number yearly attend the Male Dispensary under my charge. Such are the opportunities for observation, of which I have taken advantage during nearly two years; the patients coming from districts widely apart, have offered examples of perhaps all the chief varieties of leprosy, as it occurs in this country.

As the result of some consideration, the following method of viewing the disease is proposed as the simplest, if not the most scientific—viz., by regarding the chief phases, or groups of symptoms, it presents. These phases in leprosy are three in number—

1. An eruption or affection of the skin, accompanied with anæsthesia, and probably allied to lepra (Græcorum).

* During the last twelve years 543 deaths from leprosy have been registered in Bombay; of which 409 were males, 134 females. Proportionally to the total deaths, leprosy is most prevalent among the native Christians, next among the Marathas and low-caste Hindoos, particularly the latter, then follow Mussulmans and Parsees and the vegetable-feeding Hindoos; no death amongst the Jews or Europeans has been recorded. Dr. Haines, the registrar, observes, "the frequency of the disease in the class concerned in the catching and selling of fish is very remarkable, especially as this class contributes but in a trifling proportion to the general mortality; this serves strongly to confirm the opinion long entertained that an inordinate use of fish tends to induce the disease, for the classes which suffer the most are those which use fish largely, not always in the freshest condition."—*Mortuary Returns for* 1859.

2. An affection of the cutaneous nerves and superficially placed nerve-trunks, and of the Pacinian corpuscles.

3. A tumefaction or tubercular thickening of the skin, and the mucous membrane of the palate and pharynx.

These primary symptoms, or groups of symptoms, seldom, if ever, occur quite independently; but in all cases one or other will be found to predominate, and so determine the variety or form the disease has assumed; yet even this will change as time advances, as is the case at least with the first, which always passes into the second, and is possibly, in rare instances, related to the third form.

The eruption in leprosy has never been fairly studied; it corresponds with the "baras" of the Arabian authors, and possibly with the "Leuke" of the Greeks, and third species of vitiligo of Celsus.

The second of the above forms is that known as anæsthetic leprosy, and the third is the tubercular variety.

With regard to their respective prevalence in India, and we may say the East generally, "baras" is common; it is possibly peculiar to these parts. Anæsthetic leprosy is much more frequent than the tubercular, with which, however, it is sometimes associated.

The latter form of the disease is that generally described as leprosy until recent times, when the variety characterized by numbness and distortion of the extremities has been distinguished, and it is still the most prevalent form in some parts of Europe, where the disease yet lingers. There is here a contrast, similar to that which obtains as regards the two chief forms of ague, in their respective frequency in England and in India. But, strictly speaking, these distinctions into species or varieties are not real, though, practically, they may be found convenient. In the course of my observations I have had occasion to examine the morbid anatomy of the tubercular thickening of the skin, and it has seemed to me that it is owing to an effusion of similar character to that found in the nerve-trunks; indeed, I have always found the two associated, and they are probably referable to the same cause, whatever that may be. The precise relation of the eruption in leprosy to the other morbid signs is not easy to determine, but it is probably very close; and I am of opinion that the skin affection is peculiar, if not in typical character, yet in some of its modifications, to this great constitutional malady. Leprosy, in all its varieties, is decidedly hereditary.

The remarks which follow are a brief condensation of notes, yet incomplete, referring more particularly to the skin and nerve-affection; and a few observations will be appended to the description of each; in the latter case, bearing on a physiological question which, even at the present day, has not been demonstrated in a way to convince all inquirers,—I mean the influence of the nerves upon nutrition. Perhaps these observations may furnish a more general and satisfactory proof of the existence of such an influence than has yet been offered, but whether regarded so or not, I can only say they are founded on careful and unbiassed research.

THE ERUPTION IN LEPROSY.

In the most frequent varieties, and in the majority of individual instances, some kind of cutaneous affection may be seen, but occasionally the eruption is the most striking or prominent feature, and cases thus characterized appear as worthy of distinction as the other two admitted forms of leprosy; this has not, however, in modern times, been awarded them. The older writers were more precise, particularly the Orientals, as Moses among the Jews, the Hindoo and Arabic; but the Greeks were also acquainted with a skin disease (Leuke), which was regarded as "of the most fatal kind," and was known to pass sometimes into leprosy. As the simpler plan, the chief forms of eruption as seen at the present day will first be separately described, and then their mutual connexion and real relation to the acknowledged forms of leprosy will be treated of. Three or four varieties may be distinguished—

1. The typical, consisting of patches or spots of a circular or annular form; size, three-quarters of an inch to three or four inches in diameter; edges raised, of a light red or pinkish hue, free from scales, cracked, or wrinkled; centre depressed, pale, dry, glistening; there is a tendency to spread and join so as to cover large spaces. The raised margin is slightly benumbed; the centre of the patches insensible, often entirely so, and always in the older ones. Their appearance is not preceded or accompanied by any general symptoms or even local signs of irritation; hyperæsthesia has not been noticed. The patches commonly occur about the shoulders (front) and hips (back); behind the elbows and in front of the knees; on the corresponding surfaces of the arm and thigh, or fore-arm and leg; on the face, the temples, and cheeks are frequent positions, sometimes where the branches of the fifth cranial nerve emerge; on the trunk, the back is oftenest the seat. There is a more or less perfectly symmetrical arrangement of these spots. Squamæ, scabs, and discharge are absent, even a furfuraceous desquamation of the cuticle is by no means common; the hairs on the patches are few and atrophied, but seldom blanched; the function of the glands of the skin is suspended or diminished.

It is probable that the eruption is essentially tubercular in character, beginning as it does by a small reddish, flattened elevation of the whole skin; but in different cases this character will be found more or less distinct. Sometimes the patches are limited by a broad, irregular, wrinkled or nævus-like elevation; after attaining a certain size the edges appear to subside, leaving a pale, dry surface, quite insensible. On examining the centre of the patches a dotted appearance is seen, owing to the clogged and projecting hair-follicles, the hairs themselves being stunted or broken; there is an evident wasting of the part. The best examples I have seen were in adult males, and in all, distinct evidence of anæsthetic leprosy co-existed with the eruption. The general health and bodily condition were good.

2. The second form consists of extensive patches occupying the back of the trunk, limbs, &c.; their character is essentially similar to the

last, and in some cases these larger spots are clearly owing to the blending of several smaller ones. More irregularity is noticeable in their form, breadth of the border, &c., without, however, obscuring the characteristic features, which are a light reddish-coloured elevated margin, varying in width, being often two or three inches broad, and best defined outwardly; a depressed and benumbed centre, dry and pale in the smaller patches, showing a tendency to return to a darker tint in the largest. The size of these patches is sometimes very considerable, embracing large segments of the trunk, or surrounding a limb like a broad bandage; and their appearance is very striking. As in the last instance, anæsthetic leprosy generally co-exists.

3. The eruptions just described may be seen at the end of one year, or not fully developed until three or four; on careful examination fresh spots can generally be found, which display their real character. A more frequent appearance than either of the above is a light, discoloured state of the skin, in the form of irregular, often large, patches, of which the surface presents hardly any other visible change beyond that of colour. Most cases of leprosy, when first seen, are of long standing, and many exhibit the form of eruption now referred to; at first sight, so much do the two differ, it would seem a gratuitous assumption to suppose that this was in any way related to the form last described; but not to insist on the high probability that the cutaneous affection in leprosy is essentially of a uniform character, and also that the numerous modifications it may undergo will often mask its true nature, it will be found that some features, and these not unimportant, are common to both. The tubercular character is reduced to a minimum, and the border is indicated by a narrow, level, reddish line, or by a level, lighter-coloured streak, the central parts having resumed more or less a tint approximating to that of the sound skin, retaining, however, their insensibility

4. A fourth form is still more widely separated from the typical; it is probably peculiar to leprosy, and is not uncommon. The following case is an illustration:—Changi, a Hindoo female, aged twenty-five, comes from Bankote (a fishing village). There have been spots on the body for twelve years; they first appeared on the left fore-arm; at present, a few round, pale spots, as large as a rupee, may be seen on the face; all over the shoulders, front and back, on the chest, abdomen, and loins, and extending onwards to the extremities, where they become fainter, are light discolorations, almost white, and perfectly distinct even on her pale skin; they are generally well-defined at their border, but towards the extremities pass gradually into a colour resembling that of the sound skin, portions of which have probably become inclosed within the circumference of the patches; the free edge often shows a circular disposition. Some recent spots on the back are decidedly circular in form, or occasionally oval, showing the faintest red edge, slightly raised; then a broad, light surface, and finally, in the centre the colour may be almost white. The surface of the patches presents a rather coarse appearance, the clogged hair-follicles being visible as elongated dots; most of the hairs are white,

thin, and short. There is marked anæsthesia in all the patches. The hands are small; they are benumbed, and the inner fingers are slightly distorted and shortened; the cuticle is apt to peel off the benumbed parts; otherwise well-formed, and in good health. Is married, but her husband drove her away when signs of leprosy made their appearance; had children, who are well. Her paternal uncle was also in the Dharmsala, being a leper. In my list, the two next cases (sisters, and young) are remarkably similar to the above. I have notes of several others, and would particularly mention two young Hindoos who attended at the Male Dispensary on different occasions; one, a fine specimen of a native, presented a few small isolated white spots, where it was seen that the commencement was by very light pimples or small tubercles, which form a cluster or soon are arranged in a circle, the central parts afterwards become darker and depressed; the diameter of the spots was about one inch, and their form irregularly circular; they are quite benumbed; the older ones blend, fade, and leave white gyrate marks, as seen behind the right elbow-joint. The right ulnar nerve in this patient was diseased. The other case was almost identical with this, even to the affection of the ulnar nerve; in neither case was there desquamation of the cuticle or local irritation, and the duration of the spots was very prolonged. No other instances quite similar to these were again seen.

Amongst the numerous attendants at the Dispensary have been well-marked examples of that extensive blanching of the skin which is so striking and repugnant to the eye; notes of nine cases are before me. The change seems to consist entirely in the non-formation of the cutaneous pigment; the functions of the skin are unaffected, and the general health remains good; the hands, feet, scrotum, or face, are usually first attacked, and finally the whole body acquires a tint similar to that of the palest European, with often a chalky hue; the hairs on the eyebrows I have found to be blanched, but the natural colour of the eyes persists. The affection is mentioned here because it has been suggested that one form of Jewish leprosy (the skin being "white as snow") is illustrated by it, and certainly as far as appearance goes, no other example equally forcible could be adduced. Its connexion with leprosy is not general, but long experience will be required to elucidate these and similar topics; in two or three cases facts in the affirmative have appeared, and also an hereditary tendency. It is called "Switra." An opposite condition of the skin—viz., a black discoloration—is not very uncommon. I have short notes of seven cases, from which it appears that it occurs only on the face, and frequently over the branches of the fifth pair; sensation is not diminished, once it seemed increased. The tint may be compared to that of a black-leaded surface, or again, the nitrate-of-silver stain.

In conclusion, it may be remarked that there is no evident connexion between the "baras," in its various forms described above, and a syphilitic taint; its essential relation to other signs of leprosy has been already pointed out, and baras is a serious complaint only as thus complicated; it does not itself tend to shorten life, but is a disfigurement;

lepers, however, seem soon to lose that personal vanity which natives abound in. There are more female than male patients in the Dharmsala, and in them it seems to have occurred earlier in life than in the latter.

Remarks.—It is possible that the preceding descriptions of the various forms of eruption in leprosy may be too obscure and imperfect to convey a definite idea of their character or appearance; but in the absence of detailed cases and drawings (such as I have now by me), it is by no means easy to furnish this. The subject, too, has its special difficulties. As to the nature of the eruption, I am of opinion that the several varieties now referred to are but modifications of a typical form, and also that they are peculiar to leprosy, nothing like them having been seen in any but leprous patients. I do not speak now of uncertain examples, such as might be mentioned, but of the fundamental form and its modifications. The skin diseases common in Europe are here to be seen—as herpes, lichen, favus, eczema, scabies, &c.—and there is a scaly eruption, located about the waist, groins, &c., which bears some resemblance to lepra vulgaris; it is called dadru, or gachkaram. As is well-known to many, great confusion once existed in the use of the term "lepra;" this, in the middle ages, had come to signify several distinct diseases, and, amongst others, included elephantiasis (Græc.), or leprosy; in recent times, also, it was used as synonymous with the latter. Cullen states that he had never seen a case of "lepra;" and Heberden declared it was almost unknown in England. There can be little doubt, I suppose, that both these authors had in contemplation the more serious malady when they used the word. It is also understood that this confounding of lepra and leprosy dates from the time when the Arabian authors were translated into Latin; the former term (a Greek word) expressing a group of cutaneous diseases, but loosely employed even then, being adapted by the translators to represent the latter, the "jezam" of the Arabs—a disease corresponding to the elephantiasis of the Greeks: in consequence of this misappropriation of terms, these Latin interpreters of the Arabs have ever since been severely handled by critics. It is not now pretended to offer a justification for them; but the opinion may be expressed, that some kind of explanation of their apparent mistake is presentable. As stated at the commencement of this article, leprosy in the East is not precisely similar in its varieties to the disease in Europe, &c.; and this appears to have been formerly the case—tubercular leprosy is comparatively uncommon here, the most usual form being the "baras," and anæsthetic, which generally go together, or the latter only. It is stated by a late traveller in Arabia (Captain Burton), that "baras" is now the prevalent kind of leprosy there. The three diseases of a leprous type enumerated by the Arabs (quoted from H. H. Wilson) were the behek, an innocuous skin-disease; beres, also a skin disease, but far more serious, and often terminating in the next form; and jezam, or leprosy proper, in which the above discolorations of the skin are present, but, in addition, other symptoms, bearing, I may say, every resemblance to those of anæsthetic leprosy, or combi-

nation of it and the tubercular—such as is sometimes called "mixed" in these pages. Thus, it will be seen that in every instance an affection of the skin forms part of the disease, according to Arabian authors; and a striking similarity in this respect is found in the description of "Kooshta," or leprosy, given by the old Hindoo writers; every one of the eighteen varieties is characterized by the appearance of the skin and general progress; nor does the Mosaic account greatly differ. I have above stated, that in the present day some form of cutaneous eruption (not tubercular) is, or has been, present in nearly every case of leprosy. It may hence be inferred that the Latin translators, finding such a prominence awarded to the skin affection, were naturally induced to make use of a term known to themselves as indicating a group of skin diseases such as the Arabian leprosy might seem to most nearly resemble, and therefore they translated the latter as "lepra;" the mode of description necessarily adopted by the Arabs, and the undefined, and so far convenient, use of that word being circumstances in favour of their proceeding.* But this is not all: as already intimated, my own view of the typical forms of baras is, that they more resemble lepra than any other classified skin disease. The main objections to such an identification are two—first, the anæsthesia which is present in the central part of the patches of baras; in reply to this, it may be observed, that by so much is the local lesion more severe in leprosy, implicating the cutis more deeply, or extending even beyond it: and, secondly, the absence of scales.

I am not acquainted with any writings in which the physiological significance of the symptoms in the several forms of cutaneous disease has been carefully estimated; but I should not myself be inclined to regard exfoliation of the cuticle as a fundamental or specific character. The grounds of this opinion need not now be alluded to, but another consideration may be noticed—viz., the habitually moist state of the skin in the natives of India. Not to insist on this point, it may be further remarked that acknowledged forms of lepra occur (in Europe) in which the scales are absent, and these have some resemblance to the commoner kinds of baras, such as the second variety above described. For example: "the eruption (lepra), deviating from its ordinary course, appears in the form of small red circular points, which unite at their edges, and by their eccentric arrangement they acquire an enormous size, and the patches are not covered with scales, or if they happen to be so and fall off, they are never renewed. We have observed several patients at the hospital of St. Louis in whom this variety was well illustrated. The trunk, and particularly the back, was the seat of broad red patches more than a foot in circumference; these patches were formed by a prominent circular ring but a few lines broad, accompanied on its outer edge with a reddish border, also but a few lines in breadth, and quite free in every part from scales, &c."—MM. Caze-

* The translator of Haly Abbas (a distinguished author amongst the Arabians) has indeed rendered "baras" by "lepra," but this is a unique exceptional instance; the same translator renders leprosy proper, or "jezam," by "elephas," whereas every other one has employed "lepra" to represent "jezam."

nave and Schedel, translation by Burgess, p. 201. So Rayer, second edition, translated by Willis, p. 618: "I have moreover observed lepra under another form—that, namely, of arcs of circles, a few lines in diameter, red, prominent, devoid of scales, and bounding surfaces of various extent, occasionally as much as five or six inches across, the skin of which had either a yellowish cast, or appeared perfectly healthy. . . . . Although most commonly encountered on the trunk, I have met with this variety of lepra exclusively on the lower part of the fore-arm and hand, on the anterior and posterior aspects of which it formed a kind of irregularly circular wreath." Baras commences by small light-reddish flattened tubercles, and lepra is said to arise in the same way; here, then, the fundamental character of both is displayed, and want of space only prevents me from passing on to consider how far this indicates identity with the so-called tubercular leprosy. I could quote more cases than one where a decided affinity between them was shown.* Those features of baras which resemble lepra will be evident from my description; but one deserves particular mention, it is their similar local preferences, often conjoined with a symmetrical disposition.

As to the identification of the "leuke" of the Greeks with the "baras" of the Arabs, it is by no means satisfactory, although generally adopted. In the Greek accounts the inexplicable omission of the numbness of the patches, and the usual conjunction with a form of leprosy characterized by great distortion of the hands and feet, are to my mind almost insuperable objections; the chief facts which prevent a totally negative conclusion being certain statements of Hippocrates and Galen referring to the severity of "leuke," and its occasional (two cases are mentioned by Galen) connexion with their elephantiasis (tubercular leprosy). The same remarks will apply to the leprosy of the Jews; the account of Moses is so marked by fundamental omissions, that only one conclusion seems admissible; and yet leprosy is known to have been common in Egypt at early historic periods. I should have said it is impossible, however, to identify any of the skin diseases mentioned in the Mosaic narrative with any form of leprosy, if the account given of the disease by the ancient Hindoo writers were not equally obscure, at least nearly so, from similar omissions, and yet they must have seen leprosy, if it were as frequent in India then as now. Shall it be said, in concluding this subject, that all ancient writings, medical as well as historical (Sir G. C. Lewis), are of little value in identifying and fixing diseases and epochs? or must the blame, in medicine at least, be laid upon the translators? It is worthy of remark, that not a single death from leprosy amongst the Jews, who are tolerably numerous here, has been recorded during the last twelve

* I remark that one of the most experienced English writers (Mr. E. Wilson) separates lepra from the other squamous diseases, and regards it as arising from "a special poison:" one is almost inclined to ask, is it a remnant of the leprosy once so prevalent in England? This is more probable than that the baras of the East is the lepra of Europe, occurring in individuals whose constitutions are predisposed to the disease here termed leprosy; but I forbear at present the discussion of these interesting topics.

years in Bombay; and not more than three or four cases have come under my notice, although this community is not inconsiderable in numbers in the Presidency.

ANÆSTHETIC LEPROSY.

Impairment or loss of the tactile sense is the characteristic feature of this phase of the disease: this, when complete, is accompanied by an inability to appreciate differences of temperature or other kinds of irritation, as tickling, &c., but the first symptom noticed is loss of feeling, or numbness. In most cases only the limbs, and particularly their extremities, are affected; next in frequency, the lobules of the ears and parts of the face, but rarely the trunk, except in places where it was probable one of the anæsthetic forms of eruption just described had previously existed. This very remarkable symptom, standing alone as it does, is, so far as I know, peculiar to leprosy; and the morbid anatomical condition upon which it depends is also equally unique. In the following condensed remarks many details of interest must necessarily be withheld; it will, however, be sufficient to state, *in limine*, that repeated and careful dissections of parts ascertained to be paralyzed during life (each dissection generally occupying the working hours of two days, and embracing all the nerves of one side of the body at least, besides the usual post-mortem examination of every viscus, and subsequent microscopic investigation) have furnished satisfactory evidence that the NERVE-TRUNKS alone are primarily diseased; no other tissue in the limb showing traces of change, except as the result, as I believe, of this; nor in thirteen such post-mortem dissections have I ever found the nervous centres themselves affected, or any other nerve-trunks, except those connected with the benumbed, distorted, and partially-destroyed parts.

This striking limitation of disease to the nerves—organs hitherto held to be least liable of nearly all others to pathological changes, confirmed as it is by inquiry into the symptoms during life, would seem to be a new feature in pathology, and well worthy of a recognised place in the science.

Another observation which naturally follows from these dissections indicates a further limitation of the morbid alteration to certain nerve-trunks only—viz., those larger ones which in certain parts of their course are superficially placed, and to the *cutaneous* branches of these, or of independent nerves; a fact which throws much light on the pathology of leprosy, especially when it is recollected that each of the other phases of this disease is essentially connected with the state of the skin.

But this subject has a physiological bearing of some interest; the extremities thus deprived of (sensory) nervous influence, soon exhibit appearances which can only be attributed to this interference with their normal relations; atrophy and interstitial absorption take place, leading at length to the total loss of the hands and feet. I am not at present aware of any circumstances which, in these too common cases, could be held to support views different to those now advanced, such

as that to a diseased condition of the nerves (which the microscope demonstrates to be such as inevitably destroys the nerve-tubules), the phenomena of wasting, distortion, and destruction are essentially owing.

With these preliminary remarks, which were required for the better understanding of what follows, I proceed to consider some of the characters, &c., of anæsthetic leprosy. 1. Comparative frequency. Out of 173 cases, 60 were considered to belong to this form, 30 to the mixed variety with the tubercular, and 47 to a combination with baras; it will thus be seen how extremely common the local nerve-affection is in all varieties of leprosy, indeed, it is probably never absent in the advanced stages, and may, perhaps, therefore be regarded as *par excellence* the pathological feature of the disease. 2. Age at which the symptoms make their appearance. This is somewhat difficult to ascertain, for natives have not always accurate notions of time, but it seems to be established that in upwards of half, in a total of 60, the disease appeared under the age of thirty, many under twenty, and comparatively few after forty; in two cases under the age of ten. The combinations with baras and tubercles seemed to commence at still earlier periods. 3. Males suffer much more frequently than females, and the same is the case with tubercular leprosy, hardly so with baras. 4. With regard to occupation, several subjects were fishermen, many ryots; all live, more or less, on dried or salt fish, and rice. 5. The localities whence most of the lepers in Bombay are derived, have been generally indicated; it is unnecessary for me to give the names of the fishing-villages and hamlets. 6. The duration of the disease will vary according to its intensity; of the few fatal cases I have seen, one died at the end of three years (kidneys diseased), one after seven, two after ten, one after twelve years; in one case, it is reported that the duration of the disease previous to death was only seven months, but I think some misunderstanding occurred here; the patient was a Bengali, and hardly comprehended the Marathi language; he was exceedingly emaciated, dying of chronic dysentery. On the other hand, a patient attended the Dispensary, whose hands and feet had been crippled for thirty-five years, but the progress of the disease had been very slow, and he was able to protect himself from exposure, &c., being well to do in the world. 7. The natural mode of termination does not appear to be uniform; generally some exhausting disease, often dysentery, carries off the patient: once in seven cases fever and albuminuria proved fatal, and also similar symptoms in a second where slight tubercular thickening co-existed with the anæsthesia. Such cases as these deserve special study; besides them, no instance of an acute form of the disease has occurred to me, but I have seen patients (two in particular, notes of whose cases are now before me) who presented something like general nervous symptoms, partly attributable perhaps to terror or nervous excitement, but it appeared to me they were connected with the disease (in both of about two years' standing). 8. Neither fever nor a syphilitic taint is common, but an hereditary predisposition is undeniable; among Dharmsala patients, it was ac-

knowledged in 9 cases out of 24, and 14 times in 24 cases of anæsthetic leprosy and baras. 9. Propagation of the disease by contagion is not a tenable doctrine; a very singular coincidence was mentioned to me, but I have seen several leprous husbands with healthy wives, and *vice versâ;* and in the immediate neighbourhood of the Dharmsala, where lepers are constantly visiting, the disease is said not to have appeared. 10. A brief view of its symptoms may next be offered. If there be any which are strictly premonitory, I have not seen them, but admit that hospital patients are not likely subjects to exhibit such: in the greater number of cases the benumbed condition has been accidentally discovered by the patient. It has been stated that hyperæsthesia is common at the commencement of the disease, but I must own that I have never been able to assure myself of its presence, and yet cases have occurred of only a few days' standing at the Dispensary. I have, however, heard of one instance where this symptom was present in the lobule of the ears, and leprosy was suspected. Local sensations of a burning, pricking, or shooting pain, susceptibility to cold, &c., are not uncommon in the fingers and toes; and there may co-exist tenderness on pressure and shooting pains in the course of the ulnar and median nerves, &c., as I have several times observed, these symptoms never extending upwards beyond the seat of lesion, and to this the local tenderness may be limited—e.g., just above the wrist, or less often at the bend of the elbow, for the median nerve, behind the inner condyle for the ulnar, and behind the inner malleolus for the posterior tibial. General aching, wearing pains in the limbs, are sometimes complained of; or a sense of weakness, the patient being unable to grasp firmly, &c.; as before mentioned, more obscure general symptoms have occasionally been noticed. With regard to the bullæ or blisters which have been ranked as a characteristic of this form of leprosy, it is true that they are frequent, particularly on the extremities. But as to their spontaneity, at least in most cases, I own myself sceptical. They follow the anæsthesia, never, I suspect, precede it, and it is then probable that a slight degree of heat, a slight amount of friction, a slight degree of local irritation, will be an adequate cause for their occurrence; and parts of the hands and feet more particularly exposed to such irritation are their most frequent seat: however (and it is a fact of some interest), it would appear that sometimes they occur in a perfectly spontaneous manner; their size is usually small, and form irregular; their contents serous, or sero-purulent; they sometimes dry up, leaving no mark behind, or bursting, there remains a superficial sore, which, when healed, has a white cicatrix: deep ulcers by no means generally follow, though I have twice known local anæsthesia and a bulla beneath the great toe to be followed by an unhealthy burrowing sore leading to bone. An eruption of the skin, some form, indeed, of baras already described, very often co-exists with anæsthetic leprosy; in most cases I think it precedes the latter, but is frequently subsequent to it, a few months or a year or two intervening in either case; as already hinted, this combination of symptoms is of great significance, but as I am not yet assured of its real indication, the subject must be left for further in-

quiry; changes in the appearance of the skin, in anæsthetic parts, are not to be confounded with the skin-disease now referred to.

In the course of a few months, or longer, according to circumstances yet unascertained, the disease becomes confirmed; the extent and degree of anæsthesia indubitably show that the nerve-trunks are deeply implicated. The skin of the hands and feet becomes dry and shrivelled; the fingers and toes atrophied and bent; soon absorption becomes evident in the diminishing size of the terminal phalanges, this proceeds slowly but surely, till the leper becomes a poor cripple; his general health will have diminished in vigour, and his strength become impaired; his mental faculties partake of the debility, but are not otherwise affected; and the whole progress of these symptoms will depend greatly upon his outward circumstances, being hastened and aggravated by want and exposure; lastly, as already stated, there is no special period of duration or mode of termination of the disease. With reference to the *libido inexplebilis*, it is not proven; without mentioning particular cases, it will be sufficient to state that rather an opposite disposition has been evinced; if wretched lepers will marry, as some do, it seems more for some collateral advantage than for lust; these observations apply to the anæsthetic form of leprosy.

Morbid anatomy.—In the course of eight post-mortem examinations of this form, and six of the mixed, apparent absence of specific morbid lesion has been ascertained in the following organs: heart, lungs, intestinal canal, liver, spleen, pancreas, and supra-renal capsules; with the exception of slight congestion or adhesions of the lungs, and dysenteric ulceration occasionally in the colon, all these viscera have appeared healthy; the muscles often pale, the blood loosely coagulated, the lymphatic glands generally healthy, and in the case of those patients who died of cholera, the body has been fairly nourished; in others, sometimes emaciated. The kidneys and the nervous system have been found diseased. The former, out of seven cases of anæsthetic leprosy, were enlarged, pale, and smooth; four times, capsule thin and non-adherent; on section, distinct evidence of a whitish deposit; twice, a slight mottling of the surface was seen, and once they appeared normal. As already stated, one patient died of fever and albuminuria; the kidneys were found in a state of incipient fatty degeneration; the urine had contained clear and granular casts; in a second case, fatty degeneration was also established by the microscope; urine not examined; the patient was much reduced; the disease had existed three years and eight years respectively in these two cases. With regard to the nervous system, in no case has the brain or spinal cord, with their membranes, been found diseased in the whole number of fourteen; once (a case of anæsthetic leprosy), a few stellate, fibro-osseous particles were seen in an arachnoïd transparent and non-adherent, but they were not in a position to seriously affect the proper nerve-tissues. The Pacchionian glands (so-called) presented their usual variable appearance. The principal sympathetic ganglia in the trunk have always seemed healthy, and also those on the posterior roots of the spinal nerves; on two occasions, when it appeared desirable, the former were

examined microscopically, and on two others, the spinal cord and ganglia, with the same results. The roots of the spinal nerves have always had a healthy appearance, and also the large nerves forming the various plexuses in the neck, abdomen, and pelvis.

But those nerve-trunks distributed to the affected parts have invariably been found diseased; they are enlarged, of a reddish-grey colour, mottled or streaked in appearance, and of firm consistence, though supple; their investment of connective-tissue, or neurilemma, is free from opacity or adhesion, so that there is commonly no evidence whatever of inflammation (if that process be limited, as since Boerhaave's dictum is generally admitted, to the neurilemma); although I have once found the ulnar nerve at the elbow of a pink colour, and adherent at one or two points, also the musculo-cutaneous and posterior tibial nerves in a similar state, and therefore would not deny the occasional occurrence of appearances which may be regarded as evidences of inflammation of the nerve-sheath; but in these and all other cases, the funiculi, or separate nerve-stands, have presented one uniform change of structure; in the last-named instances it ought also to be mentioned that the foot was in a gangrenous state, and phlebitis was present, so that the nerves may have become implicated by continuity, and in the instance of the ulnar nerve, it is possible that some local external injury may have induced adhesion at the place of infliction. It will be sufficient to state in this place that the funiculi of the nerves are the seat of the morbid changes, that the nerve-tubules of which they are formed are separated and compressed by the development of a clear nucleated tissue amongst them, and eventually so much altered as to be even wholly destroyed; a full description of these unique changes may be seen in the thirteenth volume of the 'Transactions of the Pathological Society of London,' page 13.

I cannot dismiss this subject without pointing out two or three features in the morbid anatomy of the nerves, which will serve to explain apparent anomalies in the symptoms as observed during life, and also to illustrate the striking peculiarity of the morbid lesion; first, the latter is confined not only to cutaneous nerves, but to those nerves only after they have emerged from beneath the fascia and muscles which may have overlaid them in the first part of their course, so that the radial nerve, e.g., becomes swollen just after passing beneath the tendon of the supinator longus muscle; so with cutaneous branches of compound nerves, I have found the dorsal branch of the ulnar nerve alone diseased, and that only after it had escaped from beneath the tendon of the flexor carpi ulnaris; second, in a nerve-fasciculus only some of the tubules may be affected; this is hardly to be detected by the unaided eye, but with a low microscopic power is so evident that the observer will be struck with the difference. The following is a list of the nerves oftenest found diseased:—

Supra-orbital, just after emerging from the orbit, supplying the skin of the forehead.

Auricularis magnus—just after turning round the sterno-mastoïd muscle—goes to the ear, &c.

Ulnar nerve—at the bend of the elbow; sometimes in the hand, at the wrist.

Median nerve—just above the wrist; sometimes at the bend of the elbow.

Radial—as above indicated; it supplies the skin of the back of the hand.

External cutaneous—after perforating the fascia of the arm.

Internal cutaneous— ditto.

Intercosto-humeral— ditto.

Dorsal branch of ulnar—as above indicated; it supplies the back of the hand, inner side.

The branches of the lumbar plexus are not frequently diseased, except the internal saphenous, in the leg, and on the foot. Of the sacral plexus the following:—

Musculo-cutaneous—after perforating the fascia of the leg.

Posterior tibial—behind the inner ankle.

The external saphenous and anterior tibial should also be mentioned.

It should be remarked that the terminal branches of these nerves are generally found atrophied, and of a transparent, whitish aspect; at this stage it is hardly possible to say whether they were not diseased previously to the larger trunks, or whether this wasting is only a part of the general decay which supervenes in all the tissues, as presently to be described. Those appendages to the nerves, the Pacinian corpuscles, are occasionally found to be diseased (as I discovered in September, 1860); thus they have been seen in the hands, feet, and abdomen at the root of the mesentery. In a dissected hand, the great nerve-trunks were also affected in the usual way; the corpuscles seemed very numerous, some were much enlarged, but clear, the central nerve-fibre, however, was either small or absent; others were occupied in their central part by a copious granular deposit, and this is probably the early stage; the capillaries were evident and healthy.

Physiological Remarks.—In numerous cases, all noted by myself, it has been possible to clearly ascertain that certain changes in the hands and feet were connected with disease of the nerve or nerves supplying the affected parts; in about a dozen cases of a particularly satisfactory kind the following were noticed—for simplicity's sake I will instance the inner side of the palm and dorsum, and the two inner fingers of the hand, with a detected enlargement, often tenderness, of the ulnar nerve at the elbow, and no other local symptoms whatever: First, the benumbed skin shows evidence of atrophy, shrivelling or wrinkling, dryness; desquamation of the cuticle sometimes; a reddish or purplish hue, and a decided diminution of temperature (perceptible to the touch when the body of the patient is not much cooled); the whole giving the impression of a dry wasting, or mummifying process, with sometimes the idea of a subjacent effusion of reddened serum. The fingers look thinner, and in slender subjects smoother, with a tendency to assume, and finally retain, a bent position; the inner margin of the palm becomes concave; the interosseous spaces hollowed, particularly the first (which is occupied by the adductor pollicis muscle, supplied

by the ulnar nerve); the whole hand is weak, and the thumb droops. Interstitial absorption proceeding, the phalanges of the little finger shorten, beginning with the terminal one; eventually no traces may remain of it and of the next finger, which become wasted, bent, and shortened, although at such advanced stages it is not common to see the disease thus limited, for the median nerve has generally ere this become implicated. In the early stage bullæ may appear on the sides or tip of the fingers, filled with dark-coloured serum; the concentric lines on the cuticle disappear, owing, doubtless, to the absorption of the subjacent rows of papillæ, and a finely-wrinkled, but essentially smooth, surface is left; the sweat-glands becoming affected, cease to act. These changes are better marked in the case of the slender Hindoo, or Indo-Briton, than in the "lymphatic" Parsee or plethoric Mussulman, but in the latter, the Pacinian corpuscles are more likely, I think, to be affected; these peculiarities of temperament I shall not, however, enlarge upon, they do not prevent the occurrence of the local changes now discussed. On dissection of a hand or foot in this state, it will be seen that the digital nerves are wasted, and of a transparent white tint; the muscles very pale and atrophied; the bloodvessels hardly changed in appearance; but the phalangeal bones are strikingly affected; absorption first renders the shaft very slender about the middle, then the head disappears, and the base remains as a curious conical piece; in the case of the first, or largest, row of phalanges looking like a miniature limpet shell, or in a less extreme stage, pointed like the head of a spear. This progressive and interstitial absorption of the bones is well deserving remark; on a cursory examination of two mounted sections with the microscope, no peculiarity in the osseous tissue was apparent. A general diminution in the size of the bones of the hands or feet has been seen; and even the metatarsal or metacarpal bones may be destroyed, as well as the adjoining row of short bones, so that nothing but a bare stump remains. Such is a very brief account of the alterations which occur, in consequence, as I infer, of interference with the nervous supply. Unmistakeable symptoms during life, and repeated dissections after death, establish the conjunction, if not the order of precedence, of two phenomena—viz., disease of a nerve of mixed function or sentient only (and in the case of the first it may be of the sentient tubules only, for there is nothing in my observations to gainsay the supposition, and the occasional persistence of power over the muscles would seem to require such limitation), and changes in the parts it supplies, and those only. Whether these phenomena be regarded as cause and effect, individual temperament may induce my readers to variously decide. I will repeat, that I cannot myself come to any other conclusion, but I will admit that every tissue and every part of the structures concerned not having been scrutinized to the utmost possible extent, it is possible some minute structural or molecular changes may have escaped notice which might have an influence, and hence some facts be wanting; yet, if an adequate cause be ascertained (as some will hold with **me**) it is not necessary to search for subsidiary ones.

As is well known, opinions are divided as to the kind and degree of influence which the nervous system exercises over the processes of nutrition and secretion. Experiments on animals and pathological facts noticed in man, which often concur, here differ. Thus, it is stated by Müller:—"I have only once among several cases in which I divided the ischiadic nerve in rabbits . . . . observed that the skin of the heel of the paralysed limb gave way, and ulcerated at the part on which the animal rested." In leprosy, the fully-developed lesion of the nerves may perhaps be viewed as comparable to section of those nerves; if so, how different the result. Again, "Schroeder divided the ischiadic and crural nerves of one leg in a dog, and then made a wound in both feet; on the following day, the wound of the paralysed limb was drier than that of the sound limb; during three weeks the wound of the sound foot presented violent phenomena of inflammation, suppuration and granulation took place in it—while in the wound of the paralysed limb there was scarcely any inflammation; it discharged a white matter, which formed a crust, but the wound itself was pale." Are not the conclusions to which this experiment would seem to lead opposed to the received opinions concerning paralysis and local irritation in man? Bichât observes, that direct irritation of a large nerve-trunk in rabbits (e.g., by touching with nitric acid or thrusting a pin through) may produce swelling and pain in the limb below, but often fails to do so. Would it ever fail to do so in man?

At least four well-marked instances are on record of local irritation of a nerve being followed by impaired nutrition of the hand, and these are customarily referred to by authors as illustrating this subject; how striking the paucity of illustrations. Leprosy, if my view be adopted, offers far more precise and satisfactory proofs of the nature and degree of that nerve-influence which can hardly be denied to exist, in the human frame at least. The nervous system of man, if not of a higher type than in animals, is probably possessed of higher faculties, or fulfils offices bringing it (functionally) into more intimate relations with the structures of the body.* In a disease so recently investigated, it cannot but happen that some points remain obscure; these I refrain from referring to on the present occasion. As regards, however, the varying intensity of destruction in the extremities observable, so much light is afforded by some experiments of Brown-Séquard, that a few more lines may be added. In the 'British and Foreign Medico-Chirurgical Review,' January, 1850, p. 247, these experiments are briefly stated: they show that disorganization of the tissues of the feet after section of the sciatic nerve (in rabbits and guinea-pigs) is greatly aggravated, if not directly induced, by external

* The opinions generally held regarding this subject are mainly derived from experiments made in animals upon the vagus and fifth cranial nerve. What the consequences of section of the vagus, even on one side, are *in man* may be learnt from a most instructive case narrated in the 'Medical Times and Gazette,' Aug. 17th, 1861, p. 176: similar results occur in animals only when the nerve on both sides is divided. I may here mention that a well-marked case of anæsthetic leprosy (though not recognised as such) is recorded in the 'Medico-Chirurgical Transactions for 1812,' by Dr. J. Yelloly, who adds some very interesting notes.

influences—such as cold, friction, and compression against a hard soil—so that if these irritating causes be avoided no such consequences follow. The application of these facts to the condition of lepers is obvious and important; most are exposed to all the disadvantages of poverty, and unable therefore to protect their deadened limbs from great and repeated irritation. This admission, however, does not affect the fundamental question of the reality of a nerve-influence upon nutrition in man; and several of the patients whom I have carefully watched were well able to take care of themselves.

In conclusion, while desirous not to connect the facts contained in this article with any particular theory, I could not but express an opinion on the principles they indicate: this may be erroneous, but the facts remain. The subject of tubercular leprosy must be left for another occasion.

Art II.

On the Rate of Mortality prevailing in the General Hospitals of the Metropolis, and the Causes by which it is brought about. By Dr. Guy, Physician to King's College Hospital, &c.

Our hospitals richly merit all the attention lately bestowed upon them by individuals and by congresses. Indispensable as schools of medicine and surgery; invaluable as homes in sickness for the poorer members of the great industrial class of our population; less liable to abuse (at least in their most important department, that of in-patients) than other charities—our hospitals cannot be too often brought under the notice of our profession or of the public.

The two questions relating to hospitals which have lately received, and still require attention are, the best form and arrangement of the buildings themselves, and the rate of mortality to which their inmates are subject.

This communication relates solely to the second of these questions. The first may perhaps be discussed at a later period. The two questions are obviously united by a practical bond; for if, through some serious error as to the true causes of hospital mortality, a high death-rate, really due to other causes, should be erroneously attributed to some peculiarity of construction and arrangement having the incidental advantage of economy, hospitals about to be erected would have to be so built as to entail unnecessary expense; and those persons who are now contemplating the erection of new hospitals might be deterred from so doing, or might be compelled to build on an inadequate scale. This relation between our opinions on the causes of hospital mortality and our acts in promoting the erection of new hospitals is best shown by referring to the conflicting views at present entertained respecting the proper form of wards and their relation to other parts of the hospital. The hospital ward may be planned in one of three ways. It may be a *single* ward with windows on each side opening direct to the external air; or with windows only on one side, with or without

openings into a passage running the length of the ward; or, again, it may be a *double* ward, with four rows of beds between two rows of opposite windows opening direct to the air, the middle row of beds being placed with their heads against a central partition, or spinal wall, more or less freely supplied with openings for the passage of air between the opposite windows. Now it must be quite obvious that if the first form of the single ward is adopted, we must have an extensive site and a costly building; but if either of the other forms is preferred, we may build on a smaller site, and, if the double ward is selected, with considerable economy of outlay. But let us suppose that in examining the rates of mortality prevailing in different hospitals, an enthusiastic admirer of the plan of *single* wards of the first class should happen to find an hospital with wards after the favoured fashion exhibiting a low mortality, and another hospital with double wards of the condemned type subject to a high mortality, he would be very apt to attribute the more favourable rate to the favourite construction, and thus come to wield an argument of irresistible force in favour of straggling and costly hospitals on large and extensive sites. If, on the other hand, some previous inquiry into the true causes of hospital mortality, by indicating causes not previously suspected, and especially by exhibiting equal rates of mortality in hospitals of widely different arrangement on sites of extent and character as different, had supplied our enthusiast with knowledge and armed him with caution, he might have exercised a discretion which would have resulted in more liberty to our architects and a welcome economy to our committees of management.

The present attempt to ascertain the causes which determine the rate of mortality in hospitals may therefore be defended by considerations of practical utility. But the discovery of the truth is in this, as in other matters of importance, the highest object to be aimed at, and to this object all other considerations must be subordinate.

But the discovery of truth, which is never an easy task, becomes unusually difficult when it is to be sought out among labyrinths of figures; for the figures which represent the rate of mortality in our hospitals, like the essences or extracts which contain the virtues of plants, are made up of numerical elements of small amount but of great significance, to be separated from each other only by a process of elimination which is to statistics what analysis is to chemistry. If, for instance, the rate of mortality in an hospital is stated at 10 per cent., we know that the figure 10 is an ultimate result of many different causes (of very variable intensity in different cases) acting together, strengthening each other when favourable or the reverse, counteracting and neutralizing each other when acting in opposite directions. So that it would be quite possible, though extremely difficult, to present a balance-sheet of favourable and unfavourable causes, each credited with its own numerical force and efficiency, and leaving the figure 10 as an ultimate residuum. The construction of such a balance-sheet must always be difficult: it was difficult even in those days, to which we now look back with equal horror and surprise, when a few now

obvious causes of mortality stood out from the rest in bold relief, overpowering by the intensity of their action all minor causes; it is become doubly difficult now when the causes have perhaps gained in number what they have lost in strength, and when even the word hospital has acquired many different shades of meaning through the multiplication of establishments differing in the manner of their support and the rules of their administration.

And here it may be well to indicate at once the great difficulty which arises when we attempt to compare the mortality of the hospitals of one country with those of another, of one capital city with those of another capital city. Let us take the cases of London and Paris, which some writers both here and abroad have treated with so much confidence but so little discretion, and convince ourselves, by a simple appeal to facts, of the impossibility of so comparing the mortality of the hospitals of the two cities as to arrive at any knowledge of causes.

In the year 1861, London had a population of 2,815,138, and Paris of 1,696,141. In the year 1860, the deaths in London amounted to 61,821, and those in Paris to 41,261. So that London suffered a mortality at the rate of 21·96 per 1000, while Paris lost at the rate of 24·33 per 1000. But as, for the same year, the birth-rate for London was in round numbers 33 per 1000, and for Paris 30 per 1000, it is obvious that the lesser mortality of London took place in a population liable, by the addition of a larger proportional number of children, to a higher mortality: so that the disadvantage of Paris as compared with London is really represented by a more serious difference than that between 21·96 and 24·33 per 1000. It follows, therefore, either that the inhabitants of Paris are more prone to fatal diseases, or that they are exposed to more fatal local influences, or that the two unfavourable conditions are, in their case, united. Be this as it may, we may safely assume that the inhabitant of Paris is a worse subject for hospital treatment than the inhabitant of London. If the hospitals of the two capitals could be on a par in respect of all the means of successful treatment, their patients would not enter them on equal terms.

This, then, is one difference between the inhabitants of London and Paris. Another and more important difference, and one which must have a very marked effect on the hospital mortality of the two capitals, consists in the widely different provision made for the care and treatment of the indigent, the insane, the sick, and the infirm in London and Paris respectively.

We, in England, make provision for the destitute part of our population—the destitute (healthy and sick), the infirm, and the insane—in our unions and workhouses, or through their agency. Into those institutions, so curiously and infelicitously named, the perversely idle, the hopelessly incapable, the incorrigibly wicked, the deformed in body, the stunted in intellect, the unsound of mind, sooner or later find their way. The majority are retained; a small number only are forwarded, under medical certificate, to the lunatic asylums. Of the destitute sick, no inconsiderable portion is always under treatment in the sick wards and infirmaries of our workhouses and unions. In

these establishments there are sick wards and fever wards for men, for women, for children; infectious and foul wards, similarly distinguished; infirm wards for aged men and women; and nurseries for infants and young children. The very names given to many of the wards show that cases of fever and other infectious maladies are admitted into them in large numbers; and there is no doubt that the rate of mortality prevailing within them is very high.

From a 'Report on the Capabilities of the Metropolitan Workhouses for the Reception and Treatment of Cholera Cases,' published in 1848, it may be inferred that our workhouses and unions make up among them an aggregate of between 3500 and 4000 beds—a number which certainly exceeds the aggregate of beds in our general hospitals, and probably equals that of our general and special hospitals taken together. At any rate, we shall not fall into any serious error if we assume that the task of providing hospital accommodation for that part of the London population which stands in need of it, is pretty equally divided between the workhouses on the one hand, and the hospitals, general and special, on the other.

But though the destitute part of the London population is provided for in sickness in the wards of our unions and workhouses, a certain small fraction of that very poor population gains admission into our London hospitals. It results from some inquiries directed to this point, that probably about one in fifteen of the inmates of London hospitals belong to that destitute class for which our workhouses are intended. The remaining fourteen consist chiefly of poor persons to whom the term "destitute" could not be properly applied, and of respectable working-men and artisans, with a small number of tradesmen, and a few of better station.

But the task of providing for the sick poor in the more severe class of maladies is performed by our hospitals only in part. A very considerable number of the worst cases of illness are treated at the homes of the sufferers themselves by the physicians and surgeons of our dispensaries.

Nor ought it to be forgotten by any inquirer into the mortality of our London hospitals, that the hospitals themselves consist of at least three distinct classes. We have our general hospitals, our class hospitals, and our special hospitals—hospitals (endowed and unendowed) for the treatment of diseases of the more severe class, with few exceptions, and without distinction of sex or age; hospitals for women, for children, for seamen, for foreigners; hospitals for insanity, consumption, cancer, deformities, skin diseases, and venereal maladies.

Hence it happens that the wards of a general or mixed hospital by no means present a faithful picture of the more severe accidents and diseases of the population in the proportions in which they occur. Most cases of small-pox are taken to the Small-pox Hospital; many cases of fever are removed to the Fever Hospital; the insane find an hospital and a home at St. Luke's or Bethlehem; for consumptive cases there are two special hospitals; several special maladies, such as cancer, fistula, diseases of the eye, diseases of the skin, deformities, and

venereal diseases, have special hospitals provided for them; and whole classes of the population, such as women, children, seamen, and foreigners, have also their own special hospitals.

Let it, then, be well understood that, partly through the exclusion of certain cases, partly through the operation of special hospitals, and partly by the agency of dispensaries, the wards of our general hospitals do not present a faithful and complete picture of the prevailing medical and surgical maladies in the proportion in which they exist among the population of London. In like manner, the out-patient departments of our general hospitals must be taken as equally incomplete exponents of the less severe ailments to which our population is subject.

Such being the peculiarities of our hospital system here in London, let us endeavour to compare them with that which prevails in Paris. A minute comparison of the one with the other is neither necessary nor possible; but it is desirable, and at the same time perfectly practicable, to point out such broad marks of distinction as shall serve as a caution against rash attempts to compare the rates of mortality of the hospitals of London and Paris, and to draw from such comparisons inferences unfavourable to the construction, arrangement, and management of the hospitals of either capital.

The first and most fatal obstacle to such a comparison is offered by the fact that the Parisian hospitals are the recipients alike of the destitute and of the poor; so that they discharge the twofold function of the London workhouse infirmary and the London hospital. A second peculiarity, which is not without effect on the rates of mortality in the two capitals, is, that the Parisian hospitals are supplied by the central administration with cases for which they are compelled to provide accommodation, so that they are subject to be greatly overcrowded in unhealthy years and seasons; while in London the governing bodies of our hospitals are under no such compulsion, and receive a number of patients determined, not by the wants of the population, but by their own resources.

If to these two leading causes affecting the rate of mortality of the Parisian hospitals we add the two facts, that the hospitals which are best entitled to be considered as 'General Hospitals' receive from the central administration those cases in excess which their physicians and surgeons may be most desirous of studying, and that the special hospitals in the two capitals do not admit of being compared with each other, the uselessness of comparing hospital with hospital in the two capitals respectively, or even of comparing the aggregate of the hospitals of the one with those of the other, must be quite obvious.

The remarks which apply to a comparison between the hospitals of London and those of Paris must also apply to a like comparison between the hospitals of London and those of other considerable European cities. Each city will have its own special arrangements for the treatment of the sick poor; its own special rules for the admission of patients to the benefits of its medical charities.

Nor is the case greatly altered, except in degree, when we come to

compare the hospitals of London with those of our English provinces. Each metropolitan hospital has its local and its remote sources of supply. It has its accidents and its acute cases from the immediate neighbourhood, and it draws from the environs of London itself and from more remote rural districts its surgical cases for operation, as well as some of its worst chronic cases for medical treatment. The larger provincial hospitals have perhaps similar sources of supply, and medical and surgical cases of like severity. But the smaller provincial hospitals cannot be compared with the general hospitals of the metropolis, without very serious injustice to these central establishments. For, in the first place, the provincial hospital is often the only medical charity of the town in which it is situate. The work which it has to do is not supplemented by such special hospitals and special and general dispensaries as abound in London. Whatever of medical or of surgical interest the town or its neighbourhood supplies, the hospital receives. But the supply is limited by the absence of the crowded thoroughfare, the equally crowded river, the factory with its dangerous machinery, the workshop with its equally dangerous overcrowding, the close packing and squalid wretchedness of the houses of the poor. The supply of fatal accidents and of fatal diseases is therefore small in proportion to the accommodation which the hospital affords, and the vacant space is accordingly filled up by the less severe acute maladies and the less fatal order of chronic diseases. Hence the low rate of mortality of those provincial hospitals which combine the advantages of wholesome buildings for the reception of patients with healthy rural communities to supply them with cases. Take the case of a small provincial hospital admitting four or five hundred patients in the year. We shall probably find its rate of mortality fluctuating between 40 in 1000 and 80 in 1000; whereas the mortality of a large metropolitan hospital will never fall so low as 80, and may sometimes rise as high as 120 in 1000. In London the lowest of these rural rates of mortality is never attained, even in those small and unambitious hospitals which are content to fill their surgical wards with syphilitic patients, and their medical wards with the least dangerous cases their subscribers can supply.

But even if it were possible to find in some provincial capital, being the centre of an agricultural district, and the residence of such a mixed population as a rural community affords, the exact counterpart of a metropolitan hospital; that is to say, the same rules for the admission and rejection of patients, the same proportion of medical and surgical cases, and even the self-same distribution of the two classes of cases respectively, it would not be possible to infer superior hygienic conditions or superior skill from a more favourable rate of mortality. For it should never be forgotten that the inhabitant of the crowded city is much worse prepared for the attacks of disease and the receipt of injuries than the man or woman who lives in the provincial town or in the surrounding country. Diseases bearing the same name may be expected to have different issues in the two cases; just as accidents of like severity, or operations of the same character, would be followed by

a different rate of mortality. And here it may be well to notice the obvious fallacy which hangs about the inference in favour of hospitals situate in the country drawn from the greater success of certain surgical operations in country hospitals. That such success may be rightly estimated it must be attained under like conditions. The Londoner with his acquired London constitution must be compared to the countryman with his higher vitality and more natural normal condition, not in different hospitals but in the same hospital. The Londoner must be removed to the provincial hospital, and placed side by side with the countryman, or, *vice versâ*, the countryman must be brought to town and share both the atmosphere and the treatment of the London patient. If such an *experimentum crucis* were instituted, it might be discovered that the curative value of rural atmospheres had been somewhat too highly extolled.

So also with respect to the hospitals of London, and especially that class of them which admits of the most ready comparison of hospital with hospital. The general hospitals of the metropolis do not resemble each other so closely in the distribution and proportion of their cases as to admit of an exact comparison. So that if the rate of mortality is found to be higher in one hospital than in another, we are by no means justified in attributing the excess to peculiarities of site, of internal arrangements, of general management, or of professional skill. Some general hospitals, from their position in the neighbourhood of docks, wharves, manufactories, or railway termini, have a disproportionate number of accidents; some from excess of space have large wards devoted to cases which rarely, if ever, terminate fatally; some, through the special reputation of their surgeons, receive an unusual number of cases requiring operation; or through the similar special repute of their physicians, medical cases of great gravity. Again, small hospitals in crowded and poor neighbourhoods are likely to have a disproportionate number of urgent and severe cases; and the union with the hospital of a medical school supplies a motive to the rejection of the less instructive, which are also, as a general rule, the less severe cases. Perhaps also the endowed hospitals have, in the selection of their cases, an advantage over hospitals supported by voluntary contributions, subscribers to the latter class of hospitals having the somewhat inconvenient privilege of sending patients with letters of recommendation, which patients cannot be refused admission without some risk to their finances.

All these considerations, and possibly some minor ones which have not been mentioned, must be taken into account in comparing one hospital with another.

Let us now see how far these general considerations are borne out by the interesting returns of the mortality of the general hospitals of London during the year 1861, recently published in the 'Journal of the Statistical Society.'

The returns in question present a picture more or less complete of the mortality of these hospitals; and they enable us to arrive at results, highly probable, if not absolutely certain, of the highest interest

to all who sincerely desire to understand the true causes of hospital mortality. Some of these results will be briefly indicated under distinct heads.

1. *Locality.*—It would not be unreasonable to assume that the mortality of our hospitals must be sensibly affected by the part of London in which they are situate. Those who are familiar with the comparative mortality of the several great divisions of the metropolis would not be surprised to find the hospitals of the southern district less healthy than those of the northern district, and the hospitals at the eastern end of London subject to a higher death-rate than those of the West-end. But the figures for 1861 do not confirm this not unreasonable expectation; for the rate of mortality of the two southern hospitals (Guy's and St. Thomas's) proves to be the same, namely, 96 in 1000, as the rate prevailing in the group of hospitals situate on the north side of the Thames; while the group of six hospitals situate to the west of the line of thoroughfare running from Waterloo-bridge by Wellington-street, Endell-street, Charlotte-street, and Gower-street presents a higher mortality than the group of six hospitals situate to the east of that line, in the proportion of 99 in 1000 to 95 in 1000. The influence of locality, therefore, as far as it can be inferred from these figures, is in any case very small. The hospitals of the north side are on an equality with those of the south; and the hospitals of the more healthy West-end present a higher mortality by 4 in 1000 than those of the less healthy East-end of London.

The equal rate of mortality prevailing on the north and on the south side of the Thames is the more remarkable, inasmuch as the hospital accommodation on the south side being much more ample in proportion to the population of that side of the river than that of the northern side, it would be natural to expect for the hospitals of Guy's and St. Thomas's the admission on the average of a less severe class of cases.

The assertion just made that the hospital accommodation provided for the south side of the river is proportionably more liberal than that for the northern side is too important in its practical bearings to be allowed to pass without observation. It is founded on the facts contained in the tables under review, coupled with the estimated population of the two districts in 1861. A simple calculation based on these numerical data shows that while the patients admitted into the two southern hospitals in 1861 amounted to 1 in 88 of the entire southern population, the patients admitted into the northern group of hospitals formed only 1 in 119 of the northern population. From this statement it will appear that in advocating arrangements with the governors of St. Thomas's Hospital which would have tended to equalize this disparity of hospital accommodation, the writer of this paper was not without a certain support from the facts of the case. If St. Thomas's Hospital is to be regarded as a metropolitan hospital and not as the hospital only of the southern suburbs, it is quite reasonable to expect from the governors of the hospital that some part of their large funds shall be in some way or other devoted to the relief of the sick poor of the districts on the north side of the Thames.

The little influence which the situation of an hospital has on the rate of mortality of its patients may be inferred from the very curious coincidence in the death-rates of hospitals so differently situated as St. George's, London, and Charing-cross. St. George's and Charing-cross have a death-rate of 83 in 1000, and the London Hospital of 84 in 1000. The rates of mortality of Westminster and St. Thomas's again differ only as the figures 96 and 97 ; and those of St. Bartholomew's and King's College correspond to a unit.

2. *Site and Structural Arrangements.*—Now that St. Thomas's Hospital is removed from the place it once occupied, and its buildings are fast disappearing, we may observe, with little fear of giving offence, that the site of Guy's Hospital and the arrangements of its buildings were very superior to those of St. Thomas's ; and yet the death-rates of the two hospitals differed only by 3 in 1000. The deaths in Guy's Hospital are at the rate of 94 in 1000 and in St. Thomas's 97 in 1000. Again, it cannot admit of doubt that the site and buildings of Charing-cross Hospital are very inferior to those of St. George's in the west and London in the east ; and yet, as has already been shown, the mortality of Charing-cross Hospital is on a par with that of St. George's, and less by 1 in 1000 than that of the London Hospital.

3. *Space, Light, and Ventilation.*—In the cubic space allotted to patients, and in the lighting and ventilation of its wards, King's College Hospital may claim superiority over every metropolitan hospital ; and yet its rate of mortality falls short of that prevailing in University College Hospital, which is obviously inferior in these respects, and with which it may be most aptly compared, by only 5 in 1000. The mortality of King's College Hospital is at the rate of 107 in 1000, while that of University College Hospital is at the rate of 112 in 1000. When a correction is made for special wards in the two hospitals, the disparity remains the same.

4. *Size of Hospital.*—The size of our hospitals would not appear to exercise any direct influence on their rate of mortality ; for the highest mortality (104 in 1000) is attained in the four hospitals which rank above the smallest in size, and the lowest (75 in 1000) in the group which comprises the smallest hospitals ; while the mortality in the three large endowed hospitals (St. Bartholomew's, St. Thomas's, and Guy's) exceeds that of the group of the next in point of size (the London Hospital, St. George's, and Middlesex) by 8 in 1000. The mortality of the endowed hospitals is at the rate of 100 in 1000 ; while that of the three largest subscription hospitals is only 92 in 1000.

5. *Medical and Surgical Cases.*—It appears from the tables to which I have been referring, that, taking one hospital with another, the mortality of medical cases is more than twice as great as that of surgical cases. The rate of mortality in the medical wards ranges between 79 and 187 in 1000, while that of the surgical wards has the much narrower range of 48 to 85 in 1000. The highest mortality among medical cases is attained in St. Bartholomew's Hospital, and the highest in surgical cases in St. Mary's Hospital.

6. *Males and Females.*—The mortality among male patients is in excess of that prevailing among female patients. For men it ranges

from 50 to 138 in 1000, and for women between 61 and 92 in 1000. The highest mortality (without distinction of medical and surgical cases) was attained in King's College Hospital. The highest rate of mortality in medical cases among men occurred in the same hospital, but the highest rate in women among the same class of cases was at Guy's Hospital. In surgical cases, however, the greatest mortality among men occurred at St. Mary's; but the greatest among women in the London Hospital.

7. *Selection of Patients.*—Seeing that the rate of mortality in hospitals varies so little with locality, site, size, and spaciousness, and so much with the sex of patients, and the medical and surgical character of their maladies, it is obvious that more may be done to raise or lower the rate of mortality of our hospitals by selection of patients than by all other causes put together, excepting always such a degree of overcrowding and neglect of obvious sanitary precautions as are no longer possible in the hospitals of London. It must also be quite evident that if to an unequal distribution of men and women, and a variable proportion of medical and surgical cases, we were to add the element of a selection by one hospital of the more serious class of cases, medical and surgical, and by another of cases of a less severe character, we should be able to produce at will almost any rate of mortality between the limits of 50 or 60 per 1000 and 110 or 120 per 1000. Now this sort of selection does go on almost unconsciously in the case of those hospitals which have attached to them medical schools, and in the greatest degree in those which have the largest schools, and through them the largest connexion of old students. The attendance of a numerous class of pupils craving for instruction leads naturally and necessarily to a selection of severe and dangerous cases, while the attachment of practitioners to their *alma mater* brings about with equal certainty a supply of cases for medical treatment and for surgical operation, among which cases an undue mortality may be expected to occur. That this is the true explanation of the higher rates of mortality to be found in the tables published by the Statistical Society is rendered in the highest degree probable by the fact that the four hospitals which present the highest rates of mortality are St. Bartholomew's and Guy's, King's College and University College. In the last of the series of published tables the mortality of these four hospital schools is shown to range from 110 to 115 in 1000. The other hospital schools are found to occupy an intermediate position between the four hospitals which have the honourable distinction of a higher rate of mortality and the hospitals which have no medical schools attached, and which enjoy the unenviable privilege of displaying a rate of mortality rising from 60 to 82 in 1000.

The writer of this paper hopes to have an early and more suitable opportunity of establishing by a more considerable array of figures the important fact that the great leading cause which determines the mortality of hospitals is the *Selection of Patients*—a cause which, at the point of sanitary excellence our London hospitals have now attained, appears to him to be the real determining cause of a high or a low death-rate.

ART. III.

On the Discovery of the Laryngoscope. By THOMAS WINDSOR, Surgeon to the Manchester Eye Hospital, &c.

IT is of some little importance, that to each man, if not during his life, at all events in the history of medicine, there should be assigned his due; and for this reason it may be well to correct an error into which I believe all recent writers have fallen.

Since the publication of Czermak's work in 1860, the credit of having been the first to employ a speculum for examining the glottis has generally been ascribed to Liston.* It has been also claimed for the late Mr. Avery, who made some such an instrument about 1850.†

In France, so early as 1838, Baumès of Lyon had exhibited a similar instrument to the medical society of that town, for in the "Compte-Rendu des Travaux de la Société de Médecine de Lyon, depuis le 1er Juillet 1836, jusqu'au 30 Juin 1838, sous la Présidence de M. Janson, par L. A. Rougier," Lyon, 1840, I find, at p. 62, this interesting passage :—

"Speculum pour l'exploration de la gorge, par M. Baumès . . . . . .—A l'extremité d'une tige de bois ou de baleine cylindrique est placé un miroir de la largeur d'une pièce de deux francs, dont on peut faire varier l'inclinaison à l'aide d'une vis de rappel. Par ce moyen on peut reconnâitre facilement les inflammations, engorgements ou ulcérations que l'on ne pouvait que soupçonner, à l'extrémité postérieure des fosses nasales, au larynx, et dans quelques parties du pharynx. L'usage de cet instrument, très facile d'ailleurs, est d'une utilité incontestable."

The real discoverer, however, appears to have been Dr. Benjamin Babington, who, on the 18th of March, 1829, showed his instrument at a meeting of the Hunterian Society. In the report of this Society‡ it may be read, that

"Dr. Benjamin Babington submitted to the meeting an ingenious instrument for the examination of parts within the fauces not admitting of inspection by unaided sight. It consisted of an oblong piece of looking-glass set in silver wire, with a long shank. The reflecting portion is placed against the palate, whilst the tongue is held down by a spatula, when the epiglottis and upper part of the larynx become visible in the glass. A strong light is required, and the instrument should be dipped in water so as to have a film of the fluid upon it when used, or the halitus of the breath renders it cloudy. The doctor proposed to call it the *glottiscope*."

Before concluding, I may notice that towards the beginning of the present century, Bozzini, a medical practitioner at Frankfort-on-the-Maine, published a folio pamphlet,§ in which he pointed out the great importance of seeing into the cavities of the living body, and described an apparatus with which this might be performed. From his descrip-

* Liston's Practical Surgery, third edition, p. 417. 1840.

† Medical Times and Gazette, vol. ii. 1860, p. 111.

‡ London Medical Gazette, vol. iii. p. 555. London, 1829.

§ Der Lichtleiter oder Beschreibung einer einfachen Vorrichtung und ihrer Anwendung zur Erleuchtung innerer Höhlen und Zwischen-raüme des lebenden animalischen Körpers. von Philipp Bozzini, pp. vi. and 23, plates 4. Weimar, 1807.

tion, however, it appears that, unfortunately, his instrument must have been cumbrous and difficult to employ; probably for these reasons* it was soon forgotten. It appeared worthy of notice here, because Bozzini was the first to conceive the idea of illuminating almost every cavity, perhaps the only exception being the glottis; and because he describes and figures a reflector with which he states the posterior nares may be seen.

Lastly, in 1844, Dr. A. Warden† invented a prismatic speculum, with which he succeeded in seeing in two cases of disease the glottis. He states that "the epiglottis was immediately seen, but it was only when efforts to swallow were made, that the arytenoid cartilages and glottis were raised out of concealment, and brought brilliantly to show their picture in the reflecting face of the prism."

It may I think be now admitted—

1. That Bozzini first attracted attention to the importance of seeing into different cavities of the living body, and to some extent succeeded in overcoming the difficulties inherent in the undertaking.

2. That Dr. Benjamin Babington was the discoverer of the laryngoscope.

3. That Baumès, Liston, Warden, Avery, made apparently independent efforts to examine the larynx. At the same time it must not be forgotten that

4. To Garcia is due the merit of having first made an extended series of examinations of the healthy larynx; but specially,

5. That to Czermak must be awarded the praise of having diffused the knowledge of the instrument and shown its value in disease.

Art. IV.

Notes on Hospitals in Northern Italy, and on Pellagra. By Thomas B. Peacock, M.D., F.R.C.P.; Physician to St. Thomas's Hospital, and to the Hospital for Diseases of the Chest, Victoria Park.

The following observations are compiled from notes made during a short tour in the North of Italy in the month of September last.

The Hospital of San Servolo at Venice is situated on an island in the Lagune, near the Armenian Convent of San Lazare, and midway in the channel between Malamocco and Lido. It is appropriated to the reception of lunatics of the male sex, and is under the charge of monks of the order of San Giovanni di Dio. The superintendent and some of the brethren are medical men, and receive their educa-

* I have been unable to refer to the following articles on Bozzini's invention:— Salzb. Med. Chir. Zeit. 1807, p. 273 (rev. ?); Bozzini in Hufeland's Journal der pract. Heilk. xxiv. B. 1 St. p. 107; and in Salzb. Med. Chir. Zeit. 1806, iii. B. pp. 317, 319; 1807, i. 271; Siebold, Lucina, iv. B. p. 167; Journal der Erfindungen, 3 St. p. 89 — the last article is to the effect that the instrument is of no use.

† Various articles in the London and Edinburgh Monthly Journal of Medical Science, vols. iv. v., 1844-1845, more especially vol. v. p. 552. The first account of this invention was published in the London Medical Gazette, vol. xxxiv. p. 256, May 24, 1844.

tion at the Hospital of the order in Padua, and at the University of that city.

The whole island is occupied by the establishment, and the buildings of the hospital are arranged around small courts opening from a long corridor. The convalescent and epileptic patients sleep in dormitories containing a large number of beds, but the more violent and dangerous patients are placed in cells containing two beds each. The beds are of iron, and some of them are fixed in the floors. The floors of the wards and corridors are of the usual polished concrete common in Italian houses, and are wide, high, and well-ventilated, and stoves are provided for warming in winter.

The whole establishment was scrupulously clean, and apparently under extremely good management. I did not observe any patient under restraint, nor any chairs or other appliances for restraint. A padded room was shown, but it was stated to be seldom used, and this was confirmed by its being evidently a receptacle for lumber. Patients in active excitement were, however, by themselves in several of the cells, but a large number of the more dangerous class were together in a large day room, and had apparently only one attendant, though my conductor informed me that he supposed that there was scarcely one of them who had not killed some one. In the establishment there are workshops in which the shoes and clothes of the patients are made, and also carpenters' and smiths' shops, in all of which several persons were at work, and I understood that in each all were patients except the superintendent. The kitchen work is also entirely done by the patients, under the direction of the cook. There are several airing grounds provided, in which the different classes of patients were amusing themselves; and in connexion with them a raised alcove, commanding a view of Venice and the Lagune. Throughout the patients were orderly, and apparently in excellent discipline, though they were perhaps more noisy than those of an English asylum.

In the office I was shown the reports of the several cases under treatment carefully recorded, both at the time of their admission and subsequently. Two carefully compiled statistical reports were also given to me—one of these records the movement of the patients for the ten years, from 1847 to 1856 inclusive, the other for the quinquennial period, 1857 to 1861. From these reports it appears that the total number of patients under treatment in the fifteen years was 3617, and the deaths 1178, giving a rate of mortality of 32·5 per cent. The mean number of patients resident during the last five years was 343, and the mean number of deaths 75 per annum, giving a rate of mortality calculated upon the residents of 21·8 per cent. During the last five years the total number treated was 1314, the deaths 377, and the rate of mortality 28·7. Of this number, however, 411 were cases of pellagra, and the deaths in this form of insanity were 133, reducing the rate of mortality in the other cases to 27·02 per cent.

The hospital is capable of accommodating about 360 patients, and the total number treated in 1861 was 567. I saw several cases of the melancholia following pellagra. At the time of my visit the

director was from home, but every attention was shown by the brethren who conducted me over the establishment, and I only regretted that from my not speaking Italian our means of communication were so limited.

The library of the establishment consists chiefly of French works on insanity, and of Latin and Italian theological treatises. I did not observe the works of any English author, though I was told that the superintendent understood our language. Altogether the establishment produced a favourable impression on my mind, and I was much gratified with the urbanity of the monks in charge of it, and of their evident earnestness in the work in which they were engaged.

The Spedale Civile at Venice is situated near the Church of San Giovanni e Paolo. It consists of the buildings formerly appropriated to a religious order which devoted itself to the care of the sick and poor in the city, the Scuola di San Marco, and dates from about 1485. It was appropriated to its present purpose after the fall of the republic. The entrance is through a wide and high hall, with marble floors and columns, and the wards are grouped around small courts, and occupy two floors, with open loggias or corridors. The wards are large, wide, and high, but had a crowded appearance at the time of my visit, one of the largest being under repair, and the patients being consequently placed in four rows in the other wards; the superficial space was thus deficient, though, doubtless, from the great height, the cubic space would be large. The establishment then contained about 700 patients, but it is capable of receiving fully 1500. In the larger wards the beds must have been upwards of 100. The cases treated in the hospital consist of ordinary medical and surgical cases —venereal cases, both primary and secondary, and both in males and females—and eye cases. There are also obstetric wards, and wards for the diseases of women, and for female lunatics. The mass of cases at the time under treatment consisted of endemic fever, intermittent, remittent and miliary, cases of pellagra, and ordinary chronic cases.

In the post-mortem rooms, examinations of a Fallopian tube gestation at about the sixth week, and of a case of cardiac and aortic disease, were in progress. The neighbouring Church of San Giovanni e Paolo, well-known to tourists, is employed as the chapel of the hospital.

The Spedale Civile or Spedale Clinica at Padua is a building of comparatively recent date, having been erected on the site of a suppressed convent of Jesuits in 1798. It consists of a plain building erected around a large central court and a smaller one on each side, laid out as gardens. It occupies two floors with open loggias on the garden sides. The lower floor is devoted to the wards under the charge of the university professors. These are of small size, containing ten or twelve beds each, and are appropriated to the ordinary classes of cases—to eye affections and venereal diseases; and as obstetric wards. The upper floors are chiefly occupied by two very large wards, on one side and at the end of each smaller court, appropriated to ordinary medical and surgical cases. These wards cannot contain each much less than one hundred beds, and are very wide and high.

The hospital also contains the pathological museum of the university, but this did not appear to be either extensive or important. The most numerous preparations were specimens of diseased bone, and there were also some visceral preparations in spirit. The cases which I saw under treatment were similar to those at Venice.

In the University the dissecting rooms are well arranged and are light and airy, and there is an anatomical museum attached to them. What is, however, of much greater interest is, that the theatre, still employed for anatomical demonstrations, is that built under the superintendence of Fabricius ab Aquapendente, in 1564. It consists of a small oval chamber opening below into the dissecting-room. The lower part is just large enough to admit an ordinary-sized dissecting-table, with space for the demonstrator to walk round it. From this level six rows of narrow standing-places rise rapidly one above another, so that from the top row there is a good view directly down to the table. The theatre is lighted from above.

The Spedale Maggiore at Milan is probably the most magnificent establishment of the kind in Europe. It was founded in 1456, by Francesco Sforza, and, though not completed according to the original design, affords magnificent façades both externally and on the inner side. It consists of a pile of buildings two stories high, surrounding a large square courtyard in the centre and smaller ones at the sides. Externally there are rounded arches surrounding windows in the pointed style, with carved mouldings and statues; around the courtyard there are wide open loggias, supported on columns and arches, and from these the wards are entered. The arrangement is very similar to that of the hospital at Padua, but the wards, instead of being single, are divided down the centre, so that though very high they are narrow and have a crowded appearance. Indeed, for such a climate, the cubic space is not sufficient, and the wards having windows only on one side, cannot be properly ventilated. The cases in the wards at the time of my visit consisted chiefly of malarious affections, and of what was termed miliary fever. This seemed to consist of remittent fever with a miliary eruption. In some cases I was told that it was attended by dryness of the tongue and cerebral symptoms, and then was called typhoïd. There were also midwifery cases, and lunatics, both male and female, located in the hospital, and both in the general and insane wards I saw numerous cases of pellagra. I observed in this hospital, as also at Venice and Padua, that the title of the disease was always placed in large letters over the bed, a plan which might be advantageously copied in our own hospitals. Shops are provided in the hospital for manufacturing most of the articles required for the attendants and patients.

The establishment is capable of accommodating about 2000 patients, and contains ordinarily from 1600 to 1700. In 1840, when visited by M. Cerrbefr, on account of the French Government, it contained 1712. In 1842 the total number of patients under treatment was 21,019, and during the eleven years, from 1832 to 1842 inclusive, the numbers ranged from 15,578 to 23,077.

This hospital appeared in a less satisfactory state than the others visited. There was less attention to cleanliness and comfort, and among the lunatics several were secured to their beds and to chairs by iron apparatus. Probably the establishment is too large for efficient discipline and control.

The medical charge of the patients in all the hospitals named is placed in the hands of physicians and surgeons practising in the towns and of junior medical officers, who reside upon the spot. The general superintendence is vested in a director, who is a qualified medical man. The nurses are sisters of charity, and I met with several who were intelligent and well educated, speaking both French and Italian. The funds for the maintenance of the establishments are derived partly from the original foundations, partly from the revenues of suppressed convents, and in some—as in the hospitals of Venice, where the funds were vested in the State and have been forfeited—a charge is made for the maintenance of the patient on the town or district in which he resides, if it can be ascertained; if not, the expense is charged to the municipality of the city. In the hospital at Munich, also visited in the autumn, I found that a tax was levied upon all unmarried adults resident in the town, and this entitles them to the benefits of the institution when ill. In all the establishments it appeared that the only requisite for admission was that the patient should be in need of medical assistance; and in some, as at Munich, any one wishing to be admitted can enter the hospital on paying the expenses of his maintenance and treatment.

The special object of my visits to the Italian hospitals was, however, to have the opportunity of seeing cases of PELLAGRA.

In 1775 M. Chomel, Dean of the Faculty, published at Paris an account by M. Thierri,* of a remarkable disease observed by that gentleman in Spain during the time that he was attached to the French embassy. M. Thierri states that this disease was endemic in the mountains of the Asturias, and was shown to him by M. Cazal, at Oviedo. It was regarded as a species of leprosy, being characterized by an eruption on the skin and constitutional symptoms, and had been known in the district for twenty-five to thirty years under the name of "Mal de la Rosa." In 1786 and 1787, Mr. Townsend, an English clergyman, travelling in Spain,† had his attention drawn to the same disease in the hospital at Oviedo. About 1770, Antonio Pujati is said to have described at Padua a disease met with amongst the peasantry in Upper Lombardy under the name of "Scorbuto Alpino." In 1771, Francesco Frappoli‡ published an account of a disease prevalent in the Milanese, to which the name pellagra was given. In 1776, Odoardi§ noticed the occurrence of a similar affection at Belluno; and in 1778 further accounts of the disease were published

* Recueil Périodique d'Obs. de Méd. de Chir. et de Ph., tom. ii. p. 336. Paris, 1775. The observations of M. Thierri were afterwards published in his Obs. de Phys. et de Méd., faites en differens lieux d'Espagne, tom. ii. p. 136. Paris, 1791.

† A Journey in Spain, vol. ii. p. 10. London, 1792.

‡ Giuseppe Cerri: Trattato della Pellagra, p. 78. Milano, 1807.

§ Cerri: op. cit., p. 86.

at Leyden by Jansens,* and at Nuremberg by Zanetti,† who had observed it in the hospitals at Milan. In 1784, the affection had become so common that a hospital was established at Legnano, in the neighbourhood of Milan, for the reception of pellagrose patients. This was placed under the medical charge of the elder Strambio, whose work appeared two years after.‡

In 1789, Francesco Fanzago,§ then a young practitioner just returned from Pavia, but subsequently a professor in the university, published at Padua his opinion that the disease described by Frappoli and which he had seen in the Milanese, and that which prevailed in the Venetian provinces, were the same. This view, much contested at the time, subsequently became general, and the term pellagra was employed to designate the disease.

After this various works were published on the subject. Those of Soler and Della Bona appeared at Venice in 1791;‖ and Titius published a paper at Leipzig in the following year.¶ In 1794, Careno** described the disease in a small volume which appeared at Vienna; and in 1807, Cerri, who had been appointed by the government of the kingdom of Italy to investigate the disease, published the first volume of his work.†† In 1817, Dr., now Sir Henry, Holland contributed to the 'Medico-Chirurgical Transactions' an able and interesting account of the disease as he had observed it in the hospitals of Italy.

In 1829, M. Hameau‡‡ described a peculiar disease as occurring among the peasantry in the basin of Arcachon, in Gascony, with which he had been familiar since the year 1818. In 1843, M. Léon Marchant§§ reported officially on the prevalence of the same affection in the district of Les Landes, at the mouths of the Gironde and Adour; and subsequently MM. Calès and Roussilhe‖‖ stated it to be endemic in Haute Garonne and Aude. More recently, it has been ascertained occasionally to occur in other districts of the south and centre of France, and rarely in some portions of the north. The Asturian disease is now also generally recognised as being the same affection.

Within the last few years the disease has been the subject of treatises published in Italy by Ballardini and Lussana, and in France by Brierre de Boismont¶¶ and Roussel;*** and Memoirs have appeared by M. Costallat††† on the cause of the affection, by M. Landouzy,‡‡‡

* De Pellagra morbo in Mediolanensi ducatu endemio.

† Nov. Act. Méd. Phys. tom. vi. p. 118, obs. xxiv., Aprilis, 1775.

‡ Cerri: op. cit., p. 143. § Ibid., p. 227. ‖ Ibid., pp. 247, 273.

¶ Ibid., p. 282. ** Tentamen de Morbo Pellagra.

†† I have only seen the first volume of this work, of which copies exist both in the Library of the Medico-Chirurgical Society and of the Royal College of Surgeons.

‡‡ Roussel: see also report communicated by M. Lalesque, Bullet. de l'Acad. Roy. de Méd., tom. i. 1836, p. 440, and tom. ii. 1837–8.

§§ Roussel: Report by M. Jolly in the Bullet. de la Acad. Roy. de Méd. tom. x. 1844–5, p. 788, in which abstracts are given of the notices of these several observers.

‖‖ Roussel. ¶¶ Ac. des Sc., 1830.

*** De la Pellagra, par Theophile Roussel, Paris, 1845. In this work a full exposition, historical, descriptive, and ætiological, is given of the disease.

††† Annales d'Hygiène publique, deuxième série, tom xiii., 1860.

‡‡‡ Bullet. de l'Acad. de Méd., 1852.

on its occurrence sporadically, and by M. Baillarger* on the paralysis which appears in its last stages.

The term pellagra, by which the disease is now generally known, is supposed to be derived from pellis and ἄγρα, a seizure; but it seems quite as likely that it might have been adopted from pellis and agria, wild—an epithet which might readily be applied to the skin affection.

The disease is described as displaying three stages:

1. It usually appears in the spring with a slight febrile attack, which is followed after two or three days by an eruption of red spots —"taches," as it was described to me, or of erythema, as it is also termed—on the backs of the hands and the front and top of the chest, and on the feet and ankles. There is usually also some disorder of the digestive organs, especially diarrhœa, and vertigo or headache at the time; and the affection subsides and passes off with desquamation after a longer or shorter period, usually at the commencement of summer. Generally, however, the disease recurs with greater severity the following spring; and so, after successive relapses and recoveries, fixes itself in the system.

2. In the second stage all the symptoms are more severe and more persistent. The skin affection is no longer a mere redness followed by desquamation, but the epidermis becomes dark and thickened, and has a tendency to exfoliate, leaving under it a peculiarly thin and transparent cuticle; occasionally, also, there are vesicles, pustules, or fissures on the affected parts, from which secretions exude, and becoming dry, form crusts. The gastro-intestinal symptoms are more marked—there is a morbidly acute appetite, a red and fissured but not generally coated tongue, and the bowels are much relaxed. There is pain down the course of the spine and in the limbs. The nervous power also is impaired, so that there are tremors of the extremities, with headache and vertigo, a very desponding state of mind, and not unfrequently delirium, together with emaciation and weakness.

3. In the third stage the affection becomes persistent. The skin may either display the thick and dark epidermis, or there may be fissures and crusts, or the eruption may have entirely disappeared, and the only appearance of it left may be the thin and transparent cuticle. The patient's strength is now very greatly exhausted, and he is thin and sallow. The appetite is generally voracious; he has constant diarrhœa; suffers from excessive despondency or maniacal excitement, and ultimately sinks into a fatuous condition. There is increased tremulousness of the extremities, with more or less complete loss of the power of movement. Ultimately the powers of deglutition and speech may be affected, and usually he has impairment of the common sensation, or of the sense of sight. In this way he rapidly or more gradually sinks, death being sometimes preceded by dropsical effusions into the large cavities, or by convulsions, and too frequently accelerated by suicide.

* Mém. de l'Acad. de Méd., tom. xiii. p. 707, 1847. In the article Pellagra, &c., in the Traité de Géographie et de Statisque Médicale, of M. Boudin, tom. i. p. 290, Paris, 1857; and that in the Dict. d'Hygiène Publique of M. Tardieu, deuxième édition, tom. iii., p. 228, Paris, 1862, there are good accounts of the disease and of its supposed causes. The latter also contains an extensive bibliography.

The form of insanity which supervenes in pellagra may be either mania, melancholia, or dementia. Of 310 cases admitted into San Servolo in the five years terminating 1861, 82 were cases of mania, 2 of monomania, 95 of melancholia, and 130 of dementia. It is said that the tendency is especially to commit suicide by drowning, and that in some cases a homicidal inclination is shown towards those to whom the patients are attached, especially their children. The general paralysis which attends the last periods of the disease, and which has been described as a fourth stage, has been shown by M. Ballardini and M. Baillarger, to be identical in its symptoms and morbid appearances with the general paralysis of the insane.

During my visit to Italy, I had not any opportunity of seeing pellagra at its commencement. Indeed, the patients in that stage rarely enter the hospitals; but many cases in the second and third stages were shown to me. In the last periods of the disease the appearance of the patients was most characteristic Their expression of countenance was usually desponding; they were thin and emaciated, pale and sallow, with sunken and glassy eyes, pale lips and tongue, and the latter was usually clean but fissured. The pulse was uniformly feeble and slow, 60 to 70 in the minute; the extremities cold, tremulous, and almost powerless. Some could not raise themselves or walk; were incapable of leaving their beds; or were secured in chairs; but others, who possessed greater power, when they attempted to walk, did so with a tottering step, with their heads bent forwards, their backs curved, and in a kind of run, as if constantly on the point of falling.

The duration of the disease varies greatly, but it is usually two or three years, and often much longer, and the several stages may each be much prolonged. Calderini, whose work I have not seen, but from whom Boudet has quoted extensively, states that of cases observed at the Hospital at Milan, 114 had existed for periods varying from one to three years, 138 from three to twelve years, and 100 cases from 12 to 60 years.

Pellagra is essentially a disease of the rural districts. From a table published by Ballardini of the patients labouring under pellagra in the Milanese Provinces in the year 1856,* it appears that of the whole number, by far the larger proportion, 89·5 per cent. were peasants, 7·7 per cent. were artisans, and 3·6 per cent. followed other occupations. It was at one time supposed that the disease was contagious, but this idea is now entirely abandoned. M. Tardieu states that Buniva inoculated himself and several other persons with the saliva, blood, and fluid from the fissures in the skin without communicating the disease. It is, however, generally regarded as hereditary. Calderini states that of 184 families comprising 1319 individuals, inheriting predisposition to the disease, 648 were affected, and 671 were healthy; and it is supposed that the mother more generally conveys the disease than the father. I found the in-

* Annali Universali de Medicina, anno 1860, vol. clxxiii., serie quarta, vol. xxxviii. p. 410. Milano, 1860.

fluence of hereditary predisposition admitted by all the medical men with whom I conversed. The disease affects both sexes and all ages. In all the hospitals into which both males and females were admitted, there were cases in persons of both sexes; and in the same ward at Venice, I saw a man of sixty and a boy of twelve in the second stage. The table given by Ballardini states the age and sex of the whole of the pellagrose persons, and from this it appears that there were 1·28 men to 1 woman. As to age, 4·1 per cent. were between one and ten years of age; 9·04 between ten and twenty; 14·3 between twenty and thirty; 23·05 between thirty and forty; 27·3 between forty and fifty; 16·7 between fifty and sixty; while 9·2 per cent. exceeded sixty years of age. The value of these statements cannot, however, be fully understood from the absence of any report as to the numbers of the sexes and of the several ages in the population at large, so as to enable a comparison to be instituted.

When death takes place, it is often from the exhaustion connected with the continued diarrhœa, and this is so characteristic that it has received the name of marasmus pellagrosus, or tabes pellagrosa. In such cases, it is stated that there are not usually any evidences of disease in the intestinal tunics beyond some redness or congestion and a peculiar thinning, of the mucous membrane. Death also is frequently the result of the cerebro-spinal affection, and effusions of serum beneath the arachnoïd, in the ventricles, or into the spinal canal, with softening of the brain or spinal cord, are then usually detected.

It does not appear that the patients frequently suffer from phthisis, and, indeed, it is said that the pellagrose have a remarkable freedom from scrofulous affections. I did not, in any of the cases which I examined, find the cervical glands enlarged, or detect evidences of tubercles or other lesion of the lungs on auscultation and percussion.

I also frequently inquired as to the occurrence of renal disease; the peculiar aspect of the patients, and the serous effusions which generally precede death, indicating the probability that such a complication might obtain, but was informed that it was not the case. I also failed to ascertain that attention had been directed to the condition of the supra-renal capsules, though the dingy appearance of the skin excited suspicion that those bodies might in some cases be affected.

The importance of this disease in the North of Italy can hardly be overstated. It is diffused more or less extensively over the whole country, and in certain districts its prevalence is very great. During my visit, the cases in the hospitals were comparatively few in number, but I found several patients in every hospital which I visited, and my conductors uniformly stated that during the months of July and August, they formed a large proportion of those under treatment.

From the table published by Ballardini, it appears that in 1856 there were 1149 pellagrose patients under treatment in the various hospitals and asylums of the Milanese provinces. I am unable to furnish a statement of the number of other cases under care during the same period; but there can be no doubt that the proportion of the pellagrose must have been very large.

The table,* however, affords conclusive information as to the general prevalence of the disease. It appears that the total number of pellagrosi in the country in 1836 was 37,628, or 16·3 per 1000 of the entire population. The disease varies, however, in frequency in different districts. The pellagrose constituted only ·03 per 1000 of the population in the province of Sondrio, 3·4 in Lodi, and 5·04 in Como, while they rose to 22·01 in Bergamo, and 34·3 in Brescia; the province of Milan occupying the next place to Bergamo.

Not only is the disease prevalent, but its effects are most serious. Of the whole number of cases, 29,476 only were cured, or 78·3 per cent., while 5657 remained uncured, or 15·3 per cent.; 3390, or 9 per cent., had mental affections connected with the disease; 110, or 0·029 per cent., committed suicide; and 2385, or 6·3 per cent., died naturally. The rate of mortality, like the prevalence of the disease, varied greatly in different districts. It was 3·43 in the province of Mantua, 12·07 in Pavia, 13·26 in Brescia, and 47·85 in Sondrio, the rate being, however, probably accidentally large in the latter province from the small number of cases which occurred.

Of the prevalence of the disease in Lombardo-Venetia I have not been able to obtain equally conclusive statements, but from the reports of the hospital San Servolo, at Venice, it appears that of 1314 cases of different forms of insanity under treatment in the five years terminating in 1861, 411 were cases of pellagra, or 31·2 per cent., or 1 to 3·2 nearly. The pellagrosi constituted 93 out of 370 persons admitted into the hospital in the year 1861, and patients were admitted with the disease from all the provinces, except that of Rovigo, the proportion to the population being largest in Treviso, Venezia, and Vicenza. The prevalence of the disease is also generally regarded as being decidedly on the increase. From a table published by Calderini,† it appears that in five years and a half, from 1832 to the end of the first half of 1837, the cases treated at the hospital at Milan were 3314 in number. In a second period, or from the second half of 1837 to the end of 1842, the number was 3679, or 379 more, but the other cases under treatment were more numerous during the second period. The proportion of cases of pellagra to all those under treatment was in the first period 1 to 31·85; in the second 1 to 30·91. At San Servolo there was little difference in the proportion of the pellagrose treated during the fifteen years embraced in the reports. In the first years they were as 1 to 3·064, in the last five years as 1 to 3·197.

In France also the disease is very prevalent in certain districts. M. Léon Marchant estimated the number of pellagrose individuals in the department of Les Landes at 3000.

It becomes, therefore, an object of the greatest interest to the Italian and French Governments that the causes of the disease should be

* In the hospital at Milan alone, it appears from a table published by Calderini and M. Roussel, that in the eleven years from 1832 to 1842 inclusive, the number of patients treated amounted to 6993, giving an average of 636 nearly each year. In 1839 the number reached 860, in 1837 it was only 388.

† Roussel: op. cit., p. 21; and Gaz. des Hôpitaux, 1843.

investigated, in order that, if possible, they may be removed, and a stop put to the wholesale destruction of life and usefulness which it entails. Indeed, the victims of the disease in its more advanced stages, can scarcely fail to excite the sympathy of all who observe them.

What, then, are the causes which conduce to the production of the disease?

1st. From an early period it has been supposed to be due to the depressed state of the peasantry in the plains of Lombardy, and in France it has obtained in certain districts the name of "Mal de misère; and there is sufficiently conclusive proof that the rural population in the districts where it obtains are very generally in the most indigent circumstances. A report was published in 1847 of the results of an investigation of the causes and prevalence of pellagra in the States of Sardinia, instituted by the Scientific Congress. From this, as quoted by M. Boudin, it appears that of 674 pellagrose persons, 487 were in a state of most complete indigence, 142 were poor, and 45 only were in comfortable circumstances. We can only, however, accept poverty as an accessory, not as an essential, cause of the disease, for the population of other parts of Italy and of other countries are equally indigent, without suffering in a similar way.

2ndly. A second cause which has been assigned for the development of pellagra, is the malarious character of the country, and this cause certainly does operate in the pellagrose districts. Rice is extensively cultivated, and the country is intersected in every direction by canals of irrigation, and intermittent and remittent affections are prevalent. But there are other parts equally or even more unhealthy than Lombardy, where the disease is little if at all known; and the investigation by the Sardianian commission showed that the residences of the pellagrose patients were by no means always unhealthy—indeed, of 647 cases, nearly half, or 300, resided in healthy localities.

3rdly. Exposure to the rays of the sun has also been supposed to give rise to the disease.* The appearance of the local affection on the exposed parts of the body, and the commencement of the disease generally at the period of the year when the sun's rays are becoming powerful, and the out-door work is most actively followed, would appear to indicate that this cause is influential. But the occurrence of pellagra only in certain districts of Italy, and these not the hottest, and its appearance also in the south of France and north of Spain, while it does not occur in tropical countries, precludes us from regarding insolation as acting more than the part of an exciting cause. That, however, it does so far conduce to the disease, has been conclusively shown.

4thly. Peculiarities of soil and climate have also been supposed to conduce to the disease; but it prevails in districts too remote and too diverse, both in geological and meteorological characters, for such to have much effect in its production. It is impossible that there can be a greater contrast than between the rich and damp plains of Lombardy, and the arid and barren district of Les Landes.

* This view is maintained in the Report of M. Jolly.

5thly. The character of the drinking waters, the habits of the peasantry, and the construction of their dwellings, are also too varied in different localities to afford satisfactory explanations of the existence of the disease.

6thly. None of these opinions can therefore be regarded as sufficient to explain the production of pellagra. The opinion most generally received in Italy at the present day is, that it is connected with the use, almost exclusively, as an article of food, of the maize or Indian corn, upon which, in the form of polenta (or the flour mixed with hot water and boiled till nearly solid), the peasants chiefly live. Whether the maize was originally introduced into Europe from Mexico, as has been generally supposed, or whether it had been long known in the East, and was introduced from Arabia (as indicated by its Italian and French names of "Grano Turco," "Blé de Turquie"), is of little importance, for it seems well ascertained that it was first cultivated in Spain in the fifteenth century, and did not become common in that country till the sixteenth or seventeenth. In Italy it appears to have been introduced about the same period, but was not extensively cultivated till the seventeenth and eighteenth centuries. In France it has been grown largely only during the last and present centuries. These periods correspond with the times at which pellagra was first noticed as prevailing in these several countries; and the increasing frequency of the disease is in accordance with the more extensive cultivation of the grain and the extent to which it has come to constitute the food of the people.* It is true that some of the writers on pellagra, and especially those at the earlier period, contended that the disease was not of such recent appearance; but the facts on which they supported this view were both few and indecisive, and the idea has not gained ground. Indeed, the slight allusion to the disease in the work of Ramazzini, published at Padua in 1700, seems conclusive on the point. Had pellagra been then as prevalent as at present, that writer could not have failed to have devoted more attention to it.

It has been already shown that the disease is especially common in the provinces of Brescia and Bergamo, and we are told† that in these districts the consumption of Indian corn is so large, that while much is grown, the grain is also largely imported from the adjacent countries. The peasantry, indeed, live almost exclusively upon polenta, with the addition of innutritious vegetables—cabbages, leeks, onions, radishes, and pumpkins—and take for beverage bad wine, while from poverty they sell the milk and eggs, which are the produce of their farms. From the Sardinian report it appears that of 626 pellagrose persons, 522 lived upon scarcely any other food than maize, and 104 took it, though not exclusively. It seems, therefore, most probable that pellagra is connected in some way with the use of maize as the main article of diet, but it is not clear why the grain produces the disease.

It has been supposed that it is the deficiency of nutriment, and

* Roussel : op. supra cit., p. 160, and Ballardini. † Roussel and Boudin.

especially of the azotized elements, in the Indian corn, and this view I found to be that entertained by all the medical men whom I questioned on the subject. It has, however, been ascertained that the proportion of azotized matter is considerable;* and it is stated that in certain districts of Italy, as in the south, and in Sardinia, and in Burgundy in France, the grain is extensively, or almost exclusively, used as an article of food, without producing injurious effects.† We know, too, that in India large numbers of the population live exclusively upon rice and vegetable food without suffering from any similar disease.‡ It has therefore been contended that it cannot be the absence of nutriment in the maize, or the grain as such, which produces the disease, but must be some change which it occasionally undergoes, either during growth or after being harvested. The subject has been carefully investigated by M. Ballardini in Italy, and M. Costallat in France, and they conclude that the disease is due to changes in the grain from imperfect drying after being gathered. It is stated that when the maize is cultivated in climates, from their dampness and coldness not altogether suited to it, as in from the forty-second to the forty-sixth degrees of latitude, it cannot be fully ripened, and when placed in the granaries, without being previously dried artificially, becomes affected by a parasitic growth. M. Ballardini states that the growth appears in the oblong groove, covered by a very fine epidermis which corresponds to the germ, and beneath this is seen a greenish matter of a powdery character. Under the microscope it appears to consist of small globules, perfectly round, diaphonous, and without sporidioles internally, and of smaller size than the irregularly-shaped cells of the farina. Cessati, who first detected the parasite, has termed it sporisorium maydis, and his description is confirmed by M. Robin.§

If this view be correct, it explains the circumstances mentioned above, that the disease is not generally met with in the more genial climates of Southern Italy or Sardinia; nor in Burgundy, where the grain is dried in kilns or ovens before it is housed. It also accords with the ascertained fact of the greater prevalence of pellagra in cold and damp seasons,‖ and with the occasional occurrence of a similar form of disease —as shown by MM. Roussel and Landouzy—in persons who have not fed upon maize. For if the disease be the result of changes in the grain after it is harvested, a similar affection may be supposed to occur from the use of other grains which have been similarly affected. It seems, therefore, most probable that this theory affords the true explanation of the mode in which the use of maize gives rise to the disease. There can, however, be no doubt that other causes conduce to the effects.

* Roussel, p. 216.

† Valleix: Guide du Médecin praticien, 4me édition, tom. v. p. 550. Paris, 1861.

‡ According to Dr. Forbes Watson, the proportion of carbonous to nitrogenous matter is in wheat as 6 to 1, in maize as 8·5 to 1, and in rice as 11·1 to 1.—Markham's Pern and India.

§ Roussel, p. 197. Tardieu.

‖ It is also in accordance with the fact that of the two varieties of Indian corn cultivated in Italy, it is thought to be the autumnal form—that harvested in September and October, or the "quarantino"—which is injurious: not the summer corn—that reaped in July and August—the "cinquantino."

The defective nutriment contained in diet wholly of vegetable food, and the wretchedness of the dwellings and malarious character of the localities inhabited by the peasantry, by deteriorating their general power, must powerfully predispose them to suffer from any morbific cause, and impart to disease developed under such circumstances a peculiarly intractable character.

If the view as to the cause of the disease which is here adopted be correct, it will appear that means of prevention may readily be resorted to. 1st. It is probable that improvements might be introduced in the cultivation of the soil, so as to secure the more perfect growth of the maize. 2nd. The plan employed in Burgundy, of drying the grain in the kiln immediately it is reaped, should be substituted for simple exposure of it to the sun, under the eaves and on the south sides of the chalets, which is now adopted in the Tyrol and Lombardy. 3rdly. That the diet of the peasants should be less exclusively composed of vegetable food, and of this grain in particular.

It is stated, indeed, that when rice or other grain is consumed with the maize, the disease is prevented, and the prevention would doubtless be still more complete were animal food also taken. I found the medical men all agreed that tonic treatment—quinine and iron, with good food and a portion of soup or other form of animal food, and good wine—were the most beneficial. Under such a system many persons get well, and if they remain in the cities where the diet of the people is less exclusively vegetable, they often escape any further symptoms of the disease; but if they return to the habits of the country and to their former diet they almost always relapse.

Cerri, at the beginning of the century, was led to employ a nutritious diet in the treatment of pellagra, and found not only that it cured the existing attack, but prevented the usual relapse in the following spring. An opposite treatment has, however, been tried, and from a table of the results of the practice of different physicians published by Lussana, it is seen that at the hospital at Milan,* when antiphlogistic measures were practised in 1827, the mortality was 24·5 per cent.; and the cases becoming chronic 55·6 per cent. In from 1849 to 1852, still under antiphlogistic treatment, the mortality was 28·3, and the chronic cases 38·4. When a mixed course was followed, from 1849 to 1851, the mortality was only 6·6, and the chronic cases 32·8; and when a purely restorative system was adopted in 1852, the mortality sank to 4·5, and the chronic cases to 20·9 per cent. The number of cases tabulated is so large (9066) that these calculations may be fairly accepted as representing the advantages of the several kinds of treatment.

From the extremely anæmic appearance of the pellagrose patients, and the malarious character of the countries which they inhabit, iron and quinine would certainly seem to be the most important remedies. Baths, sulphurous and other, have been found beneficial for the skin affection.

* Annali Universali, anno 1859, vol. clix. (serie quarta, vol. xxxiii.). Milano, 1859, p. 514.

Writers have differed as to the place which should be assigned to Pellagra in systematic classifications. Sauvages and Cullen, in accordance with the views of Cazal and Thierry, placed the Asturian disease in the class cachexiæ, and order impetigines, under the term Lepra Asturiensis; Good placed Pellagra in the class hæmatica and order dysthetica, as Elephantiasis Italica; and the majority of writers have regarded the affection as a form of lepra or elephantiasis. Alibert termed it Ichthyosis Pellagra. It, however, certainly differs widely from these classes of disease; and if the theory here advocated be the true one, the disease must be classed among the poisons, or intoxications of the French writers, and be regarded as bearing a close analogy to ergotism, though the result of a change occurring in the grain after it is housed, not during growth. Guerreschi, adopting this view, termed it raphania maïstica, but that term refers to a result of the disease, not the disease itself. The nervous affection, also, is rather paralytic than convulsive. The affection would appear to consist in a morbid condition of the blood, entailing subacute inflammation of the mucous membrane of the alimentary canal and of the membranes of the brain and spinal cord.

It must not, however, be supposed that pathologists who have studied the subject are agreed as to the ætiology of pellagra. So far to the contrary, able and careful investigators have arrived at very opposite conclusions. M. Courty, of Montpellier, after a full consideration of the evidence brought forward in favour of the dependence of the disease upon the use of diseased maize, concludes that if there be any one essential cause, such has not as yet been discovered, and that the disease probably originates in a variety of causes, and constitutes in the widest sense of that term, a "mal de misère." M. Boudin regards the prevalence of the disease in districts in which maize is the chief article of food as a mere coincidence; and M. Landouzy also denies its dependence on the use of maize. On the other hand, the views of Ballardini and Roussel are strongly upheld by M. Costallat. M. Tardieu is disposed to support them, and the weight of evidence certainly seems in favour of their correctness.

The subject is involved in great difficulties from the diseases of many of the various countries in which maize is used being so little known. The subject has, however, been offered as a prize by the Académie de Médecine, and conclusive information will doubtless, in no long time, be obtained.

PART FOURTH.

Chronicle of Medical Science

(CHIEFLY FOREIGN AND CONTEMPORARY).

HALF-YEARLY REPORT ON PHYSIOLOGY.

By Edmund Montgomery, M.D., M.R.C.P.
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I. General Physiology.

1. Joly, N. and Musset, Ch.: *New Experiments on Spontaneous Generation.* (Comptes Rendus, vol. lii. p. 99. January, 1861.)
2. Schröder, H.: *On the Filtration of the Air in Reference to Putrefaction, Fermentation, and Crystallization.* (Annal. der Chem. und Pharm., vol. cxvii. p. 273.)

1. Joly and Musset think that the following experiment leaves but little doubt as to the existence of spontaneous generation. They boiled in ordinary water the cæcum of two sheep, along with pieces of meat, during one hour. The cæcums were then filled with that same water when still very hot, and a piece of the boiled meat was introduced into each. To secure a supply of well-filtered air, three-quarters of the fluid was displaced by purified hydrogen gas; the cæcums were shut by means of firmly-tied ligatures, and were put into water. After several hours, diffusion had changed the contents of the gut. The hydrogen was replaced by filtered air. At the end of twelve days, during which the preparations were kept at a temperature varying from 3° to 25° C., the bags were opened, and were found to contain a number of very lively infusoria.

2. Schröder, on the other hand, after numerous careful experiments, arrives at the following conclusions:—1. All vegetable and animal forms derive their origin from other living vegetable or animal beings. *Omne vivum ex vivo.* 2. Germs which have been conveyed to a spot through the medium of the air, are always the origin of the series of specific products of fermentation and putrefaction which is developed there. Such is most certainly the case with germs of mould, with the ferments of wine, milk, and urine. 3. Vegetable and animal matter in which all germs have been destroyed by boiling, and which, when hot, has been shut off from the direct influence of the external air by means of cotton-wool, remains perfectly free from mould, fermentation, or putrefaction. The germs which would be supplied by the air, are arrested in its passage through the cotton-wool. 4. The germs of most vegetable and animal substances are destroyed by boiling during a short time at a temperature of 100° C. 5. But milk, yelk, and meat contain germs which are not thus killed. Boiling at a higher temperature, under higher pressure, or long-continued boiling at 100°, will, however, always suffice to destroy these germs also. 6. The germs in milk, in yelk, and in meat, after having been boiled at a temperature of 100° C. during a short time, are still capable of being developed into the

specific ferment of putrefaction, and sometimes also those in yelk and meat, at least, into long and indolent vibriones. 7. The specific ferment of putrefaction is of an animal nature. It develops and multiplies at the expense of albuminous compounds, but does not multiply under conditions which afford all the requisites for vegetable growth.

II. On Food and Digestion.

1. Danilewsky, Alex.: *On the Specifically-acting Principles of the Natural and Artificial Pancreatic Juice.* (Pathol. Instit. of Berlin. Virchow's Archiv, vol. xxv. p. 279.)
2. Fehr, Carl: *On the Removal of all the Salivary Glands in Dogs.* (Virchow's Archiv, vol. xxv. p. 187.)

1. The researches of Danilewsky led to the following results: 1. The natural and artificial juice of the pancreas shows, outside the organism, three specific physiological reactions: (*a*) it changes starch into sugar; (*b*) it dissolves in a characteristic manner coagulated albumen; (*c*) it reduces the neutral fats into their corresponding acids and glycerine. 2. Each of these reactions depends on a specific substance. 3. Two of these substances, the two, namely, which effect the first and second reaction, can be gained in a more or less pure form. 4. The existence of a third substance which effects the third physiological reaction of the juice, is highly probable. 5. The specific substance which corresponds to the first reaction, acts in a neutral, alkaline, and acid solution, but with different degrees of intensity. 6. The digestion of fibrine in normal, natural, and artificial pancreatic juice, and in a solution of the isolated substance, which corresponds to the second reaction, has nothing in common with a process of putrefaction, but is effected by a physiological property of the juice, and more especially of the isolated specific substance. 7. This last-named substance exerts its power of digesting fibrine only in neutral and alkaline solutions. 8. The amount of free alkali contained in the solution of the pure specific substance, has a great influence on digestion. 9. A surplus of free alkali and the presence of free hydrochloric acid do prevent the digestion of fibrine in a solution of the specific substance. Danilewsky states further, that the first and second specific substances are not pure albuminates, but that they belong to the colloïdal matters.

2. Fehr removed all the salivary glands in dogs, and found that no serious symptoms of any kind were developed after the operation. No blood-poisoning took place, which shows that the blood need not necessarily be purified by the excretion of the constituents of saliva through the salivary glands. The only change observed is that the animals take more water than usual. Digestion does not seem in the least interfered with, and the author thinks that it is not likely that in these cases the function of the pancreas is increased. He did not find that organ at all enlarged after the animal had existed for a considerable time without salivary glands. Sugar was found in the hepatic veins as usual, which shows that sugar is formed in the liver without the aid of saliva.

III. Respiration and Circulation.

1. *Report of the Committee appointed by the Royal Medical and Chirurgical Society to Investigate the Subject of Suspended Animation.* (Transactions, vol. xlv. p. 449.)
2. Schiff: *On the Effect of Reflex Action upon the Vaso-Motor Nerves.* (Comptes Rendus, vol. lv. Sept. 29th, 1862.)
3. Colin, G.: *On the Sensibility of the Visceral Arteries.* (Comptes Rendus, vol. lv. Sept. 1st, 1862.)

4. Colin, G.: *On the Pulsating and Rhythmical Movements of the Sinus of the Vena Cava Superior in the Mammalia.* (Comptes Rendus, vol. lv. Sept. 22nd, 1862.)
5. Golz: *On the Causes of the Movements of the Heart.* (Virchow's Archiv, vol. xxiii. p. 487.)
6. Hupschmid, E., and Moleschott, Jac.: *On the Irritation of the Medulla Oblongata and of the Spinal Cord, in reference to its Effect on the Frequency of the Pulse.* (Moleschott's Unter. zur. Naturlh., vol. viii. Part VI.)
7. Jackson, Hughlings: *The Ophthalmoscope as an Aid to the Study of Diseases of the Brain.* (Med. Times and Gaz., Dec. 6th, 1862.)

1. The phenomena of apnœa were observed in the first instance in lower animals which had been simply deprived of air. To effect this, the trachea was opened by a vertical cut, and a glass tube, as large as could be conveniently inserted, was passed a short distance downwards, and firmly secured by a ligature. Thus the supply of air could be at once completely cut off by inserting a tightly-fitting cork into the upper end of the tube. From nine experiments it was seen that in the dog the average duration of the respiratory movements after the animal had been deprived of air was 4 min. 5 sec., the extremes being 3 min. 30 sec., and 4 min. 40 sec. The average duration of the heart's action, on the other hand, was 7 min. 11 sec., the extremes being 6 min. 40 sec. and 7 min. 45 sec. On the average, the heart's action continued for 3 min. 15 sec. after the animal had ceased to make respiratory efforts, the extremes being 2 min. and 4 min. respectively. In the case of three rabbits experimented upon, it was found that on the average they ceased to make respiratory efforts in 3 min. 25 sec.; that their heart's action stopped in 7 min. 10 sec.; and consequently, that the interval between the last respiratory effort and the cessation of the heart's action was 3 min. 45 sec.

Another series of experiments lead to the conclusions: 1st, that a dog may be deprived of air during a period of 3 min. 50 sec., and afterwards recover without the application of artificial means; and 2ndly, that a dog is not likely to recover if left to itself, after having been deprived of air during a period of 4 min. 10 sec. It was found that the inspiratory efforts under apnœa for a dog of average size were capable of raising a column of mercury four inches.

Apnœa was then produced in a number of dogs by submerging, and it was observed that whereas in simple apnœa recovery may be possible after the deprivation of air for 3 min. 50 sec., 1½ minute's immersion in water suffices to destroy life. This early fatal issue in apnœa by drowning was proved to depend entirely upon water getting into the lung. It was also proved that by depriving the animal of the power of making violent respiratory efforts (by means of chloroform), the period during which submersion may be continued and yet recovery follow, is prolonged.

2. Schiff thinks that the following experiment proves conclusively that active dilatation is a function possessed by the bloodvessels. He chooses a rabbit in which the central artery of the ear is well seen and moderately dilated, and gently tickles the skin which covers the artery in an extent of two or three lines. Almost instantaneously the artery begins to dilate in the part thus touched. No contraction whatever precedes this dilatation, and just above and below the part acted upon, the vessel maintains its former size. The result was the same in cases in which the sympathetic nerve of the same side had been previously divided, or the superior cervical ganglion removed. The conclusions which Schiff draws from these observations are: 1st. That vascular dilatation, following upon irritation, is not always preceded by contraction of the vessel; that therefore dilatation of vessels may take place without its being the effect of exhaustion of their circular fibres. 2nd. That the dilatation in the above experiment is not the mechanical result of mere afflux of blood to the irri-

tated part, for if this were the case, the dilatation would not be so well restricted to the irritated spot, but would be most developed just below, in the more central part. 3rd. That the dilatation spoken of is not the mechanical effect of a contraction produced by reflex action in a more peripheral part, or in the venous system, for in this case also the dilatation would not be restricted to the irritated spot. 4. That the sympathetic nerve does not contain any vascular nerves which preside over this kind of active dilatation. The dilatation, however, does not take place independently of nerves, for if all the sensitive nerves of the ear are divided, the same amount of irritation does not produce it. But in rubbing the part with a little more force, the dilatation again takes place. If a still greater force is used in rubbing, the vessel will not dilate, but will firmly contract. All this shows that dilatation occurs under the influence of sensitive nerves. Another experiment proves that it also takes place under the direct influence of a motor system of nerves. If the sympathetic be divided in the neck of a dog, and the animal kept at rest in the laboratory, the ear and the head of the operated side will always be found warmer than the other. If then the dog be taken into the open air, and somewhat heated by exercise, the temperature of the entire body will rise, and both ears will partake in the general change. Their vessels dilate slightly, without any previous contraction. When the animal has got out of breath, the arteries and veins of the healthy ear are found more dilated than those on the other side, and the head on that side has got much warmer (sometimes 3° C.) than the opposite half on the operated side. After some rest in a cool place, the parts will return into their primary state.

Schiff thinks that the only explanation consistent with this fact is that, in dividing the sympathetic nerve, those agents are paralyzed which produce the dilatation in the healthy side.

3. Colin made numerous experiments on the sensibility of arteries, and finds: That the arteries belonging to the organs of animal life are almost insensible, but that those of the organic life are, on the contrary, highly sensitive. When a ligature is passed round a vessel and drawn tight, the animal gives signs of great pain, when the vessel is a visceral one. The sensibility seems to be rather extrinsic, for it is to all appearance connected with the cellular tissue which surrounds the artery. Colin thinks that there exists some relation between the sensibility and the contractility of the vessels.

4. Colin made his observations on horses, donkeys, oxen, dogs, and cats. The following are his results: In mammalia the venæ cavæ exhibit near their termination into the auricle a very manifest rhythmical action, which takes place independently of the movements of the heart. In the superior vein these rhythmical actions are very powerful and extensive, but in the inferior vein they are weak and very limited. Especially in large animals, the vena cava superior is seen to dilate near its junction with the auricle, so as to form a vast sinus. Its fibres do not extend into the auricle. The rhythmical movements of the vein are usually synchronous with those of the auricle, but when the heart beats irregularly, the pulsations of the sinus become isochronous with those of the auricle. These pulsations do not depend on the impulses of the heart, nor on the contraction of the auricles, nor on the reflux of blood. The dilatation takes place when a ligature is tied round the vein at the place of its insertion into the auricle. The vein is only slightly contracted during its systole. Colin remarks that the use of these rhythmical contractions seems to be, to facilitate and to regulate the afflux of blood to the heart, and that this action would be of special value in quadrupeds during the time in which they bend their heads to the ground.

5. The researches of Golz have induced him to adopt the following theories in regard to the heart's action. 1. The pulsating parts of a frog's heart constitute together a system of small independent apparatuses, each of which is possessed

of a ganglionic central organ. 2. These small nervous centres can be incited to action by various stimulants, and this action, according to its intensity, manifests itself in more or less protracted contractions of the muscles which are governed by the stimulated centre. 3. Blood, which contains a certain amount of gas, is among these stimulants. 4. A sudden contraction of any part of the heart acts slightly stimulating upon the neighbouring parts. Thus, when a stimulated part contracts, the contraction spreads like a peristaltic movement, according to laws which depend on the connexion of the nerves with the ganglions. 5. All parts of the heart are not equally stimulated by the blood. The nearer to the venæ cavæ a part is situated, the greater is its irritability. 6. In the normal contraction of the heart, the most irritable part, that is, the neighbourhood of the venæ cavæ, commences the systole, and the other parts, by means of their nervous connexion with that spot, continue the contraction. The stimulus is the blood. 7. The reason why the heart contracts rhythmically, is perhaps to be found in the following circumstance:—As soon as the stimulating influence of the blood is powerful enough to act upon the ganglions, the systole at once commences, and emptying the heart, removes from it the stimulating cause.

6. The experiments of Hufschmidt and Moleschott were made on rabbits. For the purpose of irritating the medulla oblongata, a gimlet with an ivory handle was introduced through the occipital bone, and a bodkin was pushed in between the atlas and the skull; for irritating the spinal cord, two bodkins were introduced into its substance, the one high up, and the other low down. The results were as follows: 1. Slight electric irritation of the medulla oblongata augments the frequency of the heart's action. 2. Strong electric irritation may diminish the frequency of the heart's action. 3. Very powerful irritation puts a stop to the heart's action. 4. If the powerful irritation is suspended, the normal action of the heart is slowly restored, and it is again possible to augment its frequency by slight irritation. 5. Powerful mechanical irritation of the medulla oblongata diminishes the frequency of the heart's action. 6. By means of appropriate irritation, the suspended action of the heart may be re-incited. 7. When both sympathetic nerves are divided, slight irritation of the medulla oblongata produces, nevertheless, an increase in the frequency of the heart's action. 8. When both sympathetic and both pneumogastric nerves are divided, no increase is produced in the frequency of the heart's action by irritating the medulla oblongata. 9. Neither is any increase produced when the pneumogastric nerves only are divided. 10. It follows that the irritation is conducted to the heart, through the pneumogastric and not through the sympathetic nerves. 11. Slight irritation of the *spinal cord* increases, powerful irritation diminishes, the frequency of the heart's action. 12. The effect of the irritation took place when the pneumogastric nerves only were preserved, as well as when the sympathetic nerves only were preserved. 13. The effect ceased when both pairs of nerves were divided. 14. The irritation of the spinal cord is transmitted to the heart through the pneumogastric as well as through the sympathetic nerves; through the former most likely by reflex action, through the latter directly.

7. Dr. Jackson examined several times carefully the eye of a girl, aged eleven, during sleep, by means of the ophthalmoscope. He observed each time that the optic disc was whiter, the arteries a little smaller, and the veins somewhat larger, than when the girl was awake. The pupil had been dilated by atropine. In a case of paralysis of the cervical sympathetic on one side, he compared carefully the optic disc, the veins, and arteries of both sides, and found them quite alike in every respect.

IV. Secretion; Metamorphosis of Matter; Animal Heat.

1. *Experimental Researches into a new Excretory Function of the Liver, consisting in the Removal of Cholestearine from the Blood, and its Discharge from the Body in the form of Stercorine.* By Austin Flint, M.D. (American Journal of Medical Science, Oct., 1862.)
2. Hoppe: *On the Presence of the Biliary Acids in Jaundiced Urine, and on the Formation of the Biliary Pigment.* (Virchow's Archiv, vol. xxiv. p. 1.)
3. Jaffe, Max.: *On the Identity of Hæmatoïdin and Bilifulvin.* (Virchow's Archiv, vol. xxiii. p. 192.)
4. Böttcher, Arthur: *On the Formation of the Red Corpuscles of the Blood.* (Virchow's Archiv, vol. xxiv. p. 606.)
5. Walther, A.: *Contributions to the Knowledge of Animal Heat.* (Virchow's Archiv, vol. xxv. p. 414.)

1. Dr. Flint gives the following summary of his interesting chemico-physiological researches:

(1.) Cholestearine exists in the bile, the blood, the nervous matter, the crystalline lens, and the meconium, but does not exist in the fæces in ordinary conditions. The quantity of cholestearine in the blood of the arm is from five to eight times more than the ordinary estimate.

(2.) Cholestearine is formed in great part, if not entirely, in the substance of the nervous matter, where it exists in great abundance, from which it is taken up by the blood, and constitutes one of the most important of the effete or excrementitious products of the body. Its formation is constant, it always existing in the nervous matter and the circulating fluid.

(3.) Cholestearine is separated from the blood by the liver, appears as a constant element of the bile, and is discharged into the alimentary canal. The history of this substance in the circulating fluid and in the bile, marks it as a product destined to be got rid of by the system, or on excretion. It pre-exists in the blood, subserves no useful purpose in the economy, is separated by the liver, and not manufactured there, and if this separation be interfered with, accumulates in the system, producing blood-poisoning.

(4.) The bile has two separate and distinct functions, dependent on the presence of two elements of an entirely different character. It has a function connected with nutrition. This is dependent on the presence of the glycocholate and tauro-cholate of soda, which do not pre-exist in the blood, subserve a useful purpose in the economy, and are not discharged from it, are manufactured in the liver and peculiar to the bile, do not accumulate in the blood when the function of the liver is interfered with, and are, in short, products of *secretion*. But it has another function connected with depuration, which is dependent on the presence of cholesterine, which is an *excretion*. The flow of the bile is remittent, being much increased during the digestive act, but produced during the intervals of digestion, for the purpose of separating the cholesterine from the blood, which is constantly receiving it.

(5.) The ordinary normal fæces do not contain cholestearine, but contain *stercorine* (formerly called seroline, from its being supposed to exist only in the serum of the blood), produced by a transformation of the cholestrine of the bile during the digestive act.

(6.) The change of cholestearine into stercorine does not take place when digestion is arrested, or before this process commences; consequently, stercorine is not found in the meconium, or in the fæces of hibernating animals during their torpid condition. These matters contain cholestearine in large abundance, which also sometimes appears in the fæces of animals after a prolonged fast. Stercorine is the form in which cholestearine is discharged from the body.

(7.) The difference between the two varieties of jaundice with which we are

familiar; the one characterized only by yellowness of the skin, and comparatively innocuous; the other attended with very grave symptoms, and almost invariably fatal—is dependent upon the obstruction of the bile in the one case, and its suppression in the other. In the first instance the bile is confined in the excretory passages, and its colouring matter is absorbed; while in the other, the cholestearine is retained in the blood, and acts as a poison.

(8.) There is a condition of the blood dependent upon the accumulation of cholestearine, which I have called *cholesteræmia*. This only occurs when there is structural change in the liver, which incapacitates it from performing its excretory functions. It is characterized by symptoms of a grave character, referable to the brain, and dependent upon the poisonous effects of the retained cholesterine on this organ. It occurs with or without jaundice.

(9.) Cholesteræmia does not occur in every instance of structural disease of the liver. Enough of the liver must be destroyed to prevent the due elimination of the cholestearine. In cases in which the organ is but moderately affected, the sound portion is capable of performing the eliminative function of the whole.

(10.) In cases of simple jaundice, when the fæces are decolorized and the bile is entirely shut off from the intestine, stercorine is not found in the evacuations; but in cases of jaundice with cholesteræmia the stercorine may be found, though always very much diminished in quantity, showing that there is an insufficiency in the separation of the cholesterine from the blood, though its excretion is not entirely suspended. After death, but a small quantity of bile is found in the gall-bladder.

2. The following are the results of Professor Hoppe's investigations:—1. Biliary acids are found in the urine in cases of jaundice, and also when they have been previously injected into the bloodvessels. 2. The formation of biliary pigment occurs at such places, and under such circumstances, as forces us to exclude the notion that they are derived from the transformation of the biliary acids. 3. Biliary pigment has not yet been artificially obtained from the biliary acids. 4. It is highly probable, as Kuehne has already suggested, that cholepyrrhin is formed in the blood from the colouring matter of the latter, in all cases in which blood-corpuscles are dissolved by a substance which does not destroy life in the quantity in which it is brought to act. Such a substance, for instance, is water.

3. Jaffe obtained beautiful crystals of hæmatoïdin from the colouring matter of a yellow cicatrix in the substance of the brain, which had formed after an attack of apoplexy. By dissolving these crystals, and by letting them recrystallize, he states that he got the hæmatoïdin in the purified form of bilifulvin, and thinks that this conclusively proves that both substances are identical.

4. Böttcher states, that when a current of oxygen and a current of carbonic acid are conducted through a solution of hæmato-crystallin, a sediment is formed which, with the naked eye, appears red and granular. Placed under the microscope, this sediment is found to consist of globular corpuscles, which bear a striking resemblance to the red corpuscles of the blood. Several skilled observers who examined them, without having been informed about their nature, took them at once for blood-corpuscles. These artificial corpuscles vary in size, but on the average they are as large as blood-corpuscles. Böttcher says that they are, in fact, nothing but blood-corpuscles, and he believes that the true blood-corpuscles of the higher animals are formed, by the process of respiration, in the fluid in which they are floating.

5. Walther made some interesting observations on the influence of refrigeration on animal life. He states that a rabbit the temperature of which has been lowered in a cooling-apparatus to +18° or +20° C., when placed in a medium not warmer than its own body, does not regain its normal temperature of about +39°. (This fact has been already observed by Bernard.) The

animals, when taken out of the cooling-apparatus, are unable to sustain themselves on their feet. They lie quiet on their side, and do not make any locomotory movements; but they exhibit phenomena of voluntary motion, reflex motion, and sensibility. The heart beats only sixteen to twenty times in the minute. In some cases respiration is so slight that no movement of the thorax can be seen, in others it is very hurried and superficial. The eyes of the animal are wide open. The lowest temperature at which Walther still observed motion, sensibility, reflex action and will, was +9° C. Animals kept at a temperature of +20° die after some time, and animals which have been previously cooled to +10° do not recover when artificially warmed to +29°, and then left to themselves. Muscular contraction may produce an increase of the normal temperature of a rabbit of 2° to 4°, but no increase of temperature takes place when the animal has been cooled to +20°. In rabbits which have died, or which have been killed in a state of refrigeration, the lungs are always found much congested and œdematous. Thin serum is also present in the bronchial tubes. The same appearances were also found in animals which, after having recovered their normal temperature, nevertheless died. In these, serum was also contained in the pleural cavities. Refrigerated animals can be made to regain their normal temperature in two different ways: Firstly, by warming them artificially till their temperature has got normal; this takes from two to three hours in a medium of 40°. Secondly, the normal temperature can be restored by means of artificial respiration. A rabbit cooled to +18°, and placed in air of +10° or +12°, will recover its warmth, under the influence of artificial respiration, even in this colder atmosphere. Walther thinks that re-animation of persons seemingly dead from the influence of cold, ought not to be effected by slow warming, as is the usual practice, but by a more rapid process.

Some animals which had recovered their normal temperature after refrigeration, were in the first few days in a state of fever, their temperature being 42°. Some also suffered from violent catarrh of the lungs, the nose, and the eyes.

V. Nervous System.

1. Waller, Augustus: *On the Sensory, Motory, and Vaso-Motory Symptoms resulting from Refrigeration and Compression of the Ulnar and other Nerves in Man.* (Second Communication. Proceedings of the Royal Society, vol. xii. May 15th, 1862.)
2. Büttner, C.: *On the Section of the Casserian Ganglion; and on the Changes which result in the Eye and in other Organs.* (Zeitsch. für Ration. Med., vol. xv. Part 3, 1862.)
3. Golz: *On the Influence of the Nervous Centres on the Vegetative Processes.* (Virchow's Archiv, vol. xxiii. p. 451.)
4. Bernard, Claude: *Experimental Researches on the Vascular and Calorific Nerves of the Great Sympathetic.* (Comptes Rendus, vol. lv. Aug. 4th and 18th, 1862.)
5. Bernard, Claude: *Experimental Researches on the Ganglions of the Great Sympathetic Nerve.* (Comptes Rendus, vol. lv. August 25th, 1862.)
6. Bernard, Claude: *On the Oculo-Pupillary Phenomena which are produced on Section of the Sympathetic Nerve in the Neck. Their independence of the Vascular and Calorific Phenomena which take place in the Head.* (Comptes Rendus, vol. lv. Sept. 1st, 1862.)
7. Leven, Manuel, and Ollivier, Auguste: *Researches on the Physiology and Pathology of the Cerebellum.* (Comptes Rendus, vol. lv. 1862.)

1. A freezing mixture, consisting of equal parts of pounded ice and common salt, was applied to the elbow of the left arm over the ulnar nerve. Before the application, the temperature between the little and ring fingers, and the index

and median, was the same. Twenty-nine minutes after the application the temperature between the former was 26·6° C., and between the latter 29·1°. After fifty-two minutes, it was 33·8° and 26°. Soon after the freezing mixture had been applied, the nerve began to be painful from the elbow downwards. After twenty-seven minutes, the little finger was already somewhat paralyzed and insensible. After forty-two minutes the symptoms were: 1. Paralysis of the movements of the little finger, almost complete. 2. A state of semiflexion of all the fingers from the little one outwards, so that they could not be straightened completely by the extensor muscles. 3. Great weakness in all the fingers and thumb, so that great difficulty was experienced in grasping or holding any object. 4. Complete loss of power of abduction and adduction of the fingers, so that when they were extended as far as possible, they remained spread out without there being any power of bringing them together. After fifty-two minutes the freezing mixture was withdrawn. During the process of thawing, the arm and hand became rapidly very painful. At the same time the heart's action was so much lowered as to threaten syncope. An hour after the removal of the cold the temperature was as follows: Left hand, between the little and ring fingers, 21·2°; right hand, between the same fingers, 21·8°. Left hand, between index and median, 20·5°; right hand, 21·8°. This was on September 13th, 1861. On September 22nd: 1st. The mean difference of temperature between the paralyzed and sound arms was 2° C. 2. This difference lessened as the temperature of both arms was lowered. 3. The temperature of the sound side was at first increased much more rapidly than that of the paralyzed side, but after a short time the normal difference, 2°, was reestablished. In February, 1862, the arm had not yet completely recovered from the effects of the cold.

2. Numerous careful experiments on rabbits were performed by Dr. Büttner with the view of arriving at a more definite result as regards the much discussed question, How the changes are to be explained which take place in the eye when the Casserian ganglion is divided? Is the inflammation which follows this operation due to the influence of the nerves, or is it merely caused by mechanical irritation of the delicate organ thus deprived of its protecting sensibility? Although Snellen had shown that by fixing the ear of the animal to its eye, inflammation did not set in so rapidly as otherwise, he never succeeded in altogether preventing that issue. Dr. Büttner employed a better method of protection. He carefully removed the long hairs from the neighbourhood of the eye, and immediately after having divided the ganglion, he covered it with a cylindrical capsule. This capsule was tightly fixed to the surrounding skin, and its other end was closed by means of a watch-glass, through which the changes in the eye could be well observed. No inflammation whatever took place in those cases in which he succeeded in shutting out all external irritation. But as soon as the capsule was removed, inflammation set in with remarkable rapidity. He concluded that, after division of the Casserian ganglion, inflammation of the eye does not occur spontaneously, but that the organ is very liable to undergo that process at the slightest provocation, that its power of resisting irritation is greatly diminished.

In one case, however, he got an entirely different result. In a healthy rabbit in which the eye had been protected in the usual way, severe inflammation set in without any external cause. This inflammation varied greatly from that which took place in cases in which the eye had not been protected after the operation. It ran a much more acute and violent course. The cornea, which in no other case was found ulcerated, was in this instance nearly perforated at the end of twenty-four hours. The rabbit was killed after the inflammation had lasted for two days. The dissection showed that the ganglion had been divided; but another cut was also found more anteriorly, not entirely dividing the nerves. The ganglion was vividly injected, and the inflammatory

redness extended along the ophthalmic nerve. This appearance was present in no other instance, and Dr. Büttner did not succeed in producing these curious phenomena in any other rabbit.

3. Golz was led by his researches to the following conclusions: that connexion of the nerves of a part with the nervous centres is not indispensably requisite for the continuation of the vegetative functions of that part. Circulation, change of arterial into venous blood, inflammation—all this occurs in a limb in which all connexion with the nervous centres has been completely severed.

4. Bernard states, that in a former paper, written in 1852, he had shown that the vascular and calorific nerves of the head were independent of the muscular motor nerves of the same part. It was his intention now to show that the same holds good for other parts also. When in a living animal the lumbo-sacral plexus, or merely the sciatic nerve, is divided, the paralyzed and insensible limb shows an increase of vascular action and of temperature surpassing that of the other limbs. Bernard opened in several dogs the vertebral column in the lumbar region, and divided all nerves which furnish motor and sensitive fibres to the lumbo-sacral plexus at their roots. No increase of vascularity or of temperature was observed in these cases. In a dog thus operated upon, the sciatic nerve was moreover divided. The temperature, which had been equal in the paralyzed and in the healthy limb, began now at once to rise in the former till it exceeded that in the latter by 8° C. It was thereby clearly proved that the nerves which produce this effect must join the motor and sensitive nerves after these have proceeded from the vertebral column, and before the point at which the sciatic had been divided. This can only refer to the sympathetic nerve. By means of a hook, shaped for the purpose, Bernard managed to divide, in a strong dog, the sympathetic in the lumbar region, without injuring the peritonæum and the other nerves. The temperature on the operated side rose at once till it exceeded that on the other side by 8° C. Neither was the motion nor the sensibility impaired. From this it appears that there are three distinct kinds of nervous influences for the posterior extremities. (*a*) The sentient influence, belonging to the posterior roots which enter into the composition of the lumbo-sacral plexus. (*b*) The motor or muscular influence belonging to the anterior roots which contribute to the same plexus. (*c*) A vascular and calorific influence belonging to the sympathetic nerve. The vascular and calorific nerves are therefore quite distinct from the muscular nerves, both as regards their origin and their physiological properties. The movements of the blood may be accelerated or retarded in the vessels, either locally or generally, without any participation in it of the musculo-motor system. The local and functional congestions which supervene periodically in certain organs, are instances of this independency of circulatory movements in physiology, while fever furnishes a striking example of it in pathology. Bernard performed experiments on the anterior extremities, which gave the same results.

5. In this paper Bernard states that it is important to distinguish two orders of symptoms in the effects consequent upon the section of the sympathetic nerve in the neck. 1. Those of a vascular and calorific kind, dependent upon a modification of the vessels produced under the influence of the sympathetic nerve, and being of the same nature in all parts of the body. 2. Symptoms which he terms oculo-pupillary, because they are special to the eye and pupil, and because they are produced by nerves distinct from the first. He has in the following way demonstrated by experiment the existence of this distinction: First, he sought to make out the exact site of the origin of the oculo-pupillary nerves from the spinal cord, and after many careful researches he found that in the dog these nerves originated from the anterior roots of the two first dorsal pairs, in rare cases also from the third. When these roots are divided within the spinal canal, not only is the contraction of the iris

produced, but also all other phenomena which have been noticed to occur in the eye on division of the sympathetic nerve in the neck. This portion of the cord furnishes therefore something more than merely the ciliary nerves, and would be more fitly termed oculo-spinal than cilio-spinal. When subsequently the galvanic stimulus is applied to the cut peripheral end of one or the other of the two first dorsal roots, exactly the same phenomena are produced in the eye as occur on galvanizing the cephalic end of the sympathetic after section of its cervical portion, that is—dilatation of the pupil, enlargement of the palpebral opening, and marked exophthalmia. It is important to observe that the section of the two first dorsal roots produces oculo-pupillary phenomena, without causing any vascular or calorific effects. The reflex actions which produce movements of the eye or of the pupil may have their starting-point anywhere in the peripheral surface of the sensitive nervous system. When a sensitive nerve of any region of the body is irritated, whether it be a branch of the sciatic or of the trigeminal nerve, there occurs at once, as soon as pain is felt, a reflex movement bearing simultaneously upon both eyes, and producing sudden enlargement of the palpebral opening and dilatation of the pupil. By dividing the ascendant filaments of the thoracic sympathetic at the side of the vertebral column between the second and third rib, the vascular and calorific phenomena will be produced without any change taking place in the eye or in the pupil. The reflex actions which occur in the vaso-motor nerves are characterized by a temporary narrowing of the vessels, which is followed by their subsequent dilatation, and the occurrence of calorific phenomena. These vascular reflex phenomena differ from those which exist in the oculo-pupillary system. The reflex actions in the former case are not crossed.

6. Bernard's experiments were performed on dogs. He exposed the lingual nerve, the chorda tympani, and the submaxillary ganglion; thus having before him a sensitive nerve, a motor nerve, and a connecting nervous centre. He then inserted a small silver tube into the duct of the submaxillary gland, which enabled him to watch conveniently the flow of saliva. By dividing the trunk of the tympano-lingual nerve, the ganglion was completely isolated from all cerebro-spinal influence. The lingual nerve was next stimulated, by means of a weak electric current, and this at a point as remote as possible from the ganglion. Each time this was done a drop of saliva was seen dripping from the tube every six to ten seconds. But the flow of saliva ceased at once when the galvanic irritation was suspended. To show that the secretion was caused by true nervous influence, other stimulants were applied, and these furnished the same result as the electric current. Bernard found that with the secretion the circulation is accelerated at the same time, and concludes therefrom that the vaso-motor and calorific phenomena are exhibited without the aid of the cerebro-spinal system; that they take place by means of reflex action, entirely within the province of the sympathetic nerve. He states that the tongue is connected with the submaxillary gland by two kinds of nervous arcs, which are in some measure concentric. The first, which passes through the brain, is conscious, and is put to action more especially by the gustatory functions of the tongue; the second, which is unconscious, is transmitted by the submaxillary ganglion, and seems to be particularly excited by the conditions of dryness or humidity of the bucco-lingual mucous membrane. But the submaxillary ganglion does not only possess the power of propagating reflex actions, which by its means may arrive at the submaxillary gland without passing through the brain; it seems also to have a special influence upon the intermittence of the salivary secretion, for Bernard has observed that after the section of the ganglion—the lingual nerve and the chorda tympani remaining intact—the secretion of the gland becomes continuous, although its intensity may still be increased by the application of

excitants of taste to the tongue. The secretion at once absolutely ceases when, on the side on which it has been continuous, the tympano-lingual trunk is divided above the point from which the chorda tympani emerges. Another remarkable fact is, that the submaxillary ganglion, when it has been severed from all connexion with the cerebro-spinal axis, only retains its property of transmitting reflex actions for a limited period. The gland entirely deprived of its nervous influences, does not, as one would expect, fall into a state of functional rest, but goes on continuously secreting. Bernard thinks that the nerves do not, as is generally believed, act as stimulants to the functions of the organs with which they are connected; on the contrary, as reins.

7. Messrs. Leven and Ollivier endeavoured to gain accurate information on the functions of the cerebellum, by puncturing that organ with a strong steel needle. The experiments were performed on guinea-pigs, and only such cases were relied upon in which no hæmorrhage took place after the operation. If in such cases the injury was entirely confined to the cerebellum, the animals recovered completely in seven to fourteen days; but if in addition the medulla oblongata was wounded, death was sure to follow within twenty-four to forty-eight hours. In simple lesion of the cerebellum, the only and invariable changes observed were such as occurred in the functions of the motory apparatus. In most instances in which one lobe only was punctured, the animal was drawn with an irresistible force towards the injured side. It at first revolved with great rapidity round its axis. These movements then got slower by degrees, till at last the creature succeeded in finding rest by lying down on the punctured side. This position was anxiously retained, as if the animal was all the while conscious of the impelling force. The writers explain the yielding to this one-sided impulse by assuming that the muscles of the body, on the side opposite to the wounded lobe, are to some extent paralyzed. Strabismus was a constant symptom of the injury.

HALF-YEARLY REPORT ON MATERIA MEDICA AND THERAPEUTICS.

By Robert Hunter Semple, M.D.
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I. *On the Treatment of Constipation.* By Professor Trousseau. (Bulletin Général de Thérapeutique, January 30th, 1862.)

Professor Trousseau excludes from consideration all the organic affections causing constipation, and his remarks apply only to those cases which result from a bad habit and sluggishness of the intestine. He recommends that the patient should make an effort every morning regularly at the same hour to evacuate the bowels; and if the effort should prove unsuccessful, to repeat it the next day; and if there is still no evacuation, to use an injection first of water slightly tepid, and afterwards of cold water. The next day the natural efforts are to be repeated, and deferred, if unsuccessful, to the next day; after which a cool injection may be used. The daily repetition of these means, always at the same hour, leads eventually to the feeling of the necessity of evacuating the bowels, and it rarely happens, after eight or ten days' persevering exertion, that regular relief is not obtained. The diet is a very important element in the treatment of constipation, and vegetable substances should be largely employed, particularly herbaceous plants and raw fruits. Milk has also a slightly laxative effect, and may be given in all cases where it agrees with the habit. Beer and cyder are also useful drinks, and some persons experience a

desire to go to stool immediately after having taken a large glass of cold water in the morning fasting. Bran-bread has been frequently recommended by Dr. Trousseau. The medicine which he constantly prescribes is belladonna, as originally advised by Bretonneau, administered in pills, in the dose of one centigramme. He does not pretend to determine the action of this drug; but he declares it to be a most successful remedy in habitual constipation. If all these measures should fail, then he advises the use of purgatives, which, however, constitute an extreme remedy, to be employed with certain precautions.

II. *On the Physiological Effects and Therapeutical Value of the Veratrum Viride.* By Dr. S. W. Abbott. (Boston Medical and Surgical Journal, April, 1862.)

The veratrum viride grows abundantly in all parts of the United States, being a common plant in meadows and woods, and invariably near some running stream. The part employed in medicine is the root, which is far superior in its physiological effects to the seeds. Its taste is acrid, bitter, unpleasant, and persistent, and it possesses great sternutatory power, the powder causing violent sneezing, which often lasts for five or ten minutes without ceasing. The tincture is the preparation on which most reliance is to be placed.

It is undoubted that veratrum viride is a sedative, probably acting both on the nervous and the arterial system. The first phenomenon noticed after the system has come under its influence, is a reduction in the frequency of the pulse; secondly, there is some diminution in the frequency of the respiration; thirdly, under a large or frequent dose, a sense of faintness or vertigo ensues, with nausea, vomiting, and general prostration; and, fourthly, the secretions are somewhat stimulated. Dr. Abbott took the drug himself, in the form of tincture, in order to determine its effects on the system. On one occasion when he noted the results the pulse was 70, and the bodily health good. An hour after taking seven drops of the tincture the pulse fell to 65, and afterwards to 60; and on subsequently repeating the dose, the pulse fell to 50, and then to 46. There was considerable nausea, but no vomiting, and a sound sleep succeeded on the evening of the day when the observations were made. The cases which are best adapted for the administration of the drug are unquestionably the inflammatory diseases, whether general or local, attended with high arterial action. It is peculiarly serviceable in pneumonia, and its beneficial effects are observable in the diminution of the pulse and the respiration. The tincture should be administered in doses of five to eight drops every three or four hours till nausea is produced. It is also useful in pleurisy, often superseding the lancet; in puerperal peritonitis, given in conjunction with opium and wine; and in relieving the pain of acute rheumatism. It may probably be expected to produce good results in certain organic and functional diseases of the circulatory organs, where it might be combined with digitalis. It may diminish the pulsation of aneurisms, and indeed, Dr. Coale, of Boston, considers it a sheet anchor in the treatment of such cases.

III. *On Valerian, and the Analysis of its Root; and on the Valerianate of Ammonia.* By M. Pierlot. (Bulletin Général de Thérapeutique, December 15th, 1861.)

M. Pierlot states that there are two distinct varieties of the *Valeriana officinalis*, one of which grows on sandy soils and heaths, and belongs to the variety *Sylvestris*; and another grows in marshy places, and is called *Palustris*. These

varieties differ from each other in certain botanical characters, but the variety *Sylvestris* specially deserves the name of *Valeriana officinalis*, and the root alone is employed in medicine. M. Pierlot, in some previous memoirs has demonstrated that valerianic acid pre-exists in the fresh root of valerian, and is found in greater quantity than in the dried root. In some further researches on valerian-root made by means of the displacement apparatus of Professor Guibourt, M. Pierlot has shown that the root presents very remarkable differences in its composition at different periods of its existence: 100 parts of the fresh roots gathered in autumn afford about 37 parts of dry roots, while the same quantity gathered under the same conditions in the succeeding spring, at the period of flowering, afford only 25 parts. It is found, also, that the quantity of essential oil, valerianic acid, malic acid, amylaceous matter, and extractive matter is much greater in proportion in the root gathered in autumn, and a table is given proving these facts by quantitative chemical analysis. M. Pierlot has thus shown that the difference in the therapeutical action of valerian probably depends upon the varying nature of its constituents—the latter being influenced by the age of the root, its locality, and the mode of drying it. When it is too young, the valerian root furnishes hardly any extractive matter; and when too old, it experiences a considerable loss of all its principles. The variety palustris contains hardly any valerianic acid or essence; and, on the other hand, drying removes two-thirds of the acid, dissipates valerene, and resinifies valerol. Haller and Cullen, without any aid from analysis, had already observed these differences. The first states that valerian has much less efficacy when it grows in low, moist situations than when it is found on elevated places; he recommends that it should be dried rapidly, and renewed every year, and he adds, that without these precautions it produces either feeble therapeutical results or none at all. Cullen states that this root is almost always deteriorated in the shops, from which circumstance it resulted, that when a physician prescribed it he might anticipate its inefficiency. In order to obtain constant results from the use of this drug, M. Pierlot has endeavoured to present to the medical world a powerful and constant remedy, and one which represents, in small compass, all the properties of valerian. This object is attained by the use of valerianic acid, which is the most efficient product of valerian; and its combination with ammonia, which has analogous properties, appears to give to M. Pierlot's preparation the chemical stability which is indispensable to all officinal preparations.

IV. *On the Arseniate of Cafeine and Tanno-Arsenic Acid used as Antiperiodics.* (Gazette des Hôpitaux, January, 1862.)

M. Gastinel, Professor at the School of Medicine of Cairo, has presented to the Egyptian Institute two new arsenical compounds—viz., arseniate of cafeine and tanno-arsenic acid, both perfectly crystallized, and having a well-defined chemical constitution. M. Schnepf, sanitary physician at Alexandria, has lately studied the therapeutical action of these new compounds, and the following are some of the cases which he has recorded. The first case was that of a man, forty-five years old, who had just had two paroxysms of fever. A cathartic and emetic were first given, and produced vomiting and purging; then on the next morning he took twenty centigrammes of tanno-arsenic acid in some water, in doses of one centigramme every quarter of an hour. This was on the day when the paroxysm was expected to return, but it was almost entirely absent, the patient complaining, however, of a little frontal headache. The dose was repeated on the two following days, and there was no return of the fever, and after a short time the patient entirely recovered. In another case the patient was a man about forty years old, attacked with a tertian fever.

On the day when the fever was absent, he took twenty centigrammes of tanno-arsenic acid. The paroxysm did not return on the following day, and the arsenical compound was continued for two days longer. The patient complained of loss of appetite for a few days, but soon recovered entirely. The third case was that of a man, fifty years old, suffering from a quotidian fever. The first attack surprised him suddenly in a violent manner, and was attended with great prostration. The next day an emetic was administered, but the paroxysm returned. After the remission, on the third day, twenty centigrammes of the tanno-arsenic acid were given, and the paroxysm did not return, although some headache remained, with wandering pains in the stomach. Twenty centigrammes more were given, and the fever never reappeared, but there remained a prolonged dislike for food, and a painful sensation at the epigastrium. Gradually, however, the appetite returned, and the man became quite well.

V. *Some additional Observations on the Employment of Nitrate of Silver in the Treatment of Dysentery.* By Dr. L. Gros. (Bulletin Général de Thérapeutique, Nov. 30th, 1861.)

Several years ago Dr. Gros had the opportunity of observing the beneficial effects of nitrate of silver in dysentery during a severe epidemic of that disease. Since that period many circumstances have demonstrated to him the superiority of this medicine over most of the others usually employed in dysentery. He now relates seven cases of this disease successfully treated by the nitrate of silver, sometimes employed in the form of pills, sometimes in injection. The different mode of employing the nitrate depends upon the seat of the disease. Most frequently dysentery has its seat in the lower half of the large intestine, in the rectum, and its sigmoïd flexure, but the disease does not extend beyond the descending colon. In other cases, however, which are more rare in our climates than in hot countries, the inflammation extends to the whole of the large intestine, and may even pass beyond the ileo-cæcal valve. When this distinction is well understood, it is evident that when the dysentery exists over the whole extent of the large intestine, the injections cannot penetrate high enough to act locally on all the inflamed membrane, and attempts must then be made to act differently on the upper part of the large intestine. Astringents administered by the mouth will then have more chance of succeeding than the same substances given in injections. Dr. Gros concludes by confirming his previous opinion of the value of nitrate of silver in dysentery. Its action, he observes, is at once soothing and astringent, and whether given in the form of injection or of pills, it immediately soothes the pain, colic, and tenesmus; it allays the spasm of the intestine which opposes the expulsion of the stercoraceous matter, and thus rapidly modifies the nature of the evacuations; and lastly, by its astringent action it dries up the exudation of blood from the intestinal mucous membrane, and rapidly modifies the vitality of the tissues with which it is placed in contact.

VI. *Clinical Remarks upon Digitalis Purpurea.* By Professor Hirtz, of Strasbourg. (Bulletin Général de Thérapeutique, March 15th, 1862.)

After some general remarks upon the difference of opinion which has prevailed from time to time as to the properties and physiological action of digitalis, and the importance of employing a drug which has been well prepared and grown in a suitable situation, Professor Hirtz offers some observations which he has recently made upon the effects of this medicine in certain inflammatory fevers. It should be mentioned that Professor Hirtz means by

inflammatory fevers those febrile affections which are symptomatic of and dependent upon some local cause, and he enumerates, for instance, pneumonia, pleurisy, articular acute rheumatism, and what he denominates inflammatory phthisis. The fever in these cases is, indeed, only the effect of the deep-seated disease, but he argues that the fever is a *complication* as well as an effect, and that when the physician observes the cessation of the fever, he regards the disease as being cured. The cases having been selected on this principle, the clinical observations were made during the years 1859 and 1860, on patients suffering from pneumonia, acute phthisis, pleurisy, acute articular rheumatism, pleuro-pneumonia, and acute bronchitis; and the general conclusions at which Professor Hirtz arrived are the following:—He thinks that digitalis acts in inflammations by attacking the *febrile element*—that is to say, by lowering the circulation and the temperature. It is probable that the second result is subordinate to the first as an effect is to the cause. In fact, the lowering of the pulse generally precedes and never follows that of the temperature. Digitalis appears to be specially indicated in inflammations which are chiefly characterized by heat and frequency of the pulse, with integrity of the cerebral and digestive functions. In pneumonia it is as useful as bleeding, but it ought not to exclude the latter measure; it may be advantageously substituted for tartarized antimony, especially when there is a complication of diarrhœa, and it is certainly superior to that salt in serous inflammations. Professor Hirtz states that he has never observed any poisonous effects from digitalis in his researches, nor any serious complications which could be attributed to it, nor any unpleasant consecutive effects on the intestinal canal; its diuretic properties, moreover, were rarely observed by him. The febrile affections in which he employed it were all cured, and two cases of pulmonary phthisis were completely arrested, by its use; but he does not desire to draw any general conclusion from such limited observations as those which he has hitherto made.

VII. *On a New Method of Employing Caustic Potash.* (Journal de Médecine et de Chirurgie Pratique, March, 1862.)

The caustic potash, which is the most rapid and powerful of escharotics, is generally disused in the present day, because it produces irregular eschars, the extent of which it is difficult to define beforehand, for the alkali fuses very readily, and sometimes attacks organs or parts which it is desirable to spare. This inconvenience is avoided by following the plan of M. Bourgeois, of Etampes, who calls it *cauterization by dilution*, consisting in the application of the alkali circularly round the parts, instead of allowing it to remain upon them. In granular ulcerations of the neck of the uterus, when the affection is of long standing and extends to the cavity of the neck, it is sometimes sufficient to perform a single cauterization by dilution with potash, in order to transform an obstinate disease into a traumatic lesion, which is soon cured by ordinary means. After the cauterization, the eschar, or rather the blackish and bloody *débris* which is the result of it, is carefully wiped, and before withdrawing the speculum, the neck of the womb is surrounded with charpie, or dusted with nitrate of bismuth. In several cases of granular metritis of the cavity of the neck of the uterus, with considerable hypertrophy of this organ, M. Clerc has obtained very satisfactory results by introducing a crayon of caustic potash into the cavity of the neck, and keeping it there for a few seconds. Vegetations on the vulva also are often found to disappear under the application of caustic potash, but it operates with so much energy, that it should be employed with great prudence and moderation. A case is related in which M. Clerc succeeded in removing some very abundant vegetations of this kind by the caustic potash, after attempts at excision had been made in vain.

VIII. *On the Therapeutical Action of the Veratrum Viride.* By Dr. Ephraim Cutter. 1862.

In a short pamphlet, Dr. Cutter describes the properties and uses of the veratrum viride, which has been lately very extensively employed in the United States. The root is the officinal part, and the pharmaceutical preparations are the infusion, decoction, powder, extract, wine, tincture, and ointment, and of all these the tincture is the most eligible. The active principle of the veratrum viride is veratria, but the alkaloïd from the veratrum album is a drastic purgative, while the veratrum viride seldom purges. It is well ascertained as the result of numerous investigations in all parts of the United States that the veratrum viride is a valuable sedative to the arterial system. The first effect of its operation is a reduction of the frequency of the pulse; the second is a certain amount of diminution in the frequency of the respirations; the third, under a large or frequent dose, is a sense of faintness or vertigo, with nausea, vomiting, and general prostration; the fourth is a stimulation of the secretions to a certain extent. From its action in health it is inferred that veratrum viride is primarily an arterial sedative, and secondarily a diaphoretic, diuretic, emetic, and sternutatory. The diseases in which it is most efficacious are fevers and inflammatory affections, whether idiopathic, traumatic, rheumatic, or eruptive, particularly those of a sthenic character. It has also been employed in pneumonia, bronchitis, pleuritis, puerperal peritonitis, and inflammation of the brain or its membranes. It appears to act in the same manner as bloodletting or tartar emetic, but it is a safer remedy than the former, inasmuch as it saves the expenditure of blood, and compared with the latter it is esteemed preferable, because it is rapidly eliminated, and does not leave behind it a permanent depression. It acts more quickly than digitalis, and is not cumulative in its action, as far as it can be ascertained. The mode of administration is to give eight minims of the tincture to an adult every two hours, or according to the urgency of the case; two to five minims to children; and one half to two minims to infants. It is contra-indicated in gastric inflammation, in the congestive stages of eruptive and other fevers before reaction, and in asthenic states of the system, except when given with wine or some other stimulant.

IX. *Case of Obstinate Hiccough, accompanied by Serious Symptoms, cured by Sulphate of Quinine.* (Gazette Médicale de l'Algérie, Aug. 1862.)

A man in Algeria was admitted into the hospital under the care of M. Widal, suffering under the consequences of cerebral congestion. Five or six days after his admission, and after excess in alcoholic stimulants, he was seized with violent hiccough, the incessant spasms of which compelled him to remain in bed, and resisted all treatment by antispasmodics. The hiccough was so intense and noisy that it was heard outside the hospital. The number of diaphragmatic contractions reached fifty-five in the minute, and their energy was so great that all the muscles of the trunk participated in them. There was considerable dyspnœa, short inspirations, red face, white tongue, loathing of all kinds of food, pulse small, eighty. Infusion of orange, ether, and laudanum, a blister on the epigastrium, sinapisms to the extremities, were all used without success. Afterwards a pill was given, containing ·025 of a gramme of extract of opium every two hours, and the blister to the epigastrium was dressed with hydrochlorate of morphia. The next day, notwithstanding the enormous doses of opium, the hiccough continued with the same violence, the epigastrium was rather tender on pressure, and the patient had not slept an instant. The strength was gradually failing, the pulse was very small, and the loss of appetite was complete. Extract of belladonna in

large doses, valerianate of zinc, subnitrate of bismuth, magnesia, and aperients were all unsuccessful, and chloroform succeeded no better. M. Widal at last had recourse to the sulphate of quinine, administering ·8 of a gramme in one dose. The next day it was announced that the hiccough had entirely disappeared three hours after the quinine had been taken, and the sleep and the appetite were both restored. The quinine was taken every day in the same dose for three days, and the hiccough never returned, but the patient gradually regained his strength. In this case the hiccough had continued without intermission for nineteen days.

X. *On the Use of Iodine Injections in Chronic Hydrarthrosis of the Knee.* By Dr. Bouchard. (Bulletin Général de Thérapeutique, Oct. 15th, 1862.)

M. Sédillot has given a very unfavourable opinion upon the use of iodine injections in chronic hydrarthrosis; and indeed he states that the practice is attended with very great danger, and that he has never known of an instance of success. The greater part of the patients so treated sank under acute arthritis, peri-articular abscesses, or other serious consequences. But Dr. Bouchard thinks that M. Sédillot's observations are founded upon insufficient data, and that if he had himself practised this mode of treatment he would alter his opinion. Dr. Bouchard has employed iodine injections several times in the chronic hydrarthrosis of the knee, and he has never observed the slightest unfavourable symptom to supervene. Among a number of successful cases, he adduces two in particular, in which the efficacy of the iodine injection was very manifest. In the first case both knees were affected, and after one knee had been cured, the same treatment was applied to the other, and with the same successful result. Great care was taken in both cases to avoid all the causes of inflammation, the limbs being kept perfectly at rest, and fomented, with poultices, or covered with light compresses, according to circumstances. In neither case did any unfavourable symptom present itself, and M. Bouchard thinks that the treatment he recommended is more certain and rapid than that obtained by blisters, irritating frictions, or the other means usually employed.

XI. *On the Employment of Hemlock in Chronic Enlargement of the Joints in Scrofulous Persons.* By M. A. Laboulbène. (Bulletin Général de Thérapeutique, Oct. 15th, 1862.)

The writer of this paper remarks that many medicines enjoy occasionally a very high and perhaps exaggerated reputation in the treatment of certain diseases, and then fall into unmerited disuse. Such is the case with hemlock, which was formerly recommended as a valuable remedy in cancerous and other tumours, but is now little employed in such cases. M. Laboulbène has, however, made some recent observations upon the therapeutical employment of hemlock in scrofulous articular enlargements, and he thinks the treatment so satisfactory that he publishes the results. His cases were five in number, but they were all well marked, and the patients were cured, the treatment consisting almost exclusively of the use of hemlock internally and externally, the drug being given in pills containing powder and extract of hemlock, and applied externally in the form of ointment. The patients all suffered from chronic swellings, attacking one joint, and seated principally in the elbow, the wrist, and the knee. The swellings generally succeeded to an attack of rheumatism affecting a single joint, and they were characterized by the resistant feeling and the false fluctuation of incipient white swellings. All the cases, except one, were evidently of a scrofulous nature, and for such the employment of hemlock appears to M. Laboulbène to be peculiarly well adapted.

XII. *On the Use of the Alkaline Lactates and of Pepsin in Indigestion.* (L'Union Médicale, Aug. 21st, 1862.)

Dr. Pétrequin, of Lyons, advises the employment of the alkaline lactates, and especially those of soda and magnesia, in the treatment of the functional disorders of the digestive canal. He was induced to apply these salts to the treatment of dyspepsia, because they are natural to the digestive tube, and the alkaline compound which results from their use is an integral part of the chemical elements of digestion. Practical investigations have confirmed these theoretical views, and an experience of twelve years has convinced Dr. Pétrequin that the use of the alkaline lactates promotes the flow of the digestive juices, regulates their secretion, renders the digestive function normal, and restores the languid or perverted action of the stomach and intestine by enabling them to produce regularly the liquids necessary for the digestive process. The *lactate of soda* is very soluble in water, and crystallizes only with difficulty, and as it is very deliquescent it is prepared with sugar, which enables it to be preserved. The *lactate of magnesia* has been obtained in silky masses, which are very light, very white, and composed of very slender crystals; it is unalterable in the air, of sparing solubility, and without smell or taste. Dr. Pétrequin employs the alkaline lactates in the disorders occurring in any of the three principal phases of digestion—namely, the buccal, the stomachal, or the intestinal. In the first, the disorder may depend either on the alteration of the saliva, which may become acid, or on the diminution of the secretion of this fluid. In both cases the patient should take, before meals, two or three pastilles, which should be slowly melted in the mouth, and the same should be done after meals. The disorders which correspond to the stomachal or gastric phase of dyspepsia are more numerous, and require some modifications in the use and administration of the medicine. In the acid dyspepsia, Dr. Pétrequin advises a combination of lactate of magnesia and of lactate of soda with sugar; and in what he calls neutral dyspepsia, which he attributes to deficiency of the gastric juice, he combines pepsine with the powders or pastilles. During intestinal digestion the alkaline lactates may still be advantageously employed, although the functional lesions of the intestine are generally less easily accessible to our remedies than those of the stomach. "We know," says Dr. Pétrequin, "that magnesia produces excellent results in the diarrhœa of children at the breast, and the alkaline lactates are no less efficacious. I have also observed their curative powers in the diarrhœa which supervenes in convalescent patients, when they resume the use of food, and when their stomach is still weakened. I have also several times employed them successfully in the diarrhœa of persons who were enervated by excessive fatigue; and I have observed the same results in enteralgia, enteric flatulence, and the purging which is symptomatic of intestinal indigestion."

XIII. *On the Action of the Mother-Liquor (Eaux-Mères) of Croisic (Loire-Inférieure, France) in the Treatment of Scrofula.* By Dr. Leroy-Dupré. (L'Union Médicale, July 12th and 22nd, 1862).

A portion of the coast of Croisic is as low as the level of the ocean, and at high tide the water is brought into the interior of the country by means of sluices, which are closed when the inundation is considered sufficient. The water, enclosed in canals, undergoes evaporation and becomes more dense, and after a certain time it is poured off into earthen vessels, in which it undergoes a further evaporation by means of heat, and the salt is deposited in white crystals. This salt (chloride of sodium) is employed in commerce, but the other salts contained in the water remain dissolved in the mother-liquor. This

mother-liquor possesses very powerful curative properties, especially in scrofulous cases; and it is employed in baths, or is applied to the surface by means of compresses. The chemical analysis of the mother-liquor of Croisic shows that it contains a large quantity of chloride of sodium, with chloride of magnesium, together with a considerable amount of bromide of sodium, with sulphate of magnesia and sulphate of lime. The two salts—chloride of sodium and bromide of sodium—which are considered especially serviceable in scrofulous cases, are found in this water in much greater proportion than in the waters of Kreuznach, Nauheim, and Salins. Dr. Leroy-Dupré considers that a residence in a country like Croisic, where the sea-salt is worked on all sides, must be very favourable to weak and lymphatic constitutions, especially to children and to women who lead an idle and sedentary life in large cities. A few days are sufficient to give a vermilion tint to the cheeks of a chloro-anæmic girl; and, in fact, Croisic, with its marine atmosphere, its complete hydrotherapeutical establishment, its numerous saline waters, and its mother-liquor rich in chloride and bromide of sodium, offers all the conditions which are desirable for the radical cure of scrofula and its different manifestations.

XIV. *On the Employment of Savin and Rue in the Treatment of Uterine Hæmorrhage.* (Gazette des Hôpitaux, July, 1862.)

For a considerable period savin and rue have been employed in a purely empirical manner, either to obviate amenorrhœa, or, in certain necessary contingencies, to induce abortion; they were, in fact, considered as emmenagogues. It appears, however, by some later researches, that though these substances possess the property of producing a sanguineous discharge from the uterus, they may occasionally act in an opposite manner. In fact, savin has lately been successfully employed in Germany in order to counteract an habitual tendency to abortion. Several cases have also lately occurred in the hospital of La Charité, in Paris, under the care of M. Beau, in which savin and rue have been successfully employed in cases such as those now referred to. The first case was that of a young woman who had suffered for eighteen days from uterine hæmorrhage of unknown origin. Having recommended rest in bed with success, M. Beau prescribed a pill containing ·05 of a gramme (a gramme is about 15 grains) of savin. The hæmorrhage was arrested the next day, and under the continued use of the remedy it disappeared altogether. For two years M. Beau has successfully employed this drug in a series of cases of uterine hæmorrhage. When savin fails in its effect, he employs rue in the same dose as the savin, and M. Beau has found it to be almost uniformly successful.

XV. *On the Sarracenia Purpurea as a Remedy for Small-Pox.* By Dr. Frederick Morris, of Halifax. (American Medical Times, May, 1862.)

Dr. Morris alleges that the sarracenia purpurea, or Indian cup, a native plant of Nova Scotia, is a remedy for small-pox in all its forms, curing the patient in twelve hours after taking the medicine; he also adds, that however severe the case may be, even in the confluent form, scarcely a scar is ever left upon the skin. Dr. Morris considers that the sarracenia comes into actual contact with the virus in the blood, rendering it inert; and he states as a fact, that vaccine or variolous matter washed with infusion of sarracenia loses its contagious properties. The medicine is very mild to the taste, and may be mixed largely with tea or coffee without in any degree altering the flavour of those beverages. Dr. Morris assigns the credit of the first employment of this plant in small-pox to Mr. J. T. Lane, an Irish gentleman lately residing in

Nova Scotia, to whom the Mecmac Indians had given it for trial; and in a severe visitation of small-pox in Nova Scotia, Dr. Morris received the sarracenia from Mr. Lane, and became convinced of its astonishing efficacy. The sarracenia is a plant well known to botanists from the cup-like shape of its leaves, which are generally filled with water. It is a curious and remarkable plant, exclusively confined to North America, but very abundantly diffused over that continent, from Hudson's Bay to the State of North Carolina. The root consists of numerous fibrous and stringy radicles, which, when powdered, have a very faint and agreeable aroma, with a taste very like the willow-alkaloïd or salicin. The dose of the medicine (the powdered root) is about a dessert-spoonful simmered in a pint of water down to half a pint; this is divided into two doses, one taken immediately, the other in six hours. The only functional influence which it seems to produce is to promote the flow of urine, which soon becomes limpid and abundant—an effect attributed by Dr. Morris to the defæcated poison or changed virus of the disease probably exclusively escaping through that channel. Dr. Morris believes that the sarracenia is also a powerful antidote for many contagious diseases, among which he enumerates lepra, measles, varicella, plague, typhus fever, syphilis, and jaundice.

XVI. *On the Danger of Employing Ferruginous Preparations at the commencement of Phthisis.* By Dr. AUGUSTIN MILLET. (Bull. Gén. de Thérapeutique, June 15th, 1862.)

Dr. Millet strongly condemns the employment of ferruginous preparations at the commencement of phthisis, as he thinks that they accelerate the progress of the disease. He is the more anxious to impress this opinion upon the profession, because the appearance of patients in the early stage of phthisis very much resembles that of chlorosis or anæmia, for which conditions iron is almost universally prescribed. Dr. Millet declares that his views are not based upon two or three negative cases, but that he has collected more than sixty observations, proving the great danger of using iron under the circumstances just mentioned. His experience is drawn from the results of cases treated in large religious establishments, in which young women suffering from phthisis, but presenting a chlorotic appearance, were treated with ferruginous preparations. In about a fortnight they improved remarkably and seemed to be restored to health, but on suspending the use of the iron the symptoms reappeared, and what was worse, other symptoms of a far more dangerous character supervened, such as cough and hæmoptysis. It would seem that in France iron is popularly employed in chlorosis and pseudo-chlorosis, without the advice of a medical man being necessarily sought for; and Dr. Millet states that when this metal has been taken by consumptive patients who are supposed to be only chlorotic, very much danger is incurred, and the physician's services may be rendered in vain. He admits that his observations are opposed to the results obtained by Dr. Cotton in England, and to the opinions entertained by many French physicians, but, nevertheless, he persists in drawing the following conclusions:—1. The pseudo-chlorosis, which is one of the precursory phenomena of phthisis in a certain number of young women, does not disappear completely under the use of ferruginous drugs. The improvement which is manifested ceases as soon as the use of the medicine is discontinued. 2. Phthisis, concealed by this pseudo-chlorosis, was always, in the numerous cases observed by Dr. Millet, fearfully accelerated in its progress by the administration of iron. 3. It is well known that cod-liver oil and certain other preparations may retard the progress of incipient phthisis, while iron produces symptoms which are beyond the reach of medical science. 4. Ferruginous preparations should never be employed without a careful auscultation of the chest, and unless the medical practitioner is convinced that

there exists no contra-indication to their use. Iron should always be avoided in incipient phthisis. 5. By following this advice a greater number of phthisical cases will probably be cured than hitherto. 6. No ferruginous preparation, whatever name it may bear, possesses the slightest efficacy in the treatment of phthisis. Dr. Millet thinks them all equally dangerous in this disease.

XVII. *On the Use of Digitalis in Acute Inflammatory and Febrile Diseases.* (L'Union Médicale, July 15th, 1862.)

Dr. Duclos, of Tours, has employed digitalis in the different forms of pneumonia, and he arrives at the conclusion that this drug is useful in all the acute cases of the disease, provided that no contra-indication exists in the essential nature of the malady. It answers equally well in infancy and adult age, and also in old persons who are free from serious disturbance of the circulating system. But when frequent intermissions of the pulse indicate some cardiac affection, then the use of digitalis gives rise to two very singular phenomena, for either the pulse becomes regular and the intermissions diminish as long as the digitalis continues to act; or, on the other hand, the intermissions are multiplied, the disturbance of the circulation is increased, and the movements of the heart are suspended for a second or two, in which case the medicine must be discontinued. M. Hirtz, of Strasbourg, has employed digitalis in other febrile diseases, and he considers that it is particularly indicated in the inflammations in which there is a predominance of heat and frequency of the pulse, with integrity of the cerebral and digestive functions. It appears to him very well adapted to thoracic, parenchymatous, and serous inflammations; in pneumonia it rivals venæsection, and it may often be substituted for tartarized antimony, especially where there is a complication of diarrhœa. But digitalis is probably contra-indicated in inflammations attended with collapse, or a tendency to suppuration. It is entirely contra-indicated in cases where there is concomitant gastric irritation.

XVIII. *On the Physiological Properties and Therapeutical Uses of the Laburnum and the Asarabacca.* (L'Union Médicale, July 15th, 1862.)

It has long been known that the leaves and young shoots of the laburnum possess purgative and even emetic properties. MM. Chevallier and Lassaigne found in the seeds of this plant a peculiar substance, to which they gave the name of *cytisine*, and the properties of which they carefully examined. After having administered it to different animals and to themselves, they arrived at the conclusion that in small doses it causes vomiting and purging, and in larger doses it produces poisonous effects. Dr. T. Scott Gray, who has recently examined the characters of the plant, describes three active principles in the laburnum—namely, laburnic acid, laburnin, and cystinea, which, although differing in chemical qualities, appear to possess the same therapeutical properties, and may be prescribed indifferently. In opposition to the facts observed by Chevallier and Lassaigne, Dr. Gray finds that the preparations of the laburnum do not irritate the digestive canal, but tend rather to produce constipation than diarrhœa. He attributes the nausea and vomiting, which are often observed, to the action of the laburnic acid on the nervous system, and he states that these effects may be avoided by administering the drug only in moderate doses. He recommends the preparations of the laburnum in bilious dyspepsia, in functional derangements of the liver, in the vomiting of children caused by irritability of the stomach, in hooping-cough, in the sympathetic vomiting of pregnancy, in prurigo, asthma, &c.

The asarabacca (*Asarum Europæum*) has properties which are very similar to those of the laburnum, the analogy being perfectly explained, according to Chevallier and Lassaigne, by the presence in both plants of the same active principle, *cytisin*, which is also found in the *Arnica montana*. The emetic and purgative properties of asarabacca were recognised before the importation of ipecacuanha, and the plant was once known in France under the name of *cabaret*, owing to the fact that drunkards were formerly in the habit of using it as an emetic to expel the drink which they had taken in excess. They also chewed the leaves when fasting, in order to give themselves an appetite. The properties of asarabacca have lately been again brought into notice by a Russian physician, Dr. Smirnoff, who has employed the plant in the treatment of alcoholism. He states that a glass of a strong infusion of the dry root taken in the morning fasting, allays the factitious thirst of drunkards and restores their appetite. Dr. Gallard, of Paris, has not found asarabacca very serviceable in chronic alcoholism or in delirium tremens, but he has observed it to produce good effects in certain forms of chronic bronchitis. He does not think it superior in this respect to senega, but that it may be substituted for it. The patients for whom he has prescribed asarabacca appeared to him to regain their strength more readily, to obtain a better appetite, and to expectorate more easily those muco-purulent and viscous matters which are usually expelled with such difficulty from the bronchi. Dr. Gallard concludes, that if one of the plants, laburnum or asarabacca, should be restored to medical practice, the preference should be given to the latter, the efficacy of which is undoubted, and its employment is free from danger.

XIX. *Observations on some Local Anæsthetics.* By Messrs. Dyce Duckworth and Richard Davy. (Edinburgh Medical Journ., July, 1862.)

The investigations of Messrs. Duckworth and Davy were confined to chloroform in liquid and vapour, to ammonia in liquid and vapour, to chloroform and acetic acid according to the new French form of chloracetization, and to freezing mixtures. 1. On applying the vapour of chloroform to the arm by means of test-tubes, it was found that sensibility was decidedly diminished in from ten to fifteen minutes. By applying liquid chloroform on lint and in test-tubes for periods varying from ten to thirteen minutes, total insensibility was produced in one case, but only partial anæsthesia in another. 2. The application of the vapour of liquor ammoniæ fortissimus to the back of the arm for ten minutes caused only very slight tingling, and no anæsthesia nor signs of irritation. A mixture of equal parts of the same solution of ammonia and water for ten minutes applied in the fluid state caused irritation at first, and afterwards perfect anæsthesia, which, however, quickly disappeared. The cuticle was detached, and irritation continued in the part for ten days afterwards. 3. Chloracetization, applied according to the method recommended by M. Fournié, was applied to the skin of the fore-arm, and in from ten to fifteen seconds the most intense and violent smarting commenced in the part, increasing to such a degree as to be perfectly insufferable. The smarting continued severe afterwards, and the parts assumed the appearance of urticaria. Messrs. Duckworth and Davy consider it impossible that this mixture can be tolerated for five minutes on any part. 4. In reference to the local effects of chloroform in the treatment of disease, three observations were made upon one patient suffering from frontal neuralgia. The chloroform was applied locally by means of lint soaked in the fluid, and placed in the bottom of an inverted wine-glass, and on each occasion the neuralgia was completely relieved in ten minutes. In five other cases of neuralgia the local application of chloroform was attended with great relief, and it was mentioned by Professor Simpson that

he had sometimes succeeded in allaying the pain of carcinoma uteri by means of the vapour of this drug. The remedy, however, could not be relied upon implicitly, as its beneficial influence was found to be irregular. 5. Ice was employed as a local anæsthetic in three cases of surgical operations, one of which was performed on Mr. Duckworth himself, who had a fatty tumour removed from his thigh. The proceeding was completely successful, and was unattended with any pain. The operations in which the local application of ice appears to be most useful, are that for onyxis, the removal of small superficial tumours, whether malignant, cystic, or benignant, the opening of abscesses, including anthrax and furunculi, the operation for paraphymosis, and that for femoral hernia.

XX. *On the Use of Veratria in the Acute Articular Rheumatism of Children.* (Bulletin Gén. de Thérapeutique, July 15th, 1862.)

Acute articular rheumatism may be regarded as a disease of the sthenic order, and depressing remedies may therefore be employed in young subjects who are attacked by it, provided that these remedies are used discreetly, and that their effects are closely watched. M. Bouchut has made a number of practical observations on the employment of veratria in the treatment of acute articular rheumatism in children. He frequently, and indeed almost daily, employs this medicine in the disease alluded to, and he is well satisfied with the effects produced, both in regard to its tolerance by the patients and to its efficacy. He administers the veratria to children either in pills or in a julep, taking care to add an equal quantity of an opiate to facilitate tolerance. He begins by a dose of 1 to 5 milligrammes (a milligramme is ·0154 of a troy grain), according to the age, the last dose being that which he generally prescribes for a child at the age of ten. He then increases the dose progressively from day to day, doubling it the second day, tripling it the third, and so on in succession, but always watching the effects produced, and regulating the dose accordingly. He has thus sometimes reached thirty-five or forty milligrammes a day, given in seven or eight pills at equal intervals in the twenty-four hours. As soon as there is any sensible improvement in the pain and in the rate of the circulation, he follows an inverse progression, diminishing the dose every day, so as to return gradually to the original quantity, and at last discontinuing the use of the medicine altogether.

XXI. *On the Use of Nicotine in Tetanus, and Cases of Poisoning by Strychnia.* By the Rev. S. Haughton, M.A. (Dublin Quarterly Journal of Medical Science, Aug., 1862.)

From the results of some experiments made by Mr. Haughton, as to the physiological action of nicotine and strychnia on frogs, it appears that they counteract each other's effects, at least when given to these animals. A case was subsequently published by Dr. T. O'Reilly, of Missouri, showing that poisoning by strychnia was successfully treated by the administration of infusion of tobacco. It therefore occurred to Mr. Haughton, on reading this latter case, that nicotine might be usefully employed in cases of tetanus as well as in strychnia poisoning. He had an opportunity of testing the truth of this conjecture in two cases that occurred in Dublin in 1860 and 1861, one being a case of traumatic, the other of idiopathic tetanus. Both the cases were satisfactory in proving the utility of nicotine in counteracting tetanic spasms, although in the first the man was moribund when the nicotine was given, and the result was necessarily fatal from the extensive nature of the injuries he had received. The second case (idiopathic tetanus) was treated by nicotine with

complete success. The following were apparently the physiological effects of the alkaloïd in the successful case. 1. It caused immediate relaxation of the muscles of the abdomen, back, and diaphragm. 2. It induced cessation of delirium. 3. There was a slight tendency to cause increased circulation, to the extent of ten beats a minute. 4. It caused profuse sweating, the sweat exhaling an intolerable odour of snuff, not of tobacco. 5. It had a tendency to produce deep sleep. A third case is adduced by Mr. Haughton, showing the successful treatment of strychnia poisoning by tobacco. The case was one of suicidal poisoning, and it was supposed that about four grains of strychnia were taken. The tobacco was administered in infusion, and was given internally. Profuse vomiting ensued, and afterwards sweating, but complete recovery resulted from the treatment.

XXII. *On Phloridzine and its Uses.* By Dr. De Ricci. (Dublin Quar. Journal of Medical Science, Aug. 1864.)

Phloridzine is a neutral principle existing in considerable quantities in the bark of the root of the apple, plum, and cherry trees, but principally in the root of the apple tree. It appears in the market in the form of a dirty-whitish powder, consisting of broken-up, silky needles, somewhat resembling quinine which has not been well bleached, and when rubbed between the fingers it has a soft, velvety feel, very like that of French chalk. When crystallized by slow cooling from a dilute solution, previously treated with freshly prepared animal charcoal, phloridzine may be obtained perfectly white, and in the form of long silky needles. Its taste is peculiar, being bitter at first, but afterwards somewhat sweetish, with a flavour of apples. Phloridzine differs from quinine by containing no nitrogen in its chemical composition, but in this respect it resembles salicine, to which it is much allied. Like salicine, it does not combine with acids to form salts, is very soluble in alcohol, ether, or boiling water, but requires one thousand parts of cold water for solution.

The cases in which Dr. De Ricci has employed phloridzine with most success have been certain forms of atonic dyspepsia occurring in delicate females, to whom it was impossible to administer either bark, quinine, or salicine in any shape, without bringing on serious nervous excitement. He has also found it extremely well adapted for the treatment of young children of delicate constitutional habit, or when recovering from hooping-cough, infantine fever, or any other disease. The doses he has employed are five grains three or four times a day for adults, and proportionately smaller doses for young children. In prescribing phloridzine it must be borne in mind that it is almost insoluble in cold water, but the addition of a very small quantity of ammonia instantly dissolves it; thus, by adding to an eight ounce mixture, containing a drachm of phloridzine, a few drachms of aromatic spirit of ammonia, the fluid which was previously milky becomes perfectly clear, and the addition of the aromatic spirit rather improves the mixture than otherwise. Dr. De Ricci relates the case of a young lady of a strumous constitution, suffering from chlorosis, in which the effects of phloridzine were manifestly favourable. The patient was unable to take iron in any shape, and both quinine and salicine equally disagreed with her; but phloridzine agreed perfectly well, and her constitution improved so much under its use that she was subsequently able to take citrate of iron and strychnia in grain doses, which ultimately effected a perfect cure. Dr. De Ricci thus recapitulates the advantages of this drug: it is tolerated in cases where neither quinine, nor salicine, nor bark, can be administered with impunity; it is particularly adapted to young children, it is not expensive, and it is abundantly supplied in Great Britain, thus rendering us independent of the rapidly diminishing cinchona forests of South America.

HALF-YEARLY REPORT ON PATHOLOGY AND PRINCIPLES AND PRACTICE OF MEDICINE.

By John W. Ogle, M.A., M.D. Oxon, F.R.C.P.
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I. *On Cysticerci of the Brain, and their Diagnosis.* By Dr. Griesinger. (Archiv d. Heilkunde, 1862. Hefte iii., quoted in the Medizinische Jahrbücher, 1862, Heft iv.)

After collecting together between fifty and sixty cases from available resources, including two of his own, the author seeks to establish data by which, in his opinion, this affection may be recognised during life. He divides the various collected cases into five categories. 1. Those which run their course without any, or with but very obscure symptoms. 2. Cases in which epilepsy exists without mental disturbance; in these cases death occurs either independently of epilepsy, or so far connected with it that the epileptic symptoms first set in shortly before death, or the attacks increase exceedingly shortly before death, or a kind of cerebral disturbance is developed from one or more of the attacks which leads to death. 3. Cases in which, along with epilepsy, a psychical disturbance is at the same time set up, whose continuation and character warrant the designation of a mental disease. The psychical disturbance is expressed at one time as mania, true delirium or confusion of mind, at another as obstinacy or imbecility, and appears either before or after epilepsy. 4. Cases in which epilepsy is wanting, but in which the mental disturbance exists, accompanied frequently by other motor and sensitive disturbances. In some of these cases, other pathological changes within the cranium appear to form the basis of the psychical disease. 5. There are cases in which neither epilepsy nor mental disturbance exist, but cerebral symptoms of irritation or torpor, which come on shortly before death, or assume a chronic form.

The cysticerci were situated chiefly at the periphery of the brain, in the grey cortical layer; whence he concludes that they had not been themselves carried thither, but that their germs had. The epilepsy from cysticercus is in all respects like cerebral epilepsy, and the psychical disturbances in general have nothing characteristic about them. Very often also other cerebral symptoms coexist, such as squinting, alteration in the pupils, avoidance of light, headache, coma, anomalous sensations in the limbs, &c.

The following propositions are set forth as results of our author's experience:

1. The diagnosis of cysticercus must be based on a twofold series of considerations; on the one hand, resting on the improbability of any other cerebral affection, the symptoms not corresponding, and on the other, on the presence of definite series of symptoms.

2. Cases of convulsive attacks being more or less epileptic, are chiefly suspicious, which come on in a subacute way, or quickly increase to a certain pitch, and presently, after a steady increase in number and intensity, assume the general appearance of a very severe cerebral disease.

3. The probability of cysticercus is increased if these symptoms come on in patients of adult age, being previously healthy, or in men in whom neither hereditary disposition nor traumatic or syphilitic influences, nor lesions of the vessels or heart, could have given rise to them.

4. A suspicion of this disease would be aroused if, under the circumstances last named, mental depression and confusion, accompanied with giddiness, loss of sight and hearing, headache, coma, &c., occur.

5. Symptoms of cerebral lesion, if conjoined with paralysis, are to be looked upon almost with certainty as not having origin in the cysticercus.

6. The manifestation of cysticerci in external parts under such circumstances naturally elevates the probability into certainty.

II. *On Calcareous Metastasis.* By Dr. SCHOTT. (Wochenblatt d. Zeitschr. d. k. k. Gesellsch. d. Aertze in Wien, Oct. 15th, 1862.)

After a passing allusion to the varieties of so-termed metastases, and specially to that process which includes the deposition of lime salts, Virchow's 'Kalkmetastasen' in the stomach, intestines, lungs, &c., the following case is described. It was that of a child one and a half year old, who died in consequence of being run over, four days after the accident. On examination of the body, besides extravasation of blood into the abdominal cavity, separation of the intervertebral cartilage between the first and second lumbar vertebræ was found. The spinal dura mater was thickened, vascular, and surrounded by pus, &c. The small intestines were very fragile, their follicles swollen, their mucous membrane, as well as that of the ascending colon, roughened as if with sand on their surface; after cleansing the mucous membrane, it was seen here and there to be covered with white roundish scales of about the size of poppy seeds, which followed the course of the minute vessels. On microscopical examination of these scales, they were found to consist of irregular, occasionally-branched masses, which were partly cleft, and in part perforated by round or oval openings, and which were cleared by the addition of acetic acid, and by that of hydrochloric or sulphuric acid dissolved, with the evolution of gas. It thus appeared that these scales were calcareous molecules deposited on the surface of the mucous membrane and along the vessels, the glands remaining free.

As respects the causation of this calcareous deposit, the author quotes cases from older authors of "ossification" of the intestinal walls, by Sömmering, Baillie, &c.; observing that no explanation of them was attempted, and remarking that they were rather instances of bony-plates as described by Rokitansky,* than of the calcareous metastasis in Virchow's sense.

As regards the recent literature of this subject, the author cites a case by Schlopfer,† of a man with necrosis of the femur, who had calcareous masses deposited in mucous membrane of the stomach; also six cases related by Virchow‡ of so-called metastasis to the lungs, stomach, bowel, associated with caries of the bones, or osseous cancer; also a case by Grohe§ in a patient who died of tuberculosis and meningitis, referred by Grohe to atrophy of the skull, owing to meningitis.

Dr. Schott takes occasion to quote the remark of Virchow, that in all the cases observed by him, important changes had taken place in the kidneys, and that these alterations ought to be looked on as of great importance with reference to the calcareous deposition, seeing that in obstructed excretion of calcareous salts by the kidneys, the deposition of these salts must occur. He also adduces the observations of Lorinser and Kletzinsky,‖ regarding inflammation of bone, in which reference is made to the diminution of the chlorides in the urine which exists at the commencement of the inflammation, along with excessive increase of the phosphoric acid salts. This increase remains to the end of the process in dry inflammation of bone, whilst in supervening pus-formation and new formation of bone, a diminution of the phosphates is shown.

The author observes that in most cases of calcareous deposit, a disease of the bone existed, and that among the cases brought forward by Virchow, only one exists in which no source for the calcareous salts was to be found; whilst in his own case (detailed above), although there was certainly disease of bone, yet it was of very short standing, and, moreover, no disease of the kidneys existed; consequently, an essential cause for the calcareous deposit was absent.

He also notices the fact, that in most of the cases of calcareous metastasis reported, the lungs, more frequently than the stomach or bones, were the seat

* Path. Anat., Band ii. S. 270. 1842. † Virchow's Archiv, Band vii. S. 160.
‡ Ibid., Band viii. S. 103; and Band ix. S. 618. § Ibid., Band xiii. S. 277.
‖ Med. Wochenschrift, 1862, Nr. 40.

of the deposit. This circumstance, along with the apparent independence of the bone disease, gives to his case its interest.

III. *On Generalized Emphysema (Pulmonary, Mediastinal and Sub-Cutaneous.)* By H. Roger. (Archives Générales de Médecine, Août, Septembre, Octobre, 1862.)

Among the general conclusions which the author arrives at in this lengthy paper are the following. That non-traumatic emphysema almost always coexists with an internal emphysema, and that this emphysema (intra-thoracic, mediastinal) arises at one time from a solution of continuity of the larynx, trachea, or bronchi; at another from laceration of the pulmonary tissue. Acute pulmonary emphysema appears to be of very frequent occurrence. The prognosis pronounced by Dupuytren in this disease is much more grave than is warranted by facts; the serious character of generalized emphysema depending especially upon the primitive and concomitant pulmonary disease. Its serious character is but slightly increased by gaseous infiltration.

The recovery from pulmonary emphysema is to be considered as perfectly possible.

IV. *On the Movements of Rotation observed in the Tadpole and the Frog consequent on Artificial Lesions of the Nervous System.* By Dr. A. Vulpian. (Gaz. Méd. de Paris, 1862, No. 20.*)

The lesion practised was that produced by puncture with a large pin on one side of the median line, and corresponding to the tubercula bigemina, and possibly a little posterior to them. Upon these experiments Vulpian rests his examination of the various theories proposed in explanation of the phenomena of rotation observed in mammalia by Magendie, Flourens, Serres, Hertwig, Longet, Schiff, Lafargue, Brown-Séquard, &c.—which theories, in his opinion, explain but imperfectly the observed phenomena. He, however, does not now seek to replace them by a more satisfactory theory, but merely desires to bring prominently into notice the circumstances which ought to be borne in mind on any attempt to discover the cause of any disturbance of locomotion. After describing with details the results, he seeks to establish the following propositions:

1. The phenomena considered as spasmodic—that is, the incurvation, the twisting of the body, the deviation of the eyes—are generally only observed shortly after the operation. Inconstant even then, those phenomena disappear later on, and the movements of rotation remain sometimes for a length of time.

2. The movements of rotation may manifest themselves in cases where no indication of paralysis in any part of the body exists. Even when there is a want of power of one side of the body, the limbs of both sides are equally concerned in the rotatory movements.

3. The rotatory movements are withdrawn from the action of the will; they are so associated with locomotion as to occur, at least for some time, upon any effort of progression; and it is only when locomotion ceases that the animal ceases to revolve.

4. After a time the tendency to rotation diminishes, and the animal does not revolve when he is gently moved; but rotation reappears when locomotion becomes more rapid.

5. The movements persist even after the removal of all the parts of the brain which exist in front of the bigeminal or quadrigeminal bodies.

We must refer our readers to the original for particulars respecting the modifications in the rotatory movements noticed under various conditions.

* Archives Gén. de Méd., Nov. 1862, p. 600.

V. *Idiopathic Gangrenous Stomatitis.* By A. L. Adams, Surgeon 22nd Regt. (Edinb. Medical Journal, Aug. 1862, p. 154.)

The case was that of a child, aged five, at Poona, in India, and was an "example of this most formidable variety of cancrum oris, occurring without any apparent cause in a well-nourished and remarkably healthy child. The case occurred during the humid monsoon weather, when zymotic and non-organic diseases are very prevalent and fatal." The patient appeared to have no pain, and was conscious until shortly before death, which was on the twenty-eighth day of the disease.

VI. *New Cause of Death under Chloroform.* By Dr. G. W. Balfour. (Proceedings of Edinb. Obstetrical Society. Edinb. Med. Journal, Aug. 1862, p. 194.)

This cause of death, believed by the author to be a "very common source of danger," is the filling of the trachea with vomited matters. A case is adduced in point, and it is observed that an accident may occur even without any decided symptoms of suffocation—which opinion is supported by the relation of the case of a healthy child, who, after going to bed well, was found dead in the morning, and "on opening the trachea a quantity of food was found lodged there."

VII. *On Duchenne's Disease (Ataxie Locomotrice Progressive), its Treatment and Nature, &c.* By Dr. C. Isnard. (L'Union Médicale, Nov. 6th, 13th, 15th, 20th, 29th, and Dec. 2nd, 1862.)

Of this communication the following *résumé* may be given; for details the reader is referred to the original:

The complete co-ordination of movements necessitates the simultaneous agreement of two synergic actions; the first harmonizes the contraction of each muscle, of each fasciculus, for the determination in their entirety of movement, properly so called the second regulates their movements, and proportions its intensity to the obstacles to be overcome. Although both are under the direct influence of the nervous centres, the one is in a way intrinsic and local, whilst the other, extrinsic and general, especially establishes the connexion of our movements with the cerebral functions. Both are immediately dependent on the muscular sensibility; but interference with each of them is produced by various disorders of this faculty. Thus, the perversion of partial sensations produces disorder of contraction, deficiency of local synergy; and complete or incomplete paralysis of collective sensation necessitates the loss or enfeeblement of the muscular sense, that is, of the power of appreciating and methodically distributing movements. Hence deficiency of general coördination. These two kinds of motor ataxy may exist separately.

The observations by Charles Bell, on subjects under the influence of anæsthetics, furnish examples of coördinated contractions, with loss of sensibility.

The trembling of old age, delirium tremens, chorea, are examples of non-coördinated contractions (*désordonnées*), associated with the retention of sensibility. For, in spite of manœuvres more or less irregular, uncertain, and grotesque, the patient is conscious of the object which eventually he attains.

In Duchenne's disease, specially at a very advanced period, the twofold deficiency and local and general co-ordination occur. This is generally entire, but may be partial. Thus, oftentimes cutaneous and muscular anæsthesia, indicated by feebleness and slowness of movement, exist for a length of time alone, before the appearance of any interference with motor synergy. There is

then uniform and graduated enfeeblement of the general power of feeling, without ataxy of sensation. We have here deficiency in general synergy.

On the contrary, in cases where disorders of motility exist without anæsthesia, the patients, not being able to coördinate their contractions, retain, nevertheless, the muscular sense to the end. We have here only perversion of sensation, leaving sufficient general sensibility for the regulation of movement. There is deficiency in local muscular synergy.

VIII. *On Narrowing of the Aorta at the Point of Entrance of Botalli's Duct.* By A. Duchek. (Wochenblatt d. Zeitschr. d. k. k. Gesellsch. d. Aerzte in Wien, Sept. 10th, 17th, 24th, 1862.)

At the conclusion of this interesting paper, one in which the literature, as well former as recent, is well worked up (no less than 51 recorded cases being referred to), the author has the following observations regarding the causes of death in cases of this kind. He observes, that they may be well considered with reference to the age at which death occurred; with the exception of 9 cases, the details of which were not complete, and 3 cases which were still alive.

Of 39 cases, those that died—

Before the close of the 1st year of life, were			3	in number.
Between the 1st	— 10th	„	2	„
„ 11th	— 20th	„	2	„
„ 21st	— 30th	„	10	„
„ 31st	— 40th	„	9	„
„ 41st	— 50th	„	6	„
„ 51st	— 60th	„	6	„
„ 61st	— 70th	„	1	„
In the 92nd		„	1	„

Exclusive of 11 cases, the particulars of which are deficient, the causes of death are indicated in 40 cases.

Firstly. In the first year of infancy, consequently soon after or during the process of the narrowing. The author remarks that the rarity of death at this period is not what might have been expected. In no case of this kind was there mention made of any enlargement of collateral vessels, and thus, he observes, death may be attributed to the rapid production of impediment. Even in the two cases narrated, where pneumonia or atelectasis of the lungs existed, the backward action of the obstruction on the smaller circulation of the lungs, must be looked upon as having been concerned. The third case (that of a new-born child) cannot be considered one in which the cause of death was laid bare, inasmuch as nothing is declared respecting other organs.

Secondly. All the remaining 38 died after a longer continuation of the stenosis, the majority between the ages of 20 and 30, only a few between 30 and 60.

(*a*) Lacerations of the heart and large vessels occurred in 8 cases. Thus we have laceration of the right auricle in a man 35 years of age; of the right ventricle in a man of 57 years of age; of the ascending aorta in a patient 17 years old, in a man 23 years old, and in a man of "middle age;" of an aneurysm of the ascending aorta in a man of 21 and 24 years of age; of an aneurysm of the descending aorta in a patient 37 years old.

The author connects the stenosis and the ruptured heart and vessels, which so often occur, by supposing that a prematurely atheromatous and fatty condition is induced by the increased blood-pressure in the rear of the obstruction.

(*b*) In cases of a longer continuation of the disease, that is, in older men, dropsy and marasmus came on in 8 cases.

(*c*) In 3 cases death occurred quite suddenly, without any pre-existing symptoms; attributed by the author to irregularity and confusion, so to say, of the circulation suddenly (as by muscular exertion, mental agitation) induced; no opportunity, owing to the obstruction, being allowed for compensation.

(*d*) In 16 cases, in which the disease causing death had apparently no connexion with the stenosis, it was noticeable that they all had relation to the organs of respiration, with the exception of 3 cases—1 of jaundice after gall-stones, and 2 of tuberculosis. Thus, in 9 cases, pneumonia existed in patients of various ages, the youngest being twenty-two days, and the oldest fifty-seven years. In one case pleurisy, and in one atelectasis of the lungs existed. The author connects these conditions and their final result with the abnormal state of pressure in the smaller circulation which existed.

(*e*) Only one patient died from causes quite apart from the stenosis—viz., from marasmus senilis, at the advanced age of ninety-two years.

The general and final inferences drawn by the author are, that the stenosis of the aorta at the point of junction of Botalli's duct, is almost always followed by important results; that these results are analogous to those which for the most part followed stenosis of the vessels; that they are less rapidly fatal than stenosis of the cardiac orifices, but that this conclusion occurs in the majority of cases as the result of circumstances dependent on the stenosis of the aorta.

IX. *On Acute Fatty Degeneration of Newly-born Children.* By Buhl. (Medizinische Jahrbücher, 1862, Heft iv. ii. p. 5.)

The author describes under this term a general disturbance of nutrition, which manifests itself as an extremely acute degeneration of the cell-containing juices of the organs, especially the heart, liver, kidneys, and to a less degree, the lungs and intestines, into fat. It is remarked that most well-nourished children born asphyxiated, pass blood in their stools or in the fluid vomited directly after birth; after from three to six days jaundice and hæmorrhage from the navel, extravasations of the mucous membrane, of the conjunctiva, mouth, and nose, coming on, as also from the ear, with purpura and anasarca preceding death.

X. *Pyæmia caused by Capillary Embolus with Fluid Fat.* By E. Wagner. (Medizinische Jahrbücher, 1862, Heft iv. p. 3, quoted from Archiv d. Heilk. 1862, Heft iii.)

The author, objecting that neither the chemical theory under which it is supposed that fluid or gases are taken up into the blood, nor the mechanical one which supposes that pus-corpuscles or altered fibrin are taken up, will account for all cases of pyæmia, seeks to establish by close investigation the fact that in many cases the affection arises from an embolism of the finest arteries and capillaries with fluid fat, which, finding its way from the primary purulent collection in the general circulation, becomes arrested in the pulmonary capillaries for the most part, but in part passes through these into the arterial capillaries of the general circulation, and thus gives rise to embolism in the pulmonary or general capillaries and metastatic abscesses.

XI. *On the Trichina Disease in Man.* By Dr. N. Friedreich, of Heidelburg. (Virchow's Archiv, Band xxv. Hefte iii. und iv. p. 399.)

After allusion to the researches of Virchow, Leuckart, and Zenker into the

subject, the author contributes the following case as specially instructive in a diagnostic and therapeutic point of view. We give an abstract of the case, following its general course, without transcribing it verbatim according to dates, &c.

G. M——, a robust, healthy man, twenty-two years old, whose trade brought him into connexion with sausage meat, pigs' meat, &c., in April of the present year had been working very hard, when suddenly he experienced an excessive weakness in the legs and excessive painfulness in the muscles of the legs. This was accompanied by headache, heat of the surface and sweating, thirst, and anorexia. These symptoms increased, and shortly afterwards diarrhœa, and considerable pain and stiffness of the muscles of the arms, loins, and back came on. No lung symptoms or vertigo existed.

When first seen at the hospital, April 24th, the pain in the muscles of the limbs and neck, &c., was very great, specially on pressure and slight contact. The muscles had a hard, tense, india-rubber-like feeling, and were very turgid, and attempts to raise himself in bed produced great pain and stiffness in the back. Power of swallowing, chewing, and speaking was unaffected, and the tongue appeared normal in every way. The abdomen and its organs, as well as those of the chest, appeared natural.

Well marked febrile symptoms came on, with headache and vertigo, thirst, loss of appetite, and furred tongue. At first there was no albumen in the urine. Delirium and restless nights and diarrhœa. Intense debility and epistaxis came on. The pupils remained natural; special senses natural. Subsequently diarrhœa, with the evacuation of many portions of tænia. The affection of the muscles increased, and uprising in bed became impossible. The elbow joints became somewhat flexed, and much pain was felt on attempts to straighten them; the lower limbs were outstretched. The sweating became profuse, then hoarseness and some dry cough came on, with pain on speaking. The headache, thirst, &c., became less. No exanthematous rash or any splenic enlargement existed; but a slight amount of albumen was then found in the urine. During most of this period (nine or ten days), the pulse ranged from 100 to 114. Subsequently, loose stools were passed, and about this time it appears the pulse became rather lower, but the weakness and pain of the muscles continued to increase. The sweating continued, and much miliary eruption, containing clear fluid, existed on the skin, but nothing like roseola; afterwards, numbers of small pustules, filled with a milky contents, and surrounded by a red basis, arose on the breast and abdomen. Slight diarrhœa continued. The patient then had the picro-nitrate of potash administered three times a day. The pimples and pustules extended over the back. The urine became free from albumen, the tongue natural, headache disappeared, and sleep and appetite became natural. *A minute portion of muscle was then extracted by means of Middeldorpf's harpoon from the calf of the right leg, and in the preparation, which was hardly the size of a hempseed, seven partially spiral trichinæ were counted between the muscular fibres.*

The remedy above mentioned was continued. On the 9th of May the affection of the muscles had somewhat diminished, specially in the upper limbs; movement and sitting up in bed were easier. The tense state of the muscles continued. The contracted state of the elbows yet continued, but attempts to straighten them were less painful. The sweating persisted, as also the vesicular eruption; and in addition, large pustules, the size of hempseed, with red circumference, came out in different parts; at the back, on the right side, a black spot, which was very painful, and surrounded by a dark redness, showed itself, and in the neighbourhood of this was a boil of the size of a pea, from which, on pressure, a quantity of brownish pus was squeezed. On examination of this purulent matter, in addition to pus-cells, blood-corpuscles, dead connective-tissue, &c., *a large well-developed trichina was discovered.* Œdema of the ankles came on.

An improvement took place in the condition of the muscles as respects stiffness, tension, pain, &c., and also in the contraction of the elbow. The miliary and pustular eruption and sweating continued in fresh crops; and a small, very painful boil came out over the right clavicle. The black spot on the back had left behind a clean ulcer. The conjunctiva, owing to the medicine, and the skin of the body, were noticed as of a yellow hue. The symptoms then in all respects improved, but still a little albumen remained in the urine, which had become very dark, owing to the medicine, which was continued. After a time the sweating and the fresh crops of eruptions gradually ceased, and the ulcer of the back healed, and the general strength vastly improved.

No trichinæ were found on a second exploration of the muscles of the leg with the harpoon; but on a third operation later on, a living trichina not yet encapsuled was discovered. The yellow colour of the urine and of the conjunctiva, &c., diminished quickly on leaving off the medicine. Again a portion of the leg muscle was removed without any traces of trichina being found; but at a still later exploration, the animal was met with. On the 30th of June the patient left the hospital, feeling quite strong.

The author, commenting on the details of this case, notices the absence of shivering in connexion with the commencing febrile symptoms, and draws attention to the *course* of the symptoms, the muscles of the legs becoming affected prior to those of the arms and back; and also during recovery, the improvement also in the legs taking place last of all, these limbs being to a certain degree affected for a length of time after the others had returned to their natural state. The symptoms are referred to irritation of the sensitive muscular nerves and hyperæmia, with convulsive excitation of the muscular tissue brought about by the imported ova of the trichina; the microscopical examination of the muscular fibre removed by the harpoon, more or less in a fatty condition, indicating a regressive disturbance of nutrition. The hoarseness is attributed to the presence of trichinæ in the muscles of the larynx, and *à propos* allusion is made to the observations of Bischoff,* Henle,† Virchow,‡ and Leuckart,§ on their presence in this part; and the persistent diarrhœa is attributed to irritation of the intestinal mucous membrane by the trichinæ, but unfortunately the stools were not examined by the microscope. The excessive sweating is to be associated with a determination of blood to the vessels of the skin, owing to the hardness and contraction of the muscles, and seems comparable to the profuse sweating of tetanus.

The author also looks upon the case as proof of the existence of a trichinous "pustulosis and furunculosis," and explains the abscess of the side of the chest in which the trichina was found, by supposing that the animal had escaped from the muscle into the subcutaneous tissue and set up inflammation: noticing the preference which (as it has been shown by observers)‖ the animal shows for the muscles of the thorax, and for peripheric or superficial parts.

As respects diagnosis, the disease is to be known from acute rheumatism by the *extent* over which the muscular pain exists, also by the freedom of movement of the *joints;* from tetanus, by the absence of trismus and of the exaltation of reflex action; from typhus, by the absence of cæcal pain, of enlargement of the spleen, of the special eruption, of the dry tongue, and of the head and lung symptoms. Moreover, the patient stated that he had latterly been much engaged in the killing of pigs, often placing the bloody knife in his mouth, and eating portions of the sausage-meat.

* Heidelberger Medizin. Annalen, Band vi. Heft 2.

† Zeitschrift f. Ration. Med., N.F. vi. 2. 1855.

‡ Archiv fur Path. Anat., Band xviii. S. 331. 1860.

§ Untersuchungen über Trichina Spiralis, S. 19. Leipzig und Heidelberg, 1860.

‖ H. Wood: London Medical Gazette, vol. xvi. May 9th, 1835. A. Farre: Ibid., vol. xvii. Jan. 23rd, 1836.

As respects the therapeutic bearings of the case, it seems that Friedreich was induced to try the pricro-nitrate of potash, from having previously observed the manner in which, when given as a substitute for quinine in ague, it quickly tinged the conjunctivæ and skin of a yellow colour, and also impregnated silk and other material. Supposing that it must have the power of colouring the human tissues, he was led to give this intensely bitter remedy with a view to its immediate action upon the trichinæ whilst yet existing in the intestinal canal.

In addition to strongly recommending the drug as an anthelmintic in man, he suggests that it ought to be tried in cases of trichinised animals.

XII. *On the Dimensions of the Chest in Pulmonary Phthisis.* By H. Gintrac. (Archives Gén. d. Méd., Nov. 1862, p. 617.)

This paper was read at the Academy of Medicine, Sept. 23rd, and after alluding to the observations of Hirtz and Woillez, the author bases his observations upon the ascertained dimensions of the chest in 140 healthy people, and 80 consumptive ones, whom he arranges in three classes, according to age. Each of these classes he again subdivides into two groups, corresponding to the periods of "crudity" or "softening" of the tubercle. He considers that the intermammary space gives a fair idea of the mean circumference of the chest. The following conclusions are drawn—

1. The chests of phthisical patients are less in circumference than those of the healthy.
2. This diminution in the size of the chest, appreciable from the commencement of the tuberculization, increases in proportion to the progress of the disease; it may reach, in the second period, ten centimetres for the upper circumference, eight for the mammary circumference, and six for the lower one.
3. The upper circumference of the chest, with but few exceptions, is very much larger than the mammary and lower ones, in all the periods of the tubercular affection.
4. The interval between the two nipples in man gives an exact idea of the size of the thorax; it represents the quarter of the mammary circumference; in the adult, it measures twenty-nine centimetres in the normal condition, nineteen in the earlier period of phthisis, and seventeen in the second period.
5. The measurement of the intermammary space deserves attention, and should be an element of diagnosis in the appreciation of any tendency to pulmonary phthisis.

The author lays stress on hygiene and special gymnastics of the respiratory organs, as essential elements of the prophylactic treatment of phthisis. Efforts of inspiration, and exercise of the upper limbs, should be resorted to for the dilatation of the chest.

XIII. *The Coëxistence of Tubercle and Cancer.* By D. R. Haldane, M.D. (Edinburgh Med. Journal, Oct. 1862.)

In this communication we find the following observations upon a subject to which allusion has more than once been made of late in our pages. The author, alluding to the existence of "constitutional conditions, for which we have hitherto been unable to discover a local origin," proceeds to observe: "This is especially true with regard to tubercle, for very often, before there is the slightest manifestation of local disease, a peculiar condition is established, which physicians have designated as the pretubercular stage of phthisis. The same is probably true with regard to cancer, though to a less extent, as the

disease is less strikingly hereditary, and the early stage of the diathesis is less strongly marked. But although there be an early stage of constitutional affection previous to the development of the local disease, it does not follow that the first stage is to be considered as special—that is to say, as the manifestation of a specific dyscrasia. It may, in fact, be nothing more than a condition of generally impaired nutrition and constitutional weakness (which may or may not be hereditary), which makes the individual more susceptible to the exciting causes of the particular disease."

Again—"I fully believe that both tubercle and cancer are to a certain, or even to a great extent, constitutional, and that the constitutioual conditions connected with them are of a different character; still I have no difficulty in believing that the two morbid conditions may occasionally coëxist.

"So far as my own experience goes, I have never met with a case where I was satisfied that cancer and tubercle coëxisted in an active form."

XIV. *Anatomico-pathological and Clinical Researches regarding Secondary Pericarditis.* By Dr. E. Leudet. (Archives Générales de Médecine, Juillet, 1862, p. 5.)

The conclusions arrived at in this paper are as follows:

1. Pericarditis is rarely idiopathic; it supervenes especially in the course of serious diseases—in the course of acute articular rheumatism, in inflammations of intra-thoracic organs, pneumonia, phthisis, pleurisy, organic affections of the heart, in the course of affections which alter the composition of the blood, albuminous nephritis, cirrhosis of the liver, scurvy, fevers having hæmorrhagic tendencies, measles, scarlet fever, &c.; in some cachexies, as cancer, &c.

2. According to the statistics of the author, pericarditis is most frequent in the course of organic affections of the heart.

3. The most frequent anatomical form of secondary pericarditis is the dry one; less frequently fibrinous effusion is found in the pericardium, more rarely still phlegmasic and hæmorrhagic effusion, and purulent liquid very exceptionally.

4. Secondary pericarditis is not generally characterized by general symptoms; pain in the præcordial region is generally absent, quickening of respiration and dyspepsia are much more frequent. Rapid feebleness most frequently attends the hæmorrhagic form. The local symptoms do not differ from those of the idiopathic form.

5. Rheumatismal pericarditis is generally curable; that which comes on in the course of disease of the heart, of phthisis, &c., is more serious; nevertheless, the latter is susceptible of cure, and possibly more frequent than is generally held.

6. The treatment does not differ from that of the idiopathic form; antiphlogistic remedies must, however, be less actively used.

XV. *On Delirium Tremens.* By T. Laycock, M.D. (Practical Notes on Diagnosis, Prognosis, and Treatment. Reprint from the 'Edinburgh Medical Journal,' Nov., 1862.)

In this pamphlet, the author alludes to his former observations, in the 'Edinburgh Medical Journal' for October, 1858, on this disease, wherein he "endeavoured to show how successful the expectant and rational method of treatment is, when compared with that in which opium and stimulants are freely administered;" the only fatal case out of 28 which he had thus treated during the previous four years was one already treated by opium. Since that date, he

has had 40 cases "of varying degrees of severity under his care, and only one of these terminated fatally;" and in this case death was a sequel to continuous epileptic fit in a drunkard. Dr. Laycock repudiates the idea of any "change of type" being concerned in the success of his treatment.

We do not propose at the present to do more than refer to the author's observations on the use of alcoholic stimulants in the disease. These, he remarks, "are available in all asthenic forms of delirium, however caused. They have been hitherto administered in the methystic form, chiefly on the theory that the sudden withholding of the habitual stimulant is the exciting cause of the delirium. The depression of the nervous system may be partly due to the want of the accustomed stimulus; but all experience shows that it is still more commonly due to morbid causes of a more general character—such as, indeed, a feverish cold, a fit of indigestion, of the gout, or the like. Without such causes, abstinence from habitual stimulants will not excite delirium tremens. The habitual drunkard distinguishes the depression which usually succeeds to stimulation as 'the blues;' 'the horrors' is a different thing, and occurs when any indisposition induces loss of appetite, languor, disturbed sleep, and other symptoms of the class. It is the depression thus induced by this same morbific cause which constitutes the first stage or simplest form of delirium tremens. The intensity, therefore, is partly, at least, determined by the kind of indisposition or acute affection, and it is this we have to remedy. The indications, therefore, for the administration of alcoholic or habitual stimulants must be drawn from the mean condition of the patient, just as in other diseases in which remedies of this class are useful. When food has not been taken for several days, and the hallucinations are of a frightful or distressing kind, and especially when the pulse is very quick and feeble, the first sound of the heart heard indistinctly, the larynx coated, œdematous, and flat or indented at the edges, wine and brandy may be administered medicinally with advantage. Sometimes this state of prostration is due to the combined influences of drinks and opium, or its salts, or to opium alone. In either case alcoholic stimuli may be given."

Respecting the combination of stimuli and opium in the treatment of the disease, he observes:—"My own conclusions on this point are, that the combination tends to render the patient more tolerant of the drug; that in some drunkards its operation is so much delayed, that when given in repeated doses there is a cumulative effect produced; that it is never a wholly safe practice to administer it for the express purpose of procuring sleep, nor as a stimulant, in more than the ordinary dose; and that it is always prudent to watch the effect of the remedy on the pupils in exciting contraction. How far various other states of the encephalon may antagonize the drug, and for how long, we never perhaps can say; but that there are such states, variously induced, is one of the most certain things in physic. We have it in cases of both mania and melancholia, in certain kinds of neuralgia, in traumatic tetanus; and it is believed that it may be induced by henbane, belladonna, and other drugs. And it is to be remembered that the antagonizing state may be so transient as to leave the brain exposed to the full action of the poison before it is eliminated—nay, by its action on other viscera, may delay the elimination."

XVI. *Death in Epilepsy from Suffocation caused by Regurgitation of Food from the Stomach into the Larynx.* By J. Lalor, M.D. (Pamphlet.)

Three cases are recorded in which death occurred shortly after meals, and in which the larynx was found to contain quantities of the meal which the patients had eaten. The author quotes a case from the work on 'Medical Jurisprudence,' by Paris and Fonblanque (vol. ii. p. 58, 1823), in which death

occurred during an epileptic fit after a hearty meal; "when, upon opening the trachea, it was found to contain a quantity of animal matter, resembling the pork upon which he had recently dined."

XVII. *Paracentesis and the "Drainage"-Tube in Empyema.* By J. T. Banks, M.D. (Reprint from 'Dublin Quarterly Journal of Medical Science,' May, 1862.)

Referring to the revived use of thoracentesis, the author observes that this operation is "now adopted in many cases with a well-grounded hope of success; while in others, the not unimportant end is attained of alleviating pain and suffering, and prolonging, though we cannot save, life." Farther on he remarks, "few physicians who have enjoyed extensive opportunities of treating disease, taking a retrospect of cases of pleural effusion, cannot refer to cases which might have been saved if the operation of thoracentesis had been performed, more especially if the system of drainage first recommended in chronic abscesses by Chassaignac had been resorted to."

After reference to the literature of the subject, to the 24 successive operations in one case by Legroux, to the 3 operations by Wunderlich in one case, and to the case of Dr. Wendelstad, in whose own person the operation was successfully performed, he proceeds to detail a highly interesting case of his own (comparing it with those recorded by Dr. Goodfellow, in the 'Medico-Chirurgical Transactions,' vol. xlii.), in which the operation of thoracentesis was performed seven times previous to the introduction of a drainage-tube into the chest, the operative steps for which (performed by Dr. McDonell) are minutely given. Dr. Banks states, "it is now more than five months since the last operation was performed and the drainage-tube introduced, and there is still about from two to three drachms of purulent matter coming away daily."

Dr. Banks would not restrict the operation in question, and the use of the drainage-tube, to cases of pyothorax, but advises it in those cases of serous effusion in which there is no chance of absorption. He recommends "Dr. Wood's instrument for the purpose of determining the quality of the pleural fluid," which answers admirably "as a means of exploration."

To the following papers our space only permits a passing reference:—

On the Disinfecting Treatment of Typhus, Eruptive and Enteric. By J. Hjaltelin, M.D. Iceland. (Edinburgh Medical Journal.)

On the Statistics of Abdominal Typhus. By Fiedler. (Archiv d. Heilk., 1862, Heft 2.)

Suppurative Hepatitis perforating into the Pleural Cavity. By Dr. Salomon. (Medizin Jahrbücher, 1862, Heft 2, p. 42.)

Abscess of the Spleen. By Dr. Pleischl. (Ibid.)

Echinococci in the Kidneys. By Dr. Zinkeisen. (Wien, Med. Wochenschr., 1862, No. 6.)

On Patency of the Foramen Ovale; its Diagnosis, &c. By Dr. F. Reisch. (Wochenbl. d. Zeitschr. d. k. k. Gesellsch. d. Aerzte.)

On Sporadic Pellagra. By Dr. Landouzy. (L'Union Médicale, August 5th, 9th, and 12th, 1862.)

On Pellagra of the Insane, &c. By Dr. Bazin. (Ibid., Sept. 18th.)

On Sporadic Pellagra. By Dr. Archambault. (Ibid., Sept. 20th.)

On Infantile Convulsions cured by Pressure of the Carotid Arteries. By Dr. La Labalbary. (Ibid., Nov. 29th.)

On Perinephritic Abscess. By Dr. Demarquay. (Ibid., Sept. 23rd.)

Tetanus of the Newly-Born. By Dr. Hervieux. (L'Union Médicale, Oct. 11th.)
On Progressive Paralysis (Hemiplegic Form), successfully treated by Nitrate of Silver. By Dr. Moreau. (Ibid., Oct. 16th.)
Recovery of a Wound of the Heart. By Dr. Brugnoli, of Bologna. (Ibid., Oct. 14th.)
On Syphilitic Affections of the Viscera. By Dr. Pihan-Duffeillag. (Ibid. Sept. 13th and 27th.)
On the Cumulative Action of Medicines. By Dr. A. Fleming. (Edinburgh Medical Journal, Dec. 1862, p. 501.)
Delirium Tremens and its Treatment. By Dr. Pirrie. (Ibid., Oct. and Dec., 1862.)
On Ulcerative Disease of Throat. By Dr. A. Guthrie. (Ibid., Oct. 1862, p. 297.)
On the Production of Disease under the Influence of Fungoïd Growths. By Dr. Salisbury. (American Journal of Medical Sciences, Oct. 1862, p. 387.)
On Rheumatism. By Dr. Beau. (Archives Générales, Dec. 1862, p. 611.)
On Meningeal Hæmorrhages. By Dr. Lancereau. (Ibid., p. 679.)
On the Physiology and Pathology of the Cerebellum. By Drs. D. Lewen and Ollivier. (Ibid., Nov. and Dec.)
Catarrhal Pneumonia. By Dr. Ferrand. (Ibid., July, p. 67.)
On Traumatic Diabetes. By Dr. Fischer. (Ibid., Sept. and Oct., p. 257.)
On Abscess of the Liver. By Dr. Marroin. (Ibid., Nov., p. 568.)
Experimental Contributions on Emboli. By Dr. Panum. (Virchow's Archiv, Band xxv., Hefte 5 and 6, p. 433.)
On the Ætiology of Urticaria. By Dr. Mosler. (Ibid., p. 605.)

QUARTERLY REPORT ON SURGERY.

By T. Holmes, F.R.C.S., Assistant-Surgeon to St. George's Hospital.

I. *Osteoplastic Resection of the Jaws.* By Dr. Billroth, of Zurich. (Langenbeck's Archiv, vol. ii. p. 651.)

Our readers are no doubt acquainted with the operation which Langenbeck has proposed and successfully carried out on the upper jaw, for the removal of tumours situated behind that bone. It consists in separating the superior maxilla from its connexions sufficiently to allow of its dislocation, so as to penetrate behind it and remove the tumour without so far separating the bone from the surrounding soft parts as to destroy its vitality. The tumour being removed, the dislocated bone is replaced, adheres like any other compound fracture, and the patient recovers without any loss of substance in the face.* Dr. Billroth, of Zurich, has applied the same principle to the lower jaw in two cases of extensive tumours situated beneath it. He divides the lower lip, or cheek, down to the bone, in one or two places, as may be necessary, saws through the bone with a chain-saw at the same place, separates it from the soft parts on its inner surface, and displaces the portions of the jaw (still adhering to the external soft parts) sufficiently to obtain access to the interior of the mouth and side of the pharynx and larynx. The operation having been completed, he re-unites the separated portions of bone by metallic sutures introduced through holes bored in them. Of the two operations performed on this plan, which he describes in the present paper, one at any rate seems to have been (temporarily at least) successful, and the bone re-united without any deformity, except from the cicatrices. In the other case, the patient died of the direct effects of the operation, the pneumogastric nerve having been divided.

* Deutsche Klinik, 1859, No. 48; 1861, No. 29.

II. *On Tracheotomy.* By Dr. Burow. (Deutsche Klinik, Sept. 27th, 1862.)

Dr. Burow has operated in 54 cases, 51 of which operations have been performed in croup. Of these fifty-one operations, seven only have been successful. Hence he considers the operation a very inefficient method of treatment. He does not, however, believe it to be dangerous, if the bleeding be not excessive, and be commanded before the air-tube is opened. In the last eleven cases on which he has operated, hardly any bleeding took place—about half an ounce in each. This he attributes to his tearing the parts below the skin asunder with two pairs of forceps, instead of dividing them with the knife—avoiding any veins which may be visible—and not opening the trachea till it is plainly seen exposed for a considerable extent. The operation thus conducted is, according to the author, less tedious than in the ordinary way, and requires no great amount of violence.

The author adds a description of a pair of spring forceps of peculiar construction, which he occasionally uses to keep the wound open, instead of a canula, and also observations on the proper form of canula.

III. *On Paracentesis of the Cornea in Incipient Cataract.* By Professor Quaglino, of Pavia. (Omodei's Annali, Sept., 1862, p. 529.)

Prof. Sperino, of Turin, having recommended the repeated evacuation of the aqueous humour in cataract, asserting that by this means the patient may be gradually restored to useful vision, Dr. Quaglino, Professor of Ophthalmology at the University of Pavia, has tried this plan, and publishes his experience. He operated on forty-two cataractous eyes, the cataract in seven cases being mature, in thirty-five incipient, or but little advanced. A small incision was made in the cornea, one and a half to two lines in length, and this was opened with a fine probe, so as to evacuate the aqueous humour. The wound was reopened with the probe (it being very seldom necessary to repeat the incision) every two or three days, to the number sometimes of seventy or eighty evacuations.

The following facts as to this treatment were noted:

1. The aqueous chamber was at once obliterated. The patients could then see only objects close to them.

2. The fluid evacuated was always abundant at first, and tasted (to the patients themselves) strongly saline and unpleasant.

3. As the evacuations were repeated, the humour became less abundant in quantity, less hot, and, according to the patients, less saline.

4. Many patients experienced a diminution of the unpleasant tension of the eyeball, which they had occasionally experienced, and appeared to bear the light better, and to be better able to work with the eye.

5. The aqueous humour was regenerated in a few minutes (five to ten)—sooner as the patient was younger and more robust.

6. Some patients, after a few evacuations (ten to fifteen at the most), began to feel a sensible amelioration in vision, the mistiness becoming every day less. If the cataract was incipient and peripheral, they returned to their usual occupations, being able to thread a needle, to sew, &c.

7. If the evacuations were suspended, and then recommenced, the humour became as saline as at first.

8. In cases of partial, incipient, peripheral, or cortical cataract, whether anterior or posterior, the stellatious and the yellowish or greyish opacities remained in almost all of them stationary and unchanged; sometimes they even increased, notwithstanding the improvement of vision.

9. In cases of lenticular, total, or mature cataract, the greyish-white colour began, after numerous evacuations, to assume a bluish colour at the circum-

ference, to become more transparent, and allow the patient to see the shadows of bodies which he could not discern before.

Even in cases of central, hard, senile cataract, it seemed that the lens became clearer at the margin of the opaque portion.

As to the duration of the improvement of vision, Dr. Quaglino's experience does not allow him to pronounce an opinion.

In diffused cataract, or lenticular opacity, all the effect he has noticed from 124 evacuations in five months has been a slight change in the colour of the peripheral portion.

Some hard cataracts, extracted after having been submitted to numerous paracenteses, appeared softened and gelatinous in their whole extent.

His general conclusion is, that repeated paracentesis of the cornea is indicated only in incipient cataract, if the amelioration in vision shall be found by experience to be lasting; but is not indicated in matured cataract, whether hard or soft, both as being too long and uncertain, and also as being not entirely free from risk. In his practice, phlegmonous ophthalmia followed in one case, iritis in a second, and corneitis in a third.

IV. *Spontaneous Diffuse Inflammation of the Medullary Tissue of Bone (Osteomyelitis Spontanea diffusa).* By Dr. H. Demme. (Langenbeck's Archiv, vol. iii. p. 169.)

The author refers to the works of Chassaignac as having given an impulse to a more exact study of the subject of osteomyelitis, though he believes the French author to have pushed his conclusions to an extravagant height. He distinguishes osteomyelitis from spontaneous separation of the epiphyses, which latter phenomenon is only occasionally caused by that disease, being caused also by (1) periostitis, (2) acute inflammation of the neighbouring joint, (3) ostitis, circumscribed, or confined to the joint end. He distinguishes also the circumscribed inflammation of the medullary tissue which is related to tubercle and chronic abscess of the bone, and is a comparatively trivial affection, from the diffuse osteomyelitis, of which alone he speaks here, and of which the only instances he adduces are from the bone most frequently affected, and whose affections are of the gravest moment—the femur. Seventeen cases are given, in which, after death or amputation, the medullary canal was found to be the seat of diffused suppuration, or in which necrosed portions were extracted from the central cavity of the bone, the case having terminated favourably. The disease is described as being frequently complicated by periostitis and by inflammation of the neighbouring joint, the former affection being subdivided into purulent, fibrous, hæmorrhagic, and osteoplastic periostitis. In young subjects (and most of the cases he relates occurred before the period of complete ossification) the epiphysis may be separated. The author describes also two different forms of the inflammation of the medullary tissue, which he appears to refer to thrombosis or embolism of the veins of the medulla, and to diffuse inflammation of the surrounding tissue respectively. Dr. Demme describes at great length the pathological anatomy, the complications, and the treatment of this complaint as he understands it. In the treatment of the disease, he dissuades from the early and free incisions which have been usually recommended, and lays great stress upon the benefits to be derived from the local use of strong tincture of iodine. The pus is to be evacuated with a trocar when it becomes necessary. He believes that the disease is neither so acute nor so deadly as the descriptions of Chassaignac and others would imply; but it is obvious that a doubt might be expressed as to whether some of his cases, at any rate, were not instances of ordinary ostitis, extending gradually inwards. He is in favour of trephining the bone,

or piercing it with a trocar in appropriate cases. Amputation should only be performed as a secondary operation, and then is rarely necessary. In the acute stage of the disease it will usually if not always fail.

The paper is a very long one, and we can only point out some of its principal points.

V. *Varicose Aneurysm of the Bend of the Elbow.* By Professor Ritter. (Wochenblatt der Zeitschrift der k. k. Ges. der Aerzte in Wien, Aug. 15th, 1862, p. 257.)

Professor Ritter describes an interesting case of varicose aneurysm, after venesection, in the bend of the elbow. The aneurysm was caused by a wound of the radial artery, which lay above the fascia, there being a high division of the brachial. Forcible flexion of the elbow and digital compression having been ineffectually tried, the brachial artery was secured on the Hunterian plan, and with success. Slight pulsation was detected at the wrist three hours after the ligature of the brachial, and pulsation was clearly perceived in the aneurysm six hours after the operation, but shortly subsided, and the cure was perfect.

VI. *On the Operation for Cleft Palate in Infancy.* By Dr. Billroth. (Langenbeck's Archiv, vol. ii. p. 657.)

Dr. Billroth, of Zurich, relates three cases in which he operated, in infancy, for complete fissure of the hard and soft palate, complicated with double hare-lip. In one case complete success was obtained. The cleft was 8 millimetres in breadth at its posterior part, 5 millimetres at its anterior, and 35 millimetres in length (a millimetre may be taken to be ·04 in.); there was slight projection of the intermaxillary bone. The child was a healthy and strong male infant, twenty-eight weeks old. In the first operation, the whole cleft in the palate was brought together in the way recommended by Langenbeck. Only the posterior part (i.e., the velum pendulum) united. A month afterwards the operation for hare-lip was performed, but not with entire success. Hooping-cough came on and delayed the treatment. Three months afterwards the cleft in the hard palate (which had greatly contracted) was successfully operated on, and shortly afterwards the union of the hare-lip was perfected, and so the child completely cured. In the two other cases the operation failed. The author admits the severity of the operation, which, allowing for the pauses necessary to recover the child from faintness, &c., must be reckoned to take three-quarters of an hour. He recommends that the hare-lip should be first operated on as early as possible; that the operation on the palate should be deferred till the child is from eight to twelve months old, and in good health; and that great care should be taken of its nursing and feeding in the mean time.

VII. *Stricture of the Urethra: its Complications.*

Mr. Smyly contributes to the 'Dublin Quarterly Journal,' Nov. 1862, a paper containing a short account of various complicated cases of stricture. He says—

"Many local and constitutional affections are found to depend upon the presence of stricture, the connexion of which is not obvious. Thus, in a patient who had a chronic enlargement of the testicle, which resisted all treatment applied to the part, the scleroma was found to yield immediately after

dilatation of the strictures. Neuralgia of the testicle also has been found to be relieved by treatment applied to the urethra.

"A well-remarked case of paraplegia, occurring in a groom, aged thirty-five years, was also cured by the removal of the stricture in his urethra. This man recovered the use of his legs so completely as to be able to resume his work in the livery stables.

"Pains, supposed to be rheumatic, often depend on the existence of stricture." [Of this an illustration is given.]

VIII. *Statistics of Fracture.* By Dr. GURLT. (Langenbeck's Archiv, vol. iii. p. 393.)

Gurlt gives a summary of the fractures admitted as out- and in-patients into the London Hospital, compiled from the returns of that hospital for twenty years, to illustrate the normal frequency of fractures in the various regions of the body. The returns do not specify the portion of each bone affected, but merely the bone itself—e.g., fracture of the femur, of the spine, of the hand, &c. The whole number of cases is 22,616.

IX. *Hæmorrhage from a Varicose Ulcer after Suppression of the Catamenia.* By Dr. F. MOSLER, of Giessen. (Virchow's Archiv, Band xxii. Hefte 1 and 2, p. 195.)

The patient, aged forty-one, in good general health, had been much subject to epistaxis when young, and began to menstruate at sixteen years old. The catamenia generally came every three weeks, and lasted eight days. When twenty-four years of age she was the subject of hæmorrhage from the vagina, supposed to be from fright, and at twenty-eight she married and was five times confined. Whilst pregnant, she had much swelling of the lower limbs. The veins of her legs became enlarged, and increased always during menstruation; and in 1857, a varicose ulcer formed on the right leg. On one occasion, the menses suddenly disappeared, owing to fright, and an increase of the swelling of the right leg, and of the dilatation of the veins, succeeded. Two days after, violent palpitation of the heart came on, and this was followed by trembling of the limbs and considerable hæmorrhage, causing syncope and vomiting. This loss of blood was at first thought to be from the uterus, but found subsequently to be from the ulcer on the leg. The collapse from the hæmorrhage was so excessive, that life was despaired of for several hours. By dint of cold applied locally, astringents, and compression, and the use of tonics, the patient could leave her bed in fourteen days. The ulcer could not be healed, owing to the impossibility of quiet being observed, but there was no return of hæmorrhage. At each menstrual period, however, the swelling of the foot and the dilatation of the veins returned.

X. *A Case of Successful Ovariotomy.* By M. BOINET. (Bulletin Gén. de Thérapeutique, tome lxiii. p. 409, Nov. 1862.)

The operation of ovariotomy appears to be becoming introduced into France as one of the regular resources of surgery. M. Boinet details the case of a married lady, aged about thirty, the subject of a unilocular cyst, which M. Boinet believed to be ovarian, and which had been tapped frequently, and injected seven times with iodine. The effect of this treatment was a considerable and progressive diminution in the quantity of fluid, from eighteen litres to sixteen, fourteen, and twelve successively. The general health, however,

began to give way, and it was on this account that M. Boinet operated. The incision in the linea alba was ten centimètres (say, three inches and a half) in length; and the tumour was easily extracted after evacuating the cyst, which composed the whole of it, except "a sort of areolar tumour," composed of "fibroplastic tissue" (not very clearly described), which was contained in the walls of the cyst. The pedicle was easily drawn out and the case did well. It is not quite clear that this cyst was really one of the ovary.

Another successful case of ovariotomy, by M. Nélaton, will be found in the 'Archives Générales de Médecine,' Sept. 1862, p. 347, and an unsuccessful case, by Dr. Parise, is alluded to in the same publication, Oct. 1862, p. 491.

XI. *Vesico-Vaginal Fistula.* A Discussion at the Société de Chirurgie de Paris, Sept. 24th, 1862. (L'Union Médicale, Dec. 2nd, 1862.)

MM. Danyau and Berand introduced a case in which a vesico-vaginal fistula, about two centimètres in length and a little more than a centimètre in width—one centimètre in front of the neck of the uterus—which was discovered on the tenth day after delivery, healed in eight days by cauterization with nitrate of silver, and keeping a catheter fixed in the bladder.

M. Verneuil doubted the necessity of keeping the catheter in—he had seen a case in which a small fistula healed spontaneously, without any catheter in the bladder.

It is to be observed that when the sinus is long, the walls have more chance of uniting, while, if it is short, the two mucous surfaces (of the bladder and vagina) become continuous, and the cleft cannot close.

M. Marjolin had also had a case of closing of a considerable cleft from merely keeping a catheter in the bladder.

M. Depaul said that he had seen four cases of spontaneous cure. In one of these he had been obliged to remove the catheter, as it was not tolerated; still the cure progressed uninterruptedly.

XII. *Polypus of the Larynx.* By Dr. Fauvel. (L'Union Médicale, December 2nd, 1862.)

M. Fauvel related to the Société de Chirurgie the case of a patient in whom he had discovered a polypus of the larynx by means of the laryngoscope. The patient was forty-two years of age, of good constitution, and had suffered from symptoms of this affection (cough, hoarseness, loss of voice, painful enunciation accompanied by expectoration) since 1854. By the laryngoscope a tumour the size of a pea was seen at the anterior part and left side of the glottis, above the left true vocal chord, and falling back upon it. Its insertion appeared to be at the base of the epiglottis. It seemed to slip easily in and out of the ventricle of the larynx. It could be easily reached by means of curved forceps made for the purpose, with which M. Fauvel proposed to attempt its extraction, before doing which he was advised by other members to make experiments on the dead subject as to the feasibility of the operation with those instruments. M. Fauvel gives a short account of the operation which Professor Bruns performed on his own brother for the extraction of a polypus from the larynx. In Bruns's case (which was successful), very complex instruments were judged necessary.

This was the third case of polypus of the larynx which M. Fauvel had met with in a single month. In one of them the patient was suffering from cancer of the rectum, of which she shortly died; and post-mortem examination enabled M. Fauvel to prove the accuracy of his diagnosis of the laryngeal tumour.

We must content ourselves with short references to the following papers:

Amputation.—Use of a Clamp-Tourniquet on the Abdominal Aorta for Restraining Hæmorrhage in Amputation at or near the Hip-joint. (Edinb. Med. Journ., Nov., 1862, p. 431.)—Another Case of Amputation of the Thigh at its Upper Fourth, in which Acupressure was successfully employed. By P. H. Handyside, M.D. (Read before the Edinburgh Medico-Chirurgical Society.)—Primary and Secondary Amputations in American Military Practice. (Boston Medical and Surgical Journal, Oct. 9th, 1862, p. 196.)

Aneurysm.—A Case of Traumatic Aneurysm of the Femoral Artery cured in the space of seven hours by Digital Compression. By M. Chassaignac. (L'Union Médicale, Dec. 2nd, 1862, p. 429.)—Suggestions for the Use of Silver Ligatures, imperfectly constricting the Artery, for the Cure of Aneurysm. By Dr. J. Minkiewicz. (Virchow's Archiv, Band xxiv. p. 268.)—A Successful Case of Ligature of the Common Iliac Artery is recorded by Mr. Bickersteth in the Edinb. Med. Journal, July, 1862, p. 8.—Diagnosis between Aneurysm of the Cœliac Axis and of the Abdominal Aorta. (L'Union Méd., July 8th, 1862, p. 56; Omodei Annali, Aug., 1862, p. 343.)—Intra-Orbital Aneurysm successfully treated by Tying the Common Carotid Artery. By Dr. Grieg. (Edinb. Med. Journ., Nov., 1862, p. 446.)—A Case of Spontaneous Aneurysm of the Radial Artery cured by twenty-four hours' continuous and ten days' intermitting Digital Compression of the Brachial Artery. By Dr. Leudesdorf. (Langenbeck's Archiv, iii. 415.)—A Case of Spontaneous Aneurysm of the Ulnar Artery in a Patient labouring under Cardiac Disease, cured by Ligature of the Brachial Artery after the failure of Compression and Flexion. By Dr. E. Hamilton. (Dublin Quarterly Journal, Nov., 1862, p. 295.)—A Case of Traumatic Aneurysm of the Palmar Arch successfully extirpated by Chloride of Zinc. By Prof. Nélaton. (Journ. de Méd. et Chir. Prat., May, 1862.)

Artificial Pupil.—Report on 180 Cases in the Practice of Desmarres. (Schmidt's Jahrbücher, vol. cxvi. p. 250.)

Bone, Inflammation of.—Lorinser. (Wiener Wochenschrift, June 28, July 5, 12, Aug. 2, 9, 16, 23, Sept. 13, 20, Oct. 4.)—Surgical Experiences on the Curvatures and the Growth of Bone. Dr. R. Volkmann. (Virchow's Archiv, Band xxiv. p. 512.)

Cleft Palate.—On the Restoration of Congenital Fissures, affecting the Hard and Soft Palate, with a Comparison of the Resources individually offered by Prothesis and Autoplasty.—A Letter addressed to Professor Lawrence, by Dr. Debout. (Dublin Quarterly Journal of Medical Science, 1862, p. 490.)—The whole History of the Operation for Fissure of the Hard Palate, and the Controversy as to the Originality of Langenbeck's so-called "osteoplastic" operation, carefully summed up (with a natural bias in favour of the German surgeon) by Streubel. (Schmidt's Jahrb., 1862, vol. cxvi. p. 71.)

Eye.—Pathological Anatomy of the Eye. Dr. Schiess. (Virchow's Archiv, Band xxiv. p. 557, and Dr. Kleb, ibid., p. 358.)—A Case of Hypertrophy of the Lachrymal Gland, with Exophthalmia after Injury, successfully treated, with Preservation of Vision, by Extirpation of the Tumour. Dr. Warlomont. (Annales de la Société Méd.-Chir. de Bruges, tome x. p. 248.)

Finger.—M. Arrachat describes an affection of the fingers, of which he says only seven cases have been published, and which consists in the development on the flexor tendons of a nodular swelling, hindering motion. The joint above is fixed, and cannot be extended, except once or twice at a time, and then

with a snap; hence the French name proposed by M. Nélaton, *doigt à ressort*. The treatment consists in maintaining permanent extension on a splint for about a fortnight, when the nodular swelling will disappear. (Ann. de la Soc. Méd.-Chir. de Bruges, 1862, p. 67.)

Fistula.—A Case of Fæcal Fistula from Tubercular Disease, communicating with the Bladder. (Wiener Wochenschrift, April 5, 12, 1862.)

Fracture (Ununited).—A Case in which Mr. Jordan's Subperiosteal Resection was attempted, but found to be impracticable. Cure by Ordinary Resection. Dr. Berend. (Allgemeine Méd. Central-Zeitung, March 12, 1862.)

Gangrene.—Observations on Acute Gangrene resulting from Fracture of the Leg, by Sam. G. Wilmot, M.D., &c., &c. (Dublin Quarterly Journal of Medical Science, 1862, p. 311.)

Harelip.—Dr. Steinlin. On the Operation for Double Harelip, complicated with Double Fissure of the Palate and Projection of the Intermaxillary Bone, performed after the Method of Blandin, i.e., by Excision of a Triangular Piece of the Septum Nasi, and Replacement of the Intermaxillary Portion.

Head, Injuries of the.—Martini. (Schmidt's Jahrbücher, 1862, vol. cxv. p. 320.)

Hernia.—On the Treatment of Cases of Strangulated Hernia by the Application of Ice, both before and after the Operation, as a Preventive against Consecutive Peritonitis. Dr. A. Dumas. (Annales de la Soc. Méd.-Chir. de Bruges, 1862, p, 45.)

Hip-Joint.—Resection of the Hip in a Young Man. Death. Statistics of this Operation at Different Ages, showing that it should only be practised in Childhood. (Société de Chirurgie, Sept. 3, 1862. L'Union Médicale, Nov. 18, 1862, p. 333.)

Intestines.—Intestinal Obstruction by the Solitary Band and Intestinal Obstruction by Invagination. Two Papers Reprinted from the Transactions of the Medical Society of London, for Private Circulation. By John Gay, F.R.C.S.—Two Cases in which the Intestines were Obstructed by Foreign Bodies (swallowed in one case and introduced per anum in the other), and in which the Patients were cured by opening the Abdomen and the Intestine, and sewing up and returning the latter. Dr. Francesco Reali. (Omodei's Annali, October, 1862, pp. 191, 193.)

Lymphatics.—A Case of Lymphatic Fistula following a Wound, cured by Digital Pressure on the Distal Side of the Wound. Dr. Leudersdorf. (Langenbeck's Archiv, iii. 417.)

Malignant Pustule, Case of.—(Boston Medical and Surgical Journal, July 3, 1862, p. 446.)

Œsophagotomy.—A successful Case of this Operation. Prof. Inzani. (Omodei Annali, Sept., 1862, p. 571.)

Ovariotomy.—Hydatids of the Omentum, removed with success in a Case of supposed Ovarian Dropsy. (Edinb. Med. Journ., Nov., 1862, p. 478.)

Pemphigus.—Affecting the Mucous Membranes and the Mouth. Rolett. (Wiener Wochensch., May 10, 1862.)

Pharynx.—Chronic Pharyngitis. Dr. Stifft. (Deutsche Klinik, Aug. 30, Sept. 6, 13, 24, 1862.)

Prostate Gland.—On Abscesses around the Prostate (*péri-prostatiques*), oc-

curring in Gonorrhœa, after Catheterization, Contusion, Venereal Excesses, &c. Dr. Parmentier. (L'Union Médicale, June 25, 1862.)

Skull.—Necrosis of the Frontal Bone (entitled 'Remarkable Tumor over the Os Frontis, containing Air'). (Boston Medical and Surgical Journal, May 22, 1862.)

Spina Bifida, in the Form of a Pendulous Tumour, which was successfully removed. (Boston Med. and Surg. Journ., July 3, 1862, p. 456.)

Syphilis.—On Syphilitic Inoculation. By Prof. Sigismund, of Vienna. (Wiener Wochenschr., June 7, 21, 1862.)—On the Consequences of Re-exposure to Syphilis in Persons who have been previously affected. M. Diday. (Arch. Gén. de Méd., July and Aug., 1862, pp. 26, 176.)

Tenotomy.—Manual Extension as a Substitute for Tenotomy. (Boston Med. and Surg. Journ., Sept. 18, 1862, p. 145.)

Vagina, Imperforation of.—A case in which a young woman who had never menstruated, except through the rectum, married, and the vagina was found to be closed near its orifice, a fistula existing from its back part into the rectum, through which water could be injected into the uterine portion of the vagina. The imperforation was remedied by operation, so that coïtion could be effected, but the fistula remained to be operated on. M. Beyrau. (Bullétin de Thérapeutique, Nov. 13, 1862, p. 415.)

Varicocele.—Experiments on Animals to test the Value of the Different Operations for Varicocele. Dr. J. Minkiewicz. (Virchow's Archiv, Band xxv. p. 193.)

Veins.—Rupture of the Superior Vena Cava, with Wound of the Œsophagus. (Schmidt's Jahrbücher, 1862, vol. cxvi. p. 69.)

QUARTERLY REPORT ON MIDWIFERY.

By Robert Barnes, M.D., F.R.C.P.

Lecturer on Midwifery at St. Thomas's Hospital, Physician to the Royal Maternity Charity, &c.

I. The Non-Pregnant State.

1. *Inversion of the Uterus existing Two Years, and reduced after Proceedings continued Three Months.*
2. *On Elongation of the Vaginal portion of the Uterus in the Pregnant and Non-pregnant Woman as cause of Prolapsus, with Three Cases of Removal of the Vaginal portion.* By Ed. Martin. (Mon. f. Geb., Sept. 1862.)
3. *A Case of Ovariotomy successfully performed at Strasbourg.* By M. Kœberle. (Bull. Gén. de Thérap., July, 1862.)

1. The following is a summary of Birnbaum's case of inversion of the uterus: A woman, aged twenty-two, was delivered easily of her first child. On the fourth day after labour, on getting up, a round red tumour suddenly came through the external genitals. It was recognised to be the inverted uterus; it was replaced in the vagina, but not reduced. She suckled her child for a year. Hæmorrhage did not appear during lactation. After weaning she became very anæmic from metrorrhagia. The means employed to reduce the inversion were the alternate use of a Gariel's air-pessary, and pressure on the fundus of the tumour with a uterine sound headed with a round metallic knob the size of an acorn. The latter manœuvre was frequently resorted to, and at the end of three months the reposition was effected. Menstruation of normal type returned, and the patient recovered.

2. Dr. Martin describes several cases of hypertrophied elongation of the cervix uteri occurring during pregnancy, and three cases of a similar condition in the non-pregnant state. In these latter cases, amputation of the lower part of the vaginal portion was effected by the écraseur. One case is described as having healed imperfectly; the other two recovered completely.

3. Attention is directed to a case of ovariotomy followed by recovery, performed at Strasbourg by M. Kœberlé, in order to record the progress of this operation on the Continent, and to indicate the following points of practice adopted, which may have had some influence in bringing about the successful result. Obstinate vomiting followed the operation. In order to maintain the parts and avoid vascular congestion in the abdomen, M. Kœberlé kept up compression by his hands during two hours, and then substituted pressure by two bladders filled with ice, one on either side of the incision, supported by bandages. Putrefaction of the suppurating stump was arrested by application of perchloride of iron.

II. Pregnancy.

1. *Further Contributions to the Knowledge of the Transmigration of the Human Ovum.* By Prof. Kussmaul. (Monatschr. f. Geburtsk., Oct. 1862.)
2. *A Case of Extra-Uterine Pregnancy.* By Dr. Brandt, of Madeira. (Edinburgh Med. Jour., Sept. 1862.)
3. *Total Procidentia of a Gravid Womb.* By Dr. Husty. (Wien, Allg. Med. Zeitsc., 1862.)
4. *Extra-Uterine Pregnancy; Mature Living Child in a Right Inguinal Hernia; Delivery by Operation.* By Dr. Müller. (Allgem. Wien. Med. Zeitung, 1862.)

1. Professor Kussmaul gives a very elaborate and interesting review of the question of the transmigration of the ovum to the opposite side. He first relates the following case: A woman died in 1851, after an illness of fourteen days, after having suffered from acute pains in the lower abdomen, then in the chest, with discharge of blood from the vagina, and collapse. In the abdominal cavity much effused blood was found. The preparation taken from the body is described as follows: the uterus, pear-shaped, was enlarged; the cavity was lined with decidua, terminating at the os internum and at the Fallopian tubes; the anterior aspect and the two sides of the uterus were covered with stringy growths of cellular tissue; the left ovarium was very large, was very near the uterus; both surfaces were covered with stringy growths of cellular tissue; thin strong threads ran from the outer end of this ovary to the extremity of the Fallopian tube; a well-developed corpus luteum was found in the outer part; the left tube showed, together with the broad ligament, short and long free-hanging threads of cellular tissue. The right ovary had no corpus luteum, but was also covered with threads; its outer free end impinged upon a tumour, the fruit-sac. The right tube was dilated in its outer half into a thick fleshy swelling. Between the right ovary and right tube was a cyst with thin walls larger than a hazel-nut. The fruit-sac was as large as a goose's egg; it lay behind the right tube and ovary, apparently grown to both. The walls of the sac consisted of peritoneum, a strong muscular layer, chorion, and amnion. A placenta with blood-extravasation was found inside, and an embryo of over two months' development.

Since the corpus luteum was on the left side, and the tubal gestation was on the right at the fringed extremity, the ovum must have passed over from the left ovary to the right tube. Kussmaul holds it to be improbable that the ovum made its way through the left tube, across the uterus, and along the

entire length of the right tube, because the middle portion of the right tube was compressed by the cyst described. Hence he concludes that it arrived by a shorter way, either directly, or after a passage through the abdominal cavity into the right tube—that is, there was an *extra-uterine transmigration.*

Kussmaul cites the two cases of Oldham and Rokitansky, in support of the occurrence of extra-uterine transmigration. In Rokitansky's case the aberration of the ovum led to a uterine pregnancy; in Oldham's to an interstitial pregnancy; and in the present case to a tubal pregnancy.

If, says Kussmaul, in these three cases the morsus diaboli of one side had been united by adhesions to the opposite ovary, the mode in which the migration happened would be clear enough, but such adhesions were probable in Oldham's case only. Kolb showed that the morsus diaboli of one side was often easily brought into relation with the opposite ovary, and argued that during life, as the result of straining and the turgescence attending menstruation, such a relation was frequently brought about. Kussmaul, however, contends that such proximity was not necessary for the passage of the ovum.

He cites the observations of J. Müller that in many amphibia and fishes, the opening of the tubes is widely distant from the ovaries. He argues that through the action of the ciliated epithelium a kind of capillary stream is set up which mostly leads towards the openings of the tubes; that this is more likely to sweep the ovum into the tube corresponding to the ovary from which the ovum escaped. If the ovum escapes from the hinder surface of the ovary, it may easily fall into the peritoneal cavity and be lost altogether.

Kussmaul then quotes Rouget,* who brings into play various muscular actions either unknown or overlooked. In amphibia Rouget thinks the ova are guided to the tubes by compression of the abdomen. In birds, mammalia, and man, Rouget thinks a special muscular apparatus, consisting of smooth fibres, exists in the investments of the ovary and tube; in man also in the mesovarium and broad ligament which, under reflex action, during ovulation, guide the ovum into the tube. But Kussmaul seems to incline to the ciliary-stream theory of Kolb. He then says that the possibility of the passage of an ovum from the ovary of one side to the opposite half of a simple uterus is proved by the fact that the placental wound is not seldom found on the side opposite to the ovary which furnishes the corpus luteum, and even, as Virchow observed, over the mouth of the opposite Fallopian tube. Kussmaul also holds it probable that intra-uterine transmigration may be effected through the muscular erectile action or compression of the uterus occurring shortly after conception, squeezing the yet free ovum upwards towards the opening of the opposite tube, and possibly into the tube itself.

2. The case of extra-uterine fœtation described by Dr. Brandt is a remarkable one. The subject of it bore two children normally; became pregnant a third time, but did not bring forth. Four years after this, she was delivered of a living child, and of another child also living seven years later. She died in 1858, having carried her extra-uterine fœtus fifty-four years, and through two normal pregnancies. At the autopsy a bony tumour was extracted from the abdomen on the right side. The uterus and the Fallopian tube of the left side were perfect. The tumour weighed four pounds, was eight inches long, five and a quarter in diameter. This bony cyst contained a fœtus, which, it was conjectured, must have lived a long time after the natural term of birth. The upper jaw had three teeth, one of which appeared to be the second molar.

3. A strong, well-built woman, aged thirty-four, suffered since her second labour from procidentia of the uterus. During her fourth pregnancy, the

* Journal de la Physiologie. 1858.

uterus could never be replaced, but was always supported by a bandage. When taken in labour, the os uteri was found swollen, dilated, and near the knees; the head of the child, which was dead, was protruding. The pains were strong. Re-position was easily effected, but the parts had to be supported to maintain them *in situ*. The head was then perforated, and with much trouble labour was completed. The child weighed nine pounds. The mother quickly recovered, and bore two years later a healthy child, having maintained the gravid womb in the pelvis by a bandage.

4. Dr. Müller relates a case in which the ovum had become developed in an inguinal hernia of the right side, so that the sac springing from the inguinal region formed a round tumour reaching to the knees, and weighing about eight pounds. By operation a mature living child was brought to light. The mother died an hour afterwards of internal hæmorrhage. Post-mortem examination was not permitted.

III. Parturient and Puerperal State.

1. *On Ruptures of the Uterus.* By Dr. R. Olshausen. (Monatsschr. f. Geburtsk., Oct. 1862.)
2. *On the Recent Epidemic of Puerperal Fever.* By John Denham, M.D., Master of the Dublin Lying-in Hospital. (Dublin Quart. Journ. of Med. Sc., Nov. 1862.)
3. *Puerperal Pulmonary Embolism.* By Dr. Cowan. (Proceedings of Edin. Obst. Soc., Edin. Journ., Nov. 1862.)

1. Dr. R. Olshausen, Assistant-Physician to the Lying-in Institution of Halle, contributes an interesting memoir on Ruptures of the Womb, and especially on that form of lesion of continuity which is the result of prolonged compression and friction (*Durchreibungen*). He relates three cases. Summaries of two are as follows:

Case 1.—Contracted pelvis; loss of pains during three days; perforation and cephalotripsy. After complete extraction of the child, the uterus being well contracted, hæmorrhage occurred. Ten minutes later, vomiting of green fluid set in; some collapse. This increased, and she died on the fourth day.

Section: Purulent exudation in peritoneum, especially in pelvic region. Uterus united to bladder and rectum by fresh adhesions; in fore part of cervical portion its inner surface showed a loss of substance, exactly round, about half an inch in diameter; the centre penetrated deeply into the muscular substance. The entire spot reminded one, by its terrace-like structure, of the simple ulcer of the stomach. The peritoneum and the outer layers of the muscular wall were not perforated. The seat corresponded to the symphysis pubis. On the hinder lip of the os uteri was a similar round, terraced loss of substance, which, however, in the centre quite perforated the muscular and peritoneal coats. The opening communicated with Douglas' sac. These injuries had caused the peritonitis.

Case 2.—Obliquely contracted pelvis, with left sacro-iliac anchylosis; thrice unsuccessful application of the forceps; continuous vomiting; perforation and cephalotripsy; death in three-quarters of an hour.

Section: Yellow peritonitic exudation covered the uterus and neighbouring intestines; a pound of sero-sanguinous fluid had collected. Uterus well contracted; in the cervical region, somewhat to the left, was a minute opening, from which the sanguineous fluid had flowed from the cavity of the uterus into Douglas' sac. The place which had been bored through was opposite the promontory. The perforated spot on the inner surface of the uterus was not larger than it was outside.

This is the kind of injury that has been observed to follow the use of the lever.

2. Dr. Denham describes the fever which raged in the Dublin Lying-in Hospital, in November, 1861. During that month 72 patients were delivered, 16 were attacked with puerperal fever, of whom 9 died. In 5, the fever was of a low typhoïd form, proving fatal on the fourth or fifth day after labour. In 3, the symptoms were those of uterine phlebitis and pyæmia, proving fatal—1 on the seventh, 1 on the eighth, and 1 one on the ninth day. The remaining fatal case was attacked with abdominal pain and rigors on the second day after delivery; on the night of the fifth she had two marked fits of convulsions, with vomiting of black fluid; she never became conscious after the first fit, but continued comatose until the ninth day, when she died.

In December, there were 103 deliveries—14 were attacked with puerperal fever, and 3 with scarlatina; 9 of the puerperal-fever cases proved fatal, death taking place, with one exception, from the fourth to the sixth day.

From the 1st of January till the 11th, when the hospital was closed, there were 37 deliveries—16 were attacked with puerperal fever, and 4 with scarlatina. All the scarlatina patients, and 10 of the puerperal-fever cases died, 1 of them in twenty-four hours.

The hospital was again opened early in February, admitting only, however (fearful experiment!), a limited number of patients; 30 deliveries took place, 6 were attacked, 2 died.

Dr. Denham explains that the class of patients were ill-fed, ill-clothed, and often depressed in body and mind.

The author then discusses the question of contagion and epidemic influence. He appears to agree with his eminent predecessor, Dr. McClintock, that the disease is rarely, if at all, propagated by the accoucheur, and says, "we may fairly infer that puerperal fever possesses quite as much, if not more, of the epidemic, as of the infectious character." [But whichever ætiological view we may incline to, the fact that puerperal fever chooses lying-in hospitals for its favourite habitat seems unassailable.—REPORTER.]

3. A primipara, aged twenty-two, was delivered after an easy labour. Eighteen days afterwards, having been sitting by the fireside, and feeling fatigued, she rose to get into bed, whereupon she uttered a smothered cry and fell to the ground, after which she neither spoke nor moved. Seen half-an-hour after death, face purple, mouth drawn to one side, eyes open, pupils widely dilated, muscular system rigid, hands firmly clenched. Autopsy next day:—Brain greatly congested, in some of the veins globules of air were seen in great abundance. Trachea filled with mucus; heart healthy, left side empty, contracted, right greatly distended with fluid blood; lungs highly congested; a fibrinous clot an inch and three quarters long was found in the pulmonary artery, extending into its left branch. The clot completely plugged the vessel.

Reference is made to the following papers, which are not analysed for want of space:—

1. A Case of Recurrent Hemiplegia during Pregnancy. By Dr. Andrew Inglis. (Edinburgh Medical Journal, Sept., 1862.)

2. Diphtheritic Inflammation of the Procident Uterus and Vagina. By Dr. J. Matthews Duncan. (Ibid., Oct., 1862.)

3. Deep Vesico-Utero-Vaginal Fistula cured by Cauterization with Nitrate of Silver: plugging of vagina with amadou; a Sims' sound maintained in the bladder. (Paris Société de Chirurgie, L'Union Méd., Nov., 1862.)

4. Puerperal Convulsions (three cases). By W. L. Wheeler, M.D. (Boston Medical and Surgical Journal, July, 1862.) [In addition to the three cases of convulsions, the author relates a case in which the urine, tested at intervals throughout pregnancy, was always found albuminous; but no convulsions appeared.]

5. Cases in Midwifery. By Wm. J. Cox. (Dublin Quarterly Journal of Medical Sciences, Nov. 1862.) [Amongst other cases, the author relates the histories of four cases of puerperal convulsions.]

6. Clinical Midwifery. By Dr. Ramsbotham. (Medical Times and Gazette, 1862.) [Being in a widely-read English journal, reference only can be made to these instructive cases.]

7. Plural Births in connexion with Idiocy. By Arthur Mitchell, M.D. (Ibid., Nov., 1862.)

8. Difficult Parturition as a Cause of Idiocy. By Arthur Mitchell, M.D. (Ibid., July, 1862.) On statistical evidence, chiefly, Dr. Mitchell seeks to establish a connexion between difficult parturition and twin-births and idiocy. [In the last volume of the 'London Obstetrical Transactions' is an interesting paper by Dr. Little, who brings forward cases in support of the conclusion that asphyxia at birth might be a cause of subsequent mental and bodily defect.] Dr. Mitchell observes that the whole history of twin-births is exceptional, indicates imperfect development, and feeble organization in the product. The subject is one deserving of further inquiry.]

9. On Uterine Hæmatocele: Experience in the Royal Infirmary of Edinburgh. By Dr. Matthews Duncan. (Edinb. Med. Journ., Nov., 1862.) In this instructive memoir the author relates the histories of six cases.

10. Description of a New Method of Provoking Premature Labour. By M. Tarnier. (Proceedings of the Paris Academy of Medicine, Nov., 1862.) [This method is simply the method practised and published more than two years ago by the Reporter, Dr. Barnes. The dilating-bag described by M. Tarnier, however, is made to pass completely into the uterus. It therefore answers very imperfectly, and fails to secure labour within a reasonable or *definite* time. This defective form of apparatus was early discovered by Dr. Barnes, and abandoned for the efficient forms now used by him.—R.B.]

11. New Transfusion Apparatus. By Dr. Hamilton. (Edinb. Med. Journ., Oct. 1862.) Dr. Hamilton describes a new transfusion apparatus. Want of space compels us to make simple reference to this paper. An effective working transfusion apparatus is a real desideratum in obstetric practice. Dr. Hamilton will have rendered important service if his contrivance answers the purpose.

12. Cases of Puerperal Fever. By Dr. Macswiney. (Proceedings of Dublin Obstetrical Society. (Dublin Quart. Journ. of Med. Science, Nov., 1862.) The author describes four cases occurring in private practice.

13. On the Mechanism of Labour. By Dr. Halahan. Proceedings of Dublin Obstetrical Society. (Dublin Quarterly Journal of Medical Science, Nov., 1862.)

14. A Case of Extra-Uterine Fœtation; twin conception from the same ovary; normal descent of one fœtus into the womb; arrest of the other in the Fallopian tube; escape from thence by ulceration into the cavity of the abdomen, followed by hæmorrhage, and death in twenty-four hours. By Mr. Tufnell. Proceedings of Dublin Obstetrical Society. (Dublin Quarterly Journal of Medical Science, Nov., 1862.)

Observations on the Rate at which Muscular Action takes place, and on the Quantity of Work stored up in Muscle deducible from that Rate. By the Rev. SAMUEL HAUGHTON, M.D., F.R.S., Fellow of Trinity College, Dublin, and of the King and Queen's College of Physicians in Ireland.

PART I.

IN the Croonian Lecture read before the Royal Society on November 16th, 1809, Dr. Wollaston called attention to the sound, or *susurrus*, produced by the muscles when in a state of contraction. He states correctly that this sound is best produced by inserting gently the extremity of the finger into the ear, bringing at the same time the muscles of the hand and fore-arm into strong contraction. The muscular *susurrus* may also be heard easily by using a stethoscope upon a contracted muscle, either of the observer's or of any other person's body.

Having described the mode of obtaining the sound, Dr. Wollaston adds, that the sound "resembles most nearly that of carriages at a great distance passing rapidly over a pavement;" to which admirable description of the sound I would add, that it bears the most striking resemblance to the deep hum produced by the blowing fan of a large foundry.

Dr. Wollaston attempted to estimate the frequency of the elementary muscular contraction that produces the *susurrus*, by allowing his ear to rest on the ball of his thumb, while his elbow was supported by a horizontal board, in which he had cut a number of equal notches, about one-eighth of an inch asunder. Against these notches he rubbed a pencil with a regular motion, until he made the sound so produced to coincide roughly with that of the muscular contraction; and he then attempted to estimate the number of notches passed over in a second. His conclusion from these approximate experiments is the following:—

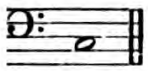
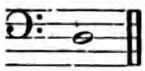
"The greatest frequency that I think I have observed was about 35 or 36 in a second, and the least was as low as 14 or 15 . . . .; they appeared to be in general between 20 and 30 in a second; but it is possible that the method I employed may be found defective, and it is to be hoped that my estimate may be corrected by some means better adapted to the determination of intervals that cannot actually be measured."

An accidental observation made upon myself a few months ago has enabled me, I believe, to fix with the precision desired by Wollaston the time of the muscular contraction that causes the *susurrus*.

About three years ago, on recovering from a slight access of fever, which was fortunately cut short, I found that it left the following trace of its visit in my system. Occasionally, since that period, when overworked by mental exertion, I have been subject to a singing in both ears, which is relieved by a drink of warm milk, and by sleep. Sometimes, however, I have found the *tinnitus aurium* to prevent sleep.

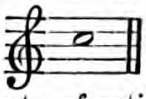
In June last, when kept awake by this disagreeable noise, I amused myself with producing, by the contraction of the masseter muscles, their well-known *susurrus*. To my great surprise and pleasure, I observed that the *tinnitus* and *susurrus* were in unison, differing from each other by several octaves.

I followed up the clue thus found, and consulted my musical friends, whom I instructed in the mode of making Wollaston's experiment, without, however, informing them of the note that I myself believed to be the true sound of the *susurrus* and *tinnitus*. My friends have arranged themselves into two groups, which have fixed upon CCC and DDD respectively as the tone of their *susurrus*—that is to say, two octaves below bass C and D.

These notes are only found on the new pianos, and several of my friends informed me that the C or D the lowest on their piano was an octave above the *susurrus;* but, on inquiry, there was no difficulty in ascertaining what note was meant. The tuning of the pianos was carefully tested with a standard CC diapason, used for acoustical experiments, and corresponding with 440 vibrations in the second for the note treble A. 

Four of the observers, of whom two were ladies, found CCC, and five, of whom three were ladies, found DDD, which notes correspond to thirty-two and thirty-six vibrations in the second.

To my own ear, the *susurrus* has the sound of CCC, and the *tinnitus*, the sound of the octave above treble C,  five octaves above the *susurrus*, and therefore corresponding to a rate of action thirty-two times faster than that of the muscle, or 1024 times in the second.

The *tinnitus* is altogether independent of muscular or voluntary action of any kind, and is, I believe, a sign of the rate at which nervous action takes place in the brain. This conjecture I hope at some future time either to verify or disprove. The sound of the muscular *susurrus*, when fully heard, is ridiculously like the sound of the cab-wheels of London heard in the silence of the night, when the absence of thoroughfare in the streets enables the cabmen to drive fast.

I have measured the intervals of the Guernsey granite pavement, and found them to be about four inches, making therefore three impulses in a foot traversed by the cab wheels. If the cabs be supposed to drive eight miles an hour, the number of impulses per second will be

$$\frac{5280\times3\times8}{3600}=31{\cdot}87.$$

Considering that the standard CCC of the *susurrus* is thirty-two vibrations per second, its resemblance to the sound of cab wheels ceases to be a matter of surprise. In order to determine the exact sound of the *susurrus* precisely, I procured a long wooden tube, like an organ-pipe, fitted with a moveable piston, so that on applying it to an acoustical bellows, on moving the piston in or out I could produce any note I pleased, in the neighbourhood of CCC. This pipe is tuned, by means of the piston, to the *susurrus* of any observer, and then played in conjunction with the standard CCC, and the beats counted if it be not in unison.

Let m denote the number of vibrations per second in the standard pipe, n the corresponding number in the tuned *susurrus* pipe, or *vice versâ*, so that m shall be greater than n, and k the number of beats per second counted on playing the two pipes together; then it is easily shown that

$$k = m - n.$$

As an example of this principle, I take the following observation—

Dr. Stokes, of this city, kindly aided me in my inquiry upon one occasion, by tuning the wooden pipe to the *susurrus*, observed by himself, leaning both elbows on a table, with the muscles of the fore-arms contracted, and making the sound of the pipe coincide with that of both ears.

On comparing the note he fixed on, with the standard CCC, it was found

to be higher than it, to such an extent as to produce fifty beats in fifteen seconds. Hence—

$$\frac{50}{15} = m - 32,$$

$$3{\cdot}33' = m - 32,$$

And, finally—

$$m = 35\tfrac{1}{3} \text{ vibrations per second.}$$

This is DDD natural, a little flat; for DDD corresponds to thirty-six vibrations in the second.

PART II.

Having found within narrow limits the rate at which muscular contraction takes place, I proceeded to find the Quantity of Work stored up in muscle, in the following manner:—

If both arms be extended horizontally, they are kept from falling, each by the action of two muscles only, the *supra spinatus* and *deltoïd* of each shoulder.

Great relief is felt on either raising or lowering the arms, above or below the true horizontal position; the relief being due to the fact that the *trapezius* or *biceps* come into play to assist the other muscles, if the arms deviate from the horizontal position.

I found that my arms became tired completely at the end of seven minutes, and I thus attempted to determine the amount of work given out in that time by the two muscles in question.

Each portion of the muscle contracts, relaxes, and goes through all its changes thirty-two times in each second, and does so in succession, so as to keep the ends of the fingers steady; but the amount of work given out by the whole muscle is the same as if all the particles went through their changes simultaneously and not in succession.

If the whole muscle acted simultaneously, the arm would fall like a compound pendulum during the $\frac{1}{32}$nd part of a second, and then be raised to its original level by the renewed contraction of the muscle.

It is not difficult to prove that in this case the arc through which the arm falls is that which would correspond to the centre of oscillation falling freely for $\frac{1}{32}$nd of a second. But a body falling freely for $\frac{1}{32}$nd of a second will pass through $\frac{1}{64}$th of a foot, or $\frac{3}{16}$ths of an inch.

This is therefore the space fallen through in each relaxation of the muscle, by the centre of oscillation of the arm.

Assuming as an approximation that the arm and clenched fist form a uniform cylinder, their centre of oscillation would be distant from the centre of the glenoïd cavity, two-thirds of the length from the tip of the acromion process to the metacarpo-phalangeal articulation of the middle finger. In my arm this length is 24 inches, which would give 16 inches as the length of the equivalent simple pendulum.

From the tip of the acromion process to the fold of the elbow, which I believe to be the centre of gravity of the arm, is 11 inches; and therefore, as the centre of oscillation descends through $\frac{3}{16}$ths of an inch each $\frac{1}{32}$nd part of a second, the centre of gravity will in the same time fall through $\frac{11}{16} \times \frac{3}{16}$ths of an inch. The weight of the arm may readily be found by weighing it in a balance, whose scale is on a level with the centre of the glenoïd cavity, and treating it as a lever, so that the weight of the arm shall be to the weight that supports any point of the arm inversely as the distances of the centre of gravity and of that point from the centre of the glenoïd cavity.

I found my arm to weigh $7\frac{1}{2}$ lbs.

Therefore the *supra spinatus* and *deltoïd* lift at each interval of $\frac{1}{32}$nd of a

second $7\frac{1}{2}$ lbs. through $\frac{1}{16} \times \frac{3}{16}$ths of an inch; and in seven minutes, at the end of which time the muscles are exhausted, the work done is:—

$$7\frac{1}{2} \text{ lbs.} \times \frac{11}{16} \times \frac{1}{64} \times 32 \times 60 \times 7 \text{ ft.} = 1082{\cdot}8 \text{ foot pounds.}$$

These muscles are therefore capable, in each of my shoulders, of giving out work equivalent to raising 1083 lbs. through a foot, before they become exhausted.

Mr. Arthur W. Foot, M.B., assisted me in most of my experiments, and possesses *supra spinati* and *deltoïds* capable of somewhat more work than mine. The data for Mr. Foot are:

Weight of arm, 7 lbs.

Tip of acromion to metacarpo-phalangeal articulation, $24\frac{1}{2}$ inches.

Tip of acromion to fold of elbow, $11\frac{1}{2}$ inches.

Time of exhausting muscles, 8 minutes.

Hence I find the work done to be

$$7 \text{ lbs.} \times \frac{11{\cdot}5}{16{\cdot}3} \times \frac{1}{64} \times 32 \times 60 \times 8 \text{ ft.} = 1185 \text{ foot pounds.}$$

I should add, that I believe Mr. Foot carried the exhaustion of the muscles further than I did, in his experiment, as he suffered from subacute pain in the *supra spinati* for half an hour after the experiment was over.

I abstain at present from drawing conclusions from the foregoing estimate of muscular work done, which appears to be capable of many applications.

MEDICAL INTELLIGENCE.

The Royal College of Physicians and the Official Inquiry into the Prevalence of Leprosy in the British Colonies, India, &c.

THIS inquiry arose, in the first instance, from a despatch addressed last summer by the Governor of Barbadoes to the Secretary of State for the Colonies, wherein mention was made of the increase of leprosy of recent years in that colony, and it was suggested that a Government inquiry into the subject might be productive of much good to the well-being not only of Barbadoes, but of other West India Colonies where the disease was known to exist. The Duke of Newcastle, recognising the importance of the suggestion, submitted the matter to the College of Physicians, with a request that they would aid and direct the investigation by preparing for transmission through the Colonial Office such interrogatories as would best elicit the desiderated information, and afterwards by collecting and arranging the evidence so obtained with the view of making the results generally known. The College approved of the scheme, and the President nominated a committee, consisting of Drs. Budd, Gull, Owen Rees, A. Farre, Milroy, and Greenhow, to take the necessary steps. The following is the series of interrogatories drawn up, and the committee suggested that, "as the disease is known to exist not only in many foreign countries, but also in various British colonies in the East and elsewhere, it is very desirable that the interrogatories should be sent to all the colonies of the empire." This suggestion was at once acted upon by the Colonial Secretary, and subsequently, upon the recommendation of the College, the inquiry has been extended to the different Presidencies of India. It is also understood that Earl Russell has given directions that the interrogatories should be transmitted to all British consuls in foreign countries—

I.

"Is leprosy known in the colony of ? If so, be pleased briefly to describe it as it occurs there.

"*a.* Are there several different forms or outward manifestations of leprosy? If so, by what names are they respectively known?

"*b.* Are these several forms, in your opinion, only varieties of one common morbid state? or are they specifically distinct diseases, having no affinity with each other?

"*c.* Please to enumerate succinctly the more obvious and distinguishing characters of each form of leprosy which you have seen.

II.

"At what age does the disease generally manifest itself? and what are usually the earliest symptoms observable?

III.

"At what period of life, and within what time, does the disease usually attain its full development? And at what period of life, and after what time, does it usually prove fatal?

IV.

"Is the disease more frequent in one sex than in the other?—if so, in what proportion?

V.

"Is it more frequent among certain races?—among the white, the coloured, or the black population?—and in what relative proportions?

VI.

"In what condition of society is the disease of most frequent occurrence,—and what are the circumstances which seem to favour its development in individuals, or in groups of individuals?

"Please to enumerate these circumstances under the following heads:—

"*a.* The characters of the place or district where the disease most frequently occurs, in respect of its being urban or rural—on the sea-coast, or inland, low, damp, and malarial, or hilly and dry.

"*b.* The sanitary condition of the dwellings, and of their immediate neighbourhood.

"*c.* The habits of life, as to personal cleanliness, or otherwise.

"*d.* The ordinary diet and general way of living.

"*e.* The occupation or employment.

VII.

"What conditions or circumstances of life seem to accelerate or aggravate the disease when it has once manifested itself in an individual?

VIII.

"Does the disease appear often to be hereditary?

"Have you known instances where one member only of a family has been affected while all the other members remained free from any trace of it?

IX.

"Have you reason to believe that leprosy is in any way dependent on or connected with syphilis, yaws, or any other disease?

X.

"Have you met with instances of the disease appearing to be contagious in

the ordinary sense of that term—i.e., communicated to healthy persons by direct contact with, or close proximity to, diseased persons?

"*a.* If so, in what stage was the malady in the diseased person? Were there ulcerations with a discharge?

"*b.* Please to describe briefly the case or cases of contagious communication which you have seen yourself.

"*c.* Does the disease seem to be transmissible by sexual intercourse.

XI.

"Are persons affected with leprosy permitted in the colony of to communicate freely with the rest of the community?—or is there any restriction imposed, or segregation enforced, in respect of them?

XII.

"What public provision is made for the reception and treatment of the leprous poor?

"Are they admitted into the general hospitals?—or are there separate infirmaries or asylums provided for them?

"Please to describe the structural and sanitary condition of such buildings, and the arrangements made for the medical and hygienic treatment of the sick in them.

XIII.

"Can you state the number of leprous persons maintained at the public expense in the colony of ?

XIV.

"Have you reason, from personal knowledge, to believe that the disease has been of late years—say during the last fifteen or twenty years—on the increase in the colony of ?—or otherwise?

"And if so, please to state what in your opinion may have contributed to its increase or its diminution.

XV.

"What results have you observed from the hygienic, the dietetic, or the medicinal treatment of the disease? Does leprosy ever undergo a spontaneous cure? and if so, at what stage of the disease?

"Are you aware what proportion of the leprous poor treated at the public expense in the colony of recover, wholly or partially?

XVI.

"What is the estimated population of the colony of ? and when was the last census taken?

"Is there a general and uniform registration of births and deaths, including the causes of death?—and if so, how long has such a registration existed?

XVII.

"Can you state the name of the townships or districts in which leprosy prevails most, and give the number of lepers and the population in each of such townships or districts?

"Please to add any other observations which you believe may serve to throw light upon the predisponent or exciting causes of the disease, or which may bear on its prevention, mitigation, or cure.

"Any documents, printed or not, descriptive of the disease, as it has been observed at any time in the colony of , with any reports of post-mortem examinations, or any pictorial illustrations, will be acceptable; also copies of the Annual Registration Returns, and of other works bearing on the vital statistics of the colony."

So large and comprehensive an inquiry as the above interrogatories presuppose into the natural history of a disease which appears to be more widely disseminated over the globe than almost any other, and which is still so little understood, cannot fail to be of great scientific interest to geographical medicine, and may also lead to some most useful results as to the ætiology, and therefore as to the prophylaxis, of this terrible malady. At all events, the first right step will have been taken—that of obtaining accurate information from an ample and varied field. The appeal which Professor Virchow, of Berlin, made, two years ago, to the medical profession in this country will thus be fitly responded to.

Besides the special information on leprosy which may be expected from the replies to the interrogatories, the Committee have wisely made use of the present opportunity for obtaining some accurate knowledge as to the general hygienic state of our colonies, which there is too much reason to believe is anything but satisfactory. The sixteenth interrogatory, if carefully answered, may elicit much valuable information about their vital statistics, with the due appreciation of which the material prosperity, as well as the social well-being of many of our colonies and dependencies are so intimately connected.

We therefore cordially acquiesce as to the necessity of instituting this inquiry, and would take this opportunity of pressing upon our readers the advisability of making it as widely known as possible; for we can have no doubt that, in addition to those whose official assistance in this matter is sought, there are numbers whose opportunities will enable them to render very valuable information on many points included in the interrogatories.

Death of Sir Benjamin Collins Brodie, Bart.

It is our painful duty to record the death of this distinguished surgeon, which has occurred since the appearance of our last number. It was our intention to have placed before our readers a short account of his life and writings, but as we have been given to understand that a considerable amount of MSS. which remain, will in all probability be edited ere long, we have thought it better to defer such a notice until we shall have the opportunity of considering his posthumous productions, along with others which appeared before his death.

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THE

BRITISH AND FOREIGN

MEDICO-CHIRURGICAL REVIEW.

APRIL, 1863.

PART FIRST.

Analytical and Critical Reviews.

Review I.

The Roll of the Royal College of Physicians of London; compiled from the Annals of the College, and from other Authentic Sources. By William Munk, M.D., Fellow of the College, &c. Vol. I., 1518 to 1700, pp. 472; and Vol. II., 1701 to 1800, pp. 429.—*London*, 1861 and 1862. 8vo.

It would be desirable, by way of preface to our notice of a work which records the biographies of all English physicians, to inquire into the history of medical science, from the darkest ages; to mark the steps by which it rose out of the most benighted ignorance; and to trace the practice of medicine, from its beginning in the monasteries, to its final emergence as a secular profession; but our limits not sufficing for such inquiry, it will be enough to observe, that at the commencement of the sixteenth century medicine had scarcely become a distinct profession. Men who had been educated in the universities, whether in this country or on the Continent, united, for the most part, the doctorates of law, medicine, and theology; and the adoption, as a calling, of any one of these pursuits was afterwards assumed or laid down at their convenience. Special medical learning occupied a very insignificant part of the education of those who practised by sanction of their medical degrees; and that learning merely consisted of superficial inquiries into natural philosophy, which was still mixed up with the occult sciences, and of empirical observation of the effects of herbal remedies. Very little intelligent study of symptoms had as yet been made; the old teachers of that line of investigation not having then become generally known by the introduction of Greek literature, and such speculations as were hazarded in physiology and chemistry were grossly delusive; so that the so-called art of medicine was little, if in any degree, removed from simple quackery.

When Linacre repaired to Padua, he entered on the usual course of mathematics, dialectics, astrology, and scholastic theology; and the beginning of his special study consisted, like that of his renowned cotemporary, Cornelius Agrippa, in the application of occult virtues to account for all phenomena. So little did he devote himself to medical subjects, that in the beginning of his professional career he published a book on astronomy.

From Linacre's companions at Padua, Dean Collet, Lilley, and Cornelius Agrippa, much may be gathered of the minute particulars of those philosophical studies which they met to pursue; they included the wildest and darkest superstitions: but before those fellow-students parted, Greek literature had been taught, and that marvellous expansion of thought had begun, which led to a signal reformation in medical science. Whilst the Epistles of St. Paul imparted to Dean Collet a new insight into Christian truth, Linacre became familiar with the works of Hippocrates and Galen, and being taught by them the vanity of applying forms of logic to wild hypotheses, was directed to the sounder study of symptomatology. No one can doubt that his previous course of study, especially that of mental exercise in the schools of logic, together with the labour of acquiring in a short time the newly-revived Greek language, must have been admirably adapted to enable Linacre to devote a well-trained as well as naturally vigorous intellect to the pursuit. Happy has it been for the promotion of true medical science that, leaving the attempt to reason from hidden causes, he turned at once to study and collate patent facts, thus opening out a course of investigation which the discoveries in collateral science of following centuries have turned to good account; and it was a happy omen for the College of Physicians that the man who may be regarded as the founder of the institution was, if not the greatest medical philosopher on record, at least the first precursor in a genuine and enlightened line of study.

We have thus briefly referred to the state of general as well as medical learning at the time of the foundation of the College of Physicians, because it was necessary to do so in order duly to comprehend the principles and objects of the founders. At the present moment, when a desire for change, in spite of large concessions, is still apparent, a work by which we are reminded of the meaning of the institution may be regarded as a valuable source of instruction. To those who like to trace the gradual development of science and its practical application, the work must be full of interest; in almost every page they may perceive how minds early trained by closest exercise were ever on the alert to seize all newly-revealed facts in collateral science, whether in chemistry, botany, or any other branch of natural philosophy, not excluding mechanics; discovering the governing laws, and applying those laws to the knowledge of disease and of its treatment; until arriving at later days, they find Sydenham eminent in classifying symptoms; Harvey pursuing the discoveries of Vesalius, till he established the greatest of physiological truths; and at length Baillie

opening out those invaluable stores of instruction to be found in the study of morbid anatomy.

Dr. Munk has not given a history of the incorporation of the College and its first charters; a brief notice on this subject may therefore be interesting to some of our readers to whom it may not be familiar.

Although the origin of the College of Physicians in this country may be referred to the general expansion of thought and the revival of letters in the sixteenth century, substituting, as that revival did, the study of symptoms and of anatomy for mere inventions and scholastic modes of reasoning, yet it cannot be immediately attributed to the progress of reformed opinions in religion. The movement in scientific institutions preceded the suppression of the monasteries, and England, in the establishment of her College, only followed the example of Milan, Padua, Bologna, and other cities, which were comparatively free from the spread of reforming doctrines. The formation of a College for the regulation and encouragement of medical learning, although it did not originate, yet aided materially in the severance of the scientific and ecclesiastic professions; and though the two pursuits were at first followed by the same persons, and the duties were afterwards assumed alternately, yet it led in time to the professors of medicine devoting themselves wholly to that calling. The English College was founded after the model of the Italian, even adopting some of the exclusive notions of the period—such as rejecting candidates for illegitimacy and other stigmas; and if the statutes were less arbitrary and less swayed by political and party prejudices, they excluded all who were not naturalized Englishmen.

The actual incorporation of the College is said by Sir William Browne to have been preceded by a statute of the 9th Henry V., relating to physicians, but as it is not contained in the printed statutes, the earliest on record is that of the 3rd Henry VIII. The wording of this statute is curiously illustrative of the times. The preamble, setting forth that the "cunning of physic and surgery" requiring "great learning and ripe experience," having been exercised by "ignorant persons," so far forth that "smiths, weavers, and women" take upon them great cures, in which they partly use "sorcery and witchcraft," &c., to the "high displeasure of God," and "great infamy to the faculties, to the hurt of the king's liege people, and of them who cannot discern the cunning from the uncunning," &c. &c., it was enacted, that no person within the City and seven miles round, physicians or surgeons, should practise till examined and approved by the Bishop of London and the Dean of St. Paul's, calling to their aid four doctors of physic, and for surgery four expert persons in that *faculties*. There was a pain of forfeiture of *5l.* for every month they should practise without such licence. The same jurisdiction was exercised by the bishops of the several dioceses.

This statute was followed by the charter of Linacre, in the 10th Henry VIII. (1518), which, as no charter can override a statute, was confirmed by Act of Parliament in the 14th & 15th Henry VIII.

This charter was granted to Chambre, Linacre, and others, "of the same faculty," to found a college of learned men who practise physic. The expression, "*ejusdem facultatis*," when collated with that used in the previous statute of 3rd Henry VIII., proves that in that early day surgery was separate from physic; the statute running thus—

"That no person within the City of London, nor within seven miles of the same, take upon him to exercise and occupy as a physician or surgeon, except he be first examined, approved, and admitted by the Bishop of London, or by the Dean of St. Paul's for the time being, calling to him or them four doctors of physic, and for surgery four *other* expert persons *in that facultie*," &c.

Physic and surgery have *separately* the word "facultie" applied to them, from which it is clear that two separate faculties are intended, and that the word does not include more than the class to which it is applied. Hence it is plain that the words "*ejusdem facultatis*" in the charter mean purely physicians. The body thus incorporated, besides being entitled to hold lands, &c., are empowered to make regulations for the government of the College, and of all physicians ("*omnium hominum eandum facultatem*" &c.) in London, and within seven miles of the City. They had power, as a Court of Record, to fine and imprison for practising without the licence of the College, and for other offences.

There were also legal exemptions granted to the Fellows from "watch and ward," which exemptions were claimed, in 1614, to extend to the furnishing of "men or armour" for the defence of the City, and the immunity was judicially confirmed. Sir William Paddy, president, was instrumental, by pleading personally, and as it is said, with much effect, in obtaining the confirmation of the privilege. By this charter, the privileges of the Universities of Oxford and Cambridge of granting licences to practise physic were not infringed, except as regarded London and seven miles round. This charter was confirmed by Act of Parliament of 1522 and 1523, and it was this Act which created the elects, giving them power of examining and licensing physicians all over England, except the metropolis—a most important addition through the elects to the power of the College. The elects also were empowered to choose the president out of their own number.

An Act of Parliament, in the year 1553, confirmed the Act of Henry VIII., and bestowed authority to levy fines and imprison in any of the prisons, excepting the Tower of London. It appears that this last grant was added in consequence of certain governors of prisons having refused to receive persons convicted of offences by the College.

In the 15th James I. (1618), another charter was granted, defining and enlarging the penal powers. The fines were appointed for the use of the College, and the College was to pay six pounds yearly to the Exchequer. This charter, though accepted, was not confirmed by Act of Parliament. Another very similar charter was granted in the 15th Charles II. (1663); and again another in the time of James II. The last was surrendered by the College in

1685; but neither of them was confirmed by Parliament, therefore the Charter and Act of Henry VIII. are still in full force, and it is by them that the government is regulated and the privileges defined of the College of Physicians at the present moment.

The recent Act of 1858, with its amendments, did not affect Henry VIII.'s charter otherwise than by granting to certain other bodies licensing privileges throughout the three kingdoms. It may be chiefly characterized as an Act for registration, and for regulating the education of general practitioners.

One of the consequences of the enactments of the year 1858 ought to be understood. By one of the amendments was effected the extinction of a privilege not granted in Henry VIII.'s charter, but by the Act which confirmed that charter: by this amendment the office of elect, with all its powers, was done away with, and the election of the president extended to the whole college. The abnegation of this latter function of the elects was a graceful and necessary concession on their part to the general wish; but the former sacrifice was an abandonment of vested rights; and it is no doubt questioned by many among us whether the duty of resistance might not have been nobler than the liberality of concession. The legislation of 1858 was pressed forward in Parliament under the pretence of destroying a monopoly. The Legislature did not perceive that the holders of this so-called monopoly composed at any rate almost the whole talent, education, and practical knowledge of the metropolis; that it was exercised as much for the benefit of the public as for the maintenance of the efficiency and character of the profession; also they did not care to know that these functions brought no pecuniary rewards to individuals. We may incidentally remark that the expenses of the College, which had existed for more than three centuries, had been over and over again supplied by private subscription amongst the Fellows, and that the present structure, as well as the former buildings which it has inhabited, have been erected by the same means.

The nucleus of the College was established in Linacre's house, in Knight Rider-street, called the Stone House. This, which he afterwards gave to the corporation, must have been destroyed in 1666; but a house built on the site remained in the possession of the College till it was sold in 1860 for the new Probate Court. In the façade at that time was a stone which may probably be a relic of Linacre's house; but before the destruction of the latter, the College had removed (about 1625) to a house belonging to the Dean and Chapter of St. Paul's, in "Amen Corner." In 1651, Dr. Baldwin Hamey, junr., bought the remainder of the lease, and gave it to the College, to insure it from spoliation as part of Church property. We may here notice a curious instance of clerical conduct of affairs in 1662: when the Dean and Chapter granted a new lease of forty years, they stipulated that in addition to a ground-rent of five pounds per annum the College were to afford the Chapter professional aid gratis. This house in Amen Corner was also burnt in 1666, together with the library and much valuable property.

After the fire, the College surrendered their lease for 550*l.*, and instead of building on that site, erected handsome premises in Warwick-lane, the funds for which were chiefly supplied by private subscription among the Fellows. This building, which has some architectural merits, still exists; and it was not till 1825 that the present college in Pall Mall East was built, by another private subscription among the Fellows, King George IV. granting the ground. The first cost of 30,000*l.* was aided only by 2000*l.* contributed by the Radcliffe executors. The completion of this structure was chiefly promoted by the energy of the president, Sir Henry Halford, and it was not only in this that the institution owed much to the influence which he had won by his proper estimate of what belonged to the true dignity of the physician's character. Ardently devoted to practical pursuits, he was the model of an accomplished gentleman; and the estimation in which he was held by the highest classes of society was reflected on the whole profession.*

The Roll is deserving of much praise for the laborious research which has been bestowed upon it, and, as far as we can ascertain, it is also to be commended on the score of accuracy. The author has displayed considerable scholarship, and the materials are arranged with much success. Some of the records are of necessity meagre, and therefore, except for occasional reference, afford little interest for either the professional or the general reader. A more popular book might probably have been produced by tabulating those lives of which the bare existence has been handed down, by that means collecting in one view the more attractive matter of biography and anecdote. The more eventful lives of distinguished physicians abound in details which cannot fail to make the work a valuable addition to every library. We cannot commend it more effectually to our readers than by giving a short abstract of some of the more interesting biographies, noting, as the subject may suggest, a few reflections which apply to present circumstances.

The Roll opens with the name of John Chambre, M.D. Dr. Munk has placed him at the head of it, because his name stands first in Henry VIII.'s charter. His position in the charter was not due to any personal pre-eminence, but to the accident of alphabetical arrangement, the three king's physicians having been placed first and alphabetically. He affords a striking example of the combination of professions which was common at that period. The consideration of the subject is equally suggested by the biography of the great man who obtained the Charter of Incorporation, and who was the first president of the College.

Linacre was educated first at Oxford, and travelled into Italy with Selling, who had been appointed by Henry VII. Ambassador to the Court of Rome. At Bologna he received the instruction of Politian, and at Florence he was associated with the sons of Lorenzo de Medici, with permission to participate in their instructions. He then began the course at Padua to which we have already referred.

* When Sir Henry Halford opened the College in Pall Mall East, there were six Royal Dukes present, with a large assembly of men of learning and position. The Duke of York proposed the "prosperity of the College" at the collation.

He was the friend of the most distinguished scholars, and above all of Erasmus.

Returning to Oxford, he wrote the astronomical treatise, and from thence was summoned to attend Prince Arthur, and to become physician to the King. Later in life he took holy orders, but his devotion to his own profession continued unabated, and it was at the close of his career that he obtained from Henry VIII. the charter of the College.

We observe both Linacre and Chambre uniting the prizes of ecclesiastical and medical preferments. Chambre, who had previously been admitted into the priesthood, was made King's Physician on his return from Padua; he united the livings of Tychmarsh in Northage, and Bowden in Leicestershire; he was Prebend of Sarum, Archdeacon of Bedford, Warden of Merton College, Oxford, Dean of St. Stephen's, Westminster, and Treasurer of the Cathedral of Bath and Wells. In 1554 he resigned the Wardenship of Merton, and became Archdeacon of Meath. Linacre held the preferments of Prebend of Wells, Canon of Westminster, Precentor of York, Rector of Holworthy, and Rector of Wigan in Lancashire. He had been previously preceptor to Prince Arthur, and was at the same time Physician to Henry VII. Shortly after the accession of Henry VIII. he was appointed King's Physician, and practised his profession whilst his health permitted.

This arbitrary mixture of professions, and this plurality of benefices, appears still more scandalous when we observe that preferments in the Church were continually exchanged for other still more valuable endowments. It was the custom at that time to accept all that Court favour would bestow, and resign one or more in favour of some friend, on an arrangement for annual or some other mode of payment. This well-known fact is mentioned by Dr. Munk in a letter to himself, from the author of the 'Monasticon.' Dr. Oliver says that "the Crown was satisfied with these arrangements, as it was a saving to the Royal purse."

It appears from this that benefices in the Church were bestowed in lieu of payment for services done in the medical capacity. We can only remark, that if that were the case, Royal ideas about professional remuneration were far more satisfactory in those days than they are at present. The bestowal of these benefices is, however, rather to be referred to the lavish distribution of Royal favour then in vogue.

It is with the greatest reluctance that the charge of avarice would be imputed to such distinguished men as a motive for taking holy orders, especially when it is remembered that Linacre was as eminent for his moral worth as for his intellectual power and great attainments. Dr. Munk, quoting Dr. I. Noble Johnson, says:—"In private life he had an utter detestation of everything dishonourable—he was a faithful friend, and was valued and beloved by all ranks in life."

Nothing would be more unfair than to mete out censure against a transaction of a past age according to the moral standard of the present. This is too often done by superficial judges, as in the case of Lord Bacon, whose memory is still defamed for acts which he committed in compliance with an admitted custom; denounced by faction,

his very candour of confession shows that, in spite of many weaknesses, he was the victim of living in an age when certain ideas of right and wrong were still in a transition state. Dr. Munk extenuates the conduct of Linacre by suggesting that he desired to ensure a competency for the sake of exclusive devotion to the study of medicine.

Even if we should be obliged to leave the fame of Linacre unrelieved from the aspersion of personal avarice, the assertion of better principles is at least evident in the provisions against avarice in the practice of his profession, included in the charter. The first reason for incorporating the College was "to check men who professed physic rather from avarice than in good faith."

It is a testimony of his high esteem of science, that he sought to purify it from the unworthy motives which pervaded other callings—indeed, after making due allowance for the times in which he lived, Linacre seems to have been a model character for all followers in the institution which he founded; he was honourable, faithful, kind, and modest, as well as before his age in his notions of philosophy.

The first of the companions and successors of Linacre through whom we perceive any fresh principle infused into the College was Caius. Linacre had introduced some well-considered and sufficient measures of exclusion, but Caius enlarged upon them, and added, too much in the spirit of persecution, to the cautious guardianship of the principle that practice should be based on true philosophy; he withstood by legal prosecution the pretensions of the surgeons to prescribe internal remedies, having in this apparently more regard for the privileges of the College than for the advancement of science, which could but be retarded by repelling surgeons into a class of mere manipulators. These narrow views of Caius are the more remarkable when we remember his early fellow-studentship with Vesalius, whose large ideas on all other subjects, as well as on anatomy, should have saved Caius from so low an estimation of the calling of the surgeon.

We note also in the biography of Caius the first indication of opposition to what was called encroachment on the duties of the physician by the dispensers of medicines. It is now easy to perceive that this was a want of foresight as well as judgment; Caius was not sufficiently in advance of his age to anticipate that the apothecaries, when first emerging from their mere trading business in connexion with the grocers, were destined, by adding sufficient knowledge to their dispensing duties, to fill up a great want for the service of the public. He did not understand that the true calling of physicians was to consist in closest study of medical science, and the application of that science on all important exigencies; and that the aid, in simpler cases and for many minor mechanical operations, of men whose education had been less extensive, tended rather to preserve than to derogate from their interests. A subsequent act of the College to make a dispensary for the poor within its walls, which dates at the close of the seventeenth century, though directly opposed to this mistake of Caius's, was no less unwise. This step seems to have been the cause of much contention, and Garth in his satire, 'The

Dispensary,' handled the opposers of it with much severity. To undertake the duty of pharmacy even for the purposes of charity must have been a fatal departure from the legitimate functions of the College, and though there is little of detail to be found about the working of the measure, the early discontinuance proves that it was a failure. It may, however, have suggested the establishment of public dispensaries in a far more efficient form.

We turn with satisfaction to an act of Caius which we can cordially applaud. Being, by the testimony of his contemporaries, the most learned physician of his age, and having founded the college at Cambridge which still bears his name, we find him earnest in a better work than that of persecuting practitioners without the College walls—that of providing that none should come within them who were unqualified by the possession of all the learning which the time afforded. He well knew how the study of mathematics and Greek literature had lifted his immediate forerunners and contemporaries, at Padua and Pavia, above the level of the old magician quack, and it was whilst he was president of the College that an appeal was made to Oxford, insisting that the university should not grant medical degrees to any who had not gone through the full course of what has since been called preliminary training, the completeness of that preliminary training being insured by the "degree of Master of Arts, without favour or dispensation."

An amusing account of the Latinity of some persons who had been admitted to degrees in medicine at the University of Oxford, which led to this effectual remonstrance on the part of the College of Physicians, is given at pages 59 and 60 of the Roll. In the time of Charles II., the same principle of not admitting unduly educated members into the College was once more vindicated. It might be wished that the wisdom of this principle were sufficiently recognised by the present generation.

Passing by many lives which exemplify the progress of the still young College in learning and reputation, we note, under the presidency of Dr. Atkins, physician to James I., the earliest measure of collecting and classifying such remedies as were then known and most approved. When we compare the list of this first Pharmacopœia with the wild and fantastic nostrums of the beginning of the same century, we are struck with the extraordinary progress already made in the knowledge of remedial substances, as well as by the dominance of good sense over prejudice. We find in it much which might be used with advantage at the present time, and nothing absurd, although we miss the concentrated form of preparations which chemistry has furnished since.

This Pharmacopœia, published in 1618, proves this great advance to have been arrived at, that the basis of medical practice was understood to consist in the knowledge of disease rather than in the possession of a multitude of specifics. Wherever a recurrence to the old system appears, it may be traced to the idea of adding the advantage of an impression on the patient's imagination to the real

value of the remedy. Subsequent historians, forgetting the errors still in vogue in other professions, have seized on slight indications of this method in the treatment of distinguished personages, and used them as an excuse for holding up a whole profession to popular contempt. A candid thinker might have perceived that the split cock placed on the soles of the feet of Prince Henry was a poultice of most even temperature, although a clumsy one; and such a man as Macaulay might have spared his scorn about the essence of dead men's bones, administered to Charles II., if he had remembered that ammonia, a very useful remedy, is most directly derived from bones, and therefore from something dead.

In the compilation of the Pharmacopœia, we observe in the College the first organization of committees for special purposes—an effective system, but capable of much abuse, for since the time of its adoption it has been not less applied within the College walls to force the opinions of a section upon the general body than it has been in other large assemblies.

In the Life of Richard Palmer we find the first record of a contention in consultation about the line of practice to be pursued. Dr. Munk has reported of it some noteworthy particulars from the 'Desiderata Curiosa.' The attendants on Prince Henry, in 1612, were Sir Theodore Mayerne and Dr. Atkins, physicians to the King; Dr. Hamond, physician to the Prince; and Dr. Butler, who had been summoned from Cambridge. Sir Theodore Mayerne had early proposed to bleed the patient, which being objected to, he urged that if they meant to save life they must proceed in the cure "as though he was some mean person." It appears that there was not sufficient unanimity of opinion to support the moral courage of the man who wished to disregard the sufferer's rank, and we find that merely stimulants and palliatives were used. When the case became apparently hopeless, the King pressed Sir Theodore Mayerne to act independently; but the latter shrunk from the probability of a future reproach "that he had killed the King's son." Once more, however, he resumed his courage, and again proposed to bleed him; this was finally withstood. Cordials were doubled; Drs. Palmer and Gifford were called in at the eleventh hour, more and more brandy was poured in, and the patient died.

This story, which will find a parallel in the experience of most physicians, suggests some grave reflections on the moral code of the profession, and the influence of the public voice upon it.

In the biography of Sir Theodore Mayerne, just alluded to, we find an instance of compliance with a statute made in 1582. This statute provided that the King's physicians should be admitted Fellows in virtue of their office, superseding the necessity of examination, and dispensing with the qualification of being Doctors of Oxford or Cambridge and of being Englishmen. This statute was repealed in 1765, the College then nobly vindicating their function of deciding on the qualifications of physicians, not allowing either royal opinion or royal favour to interfere.

Those who like to follow the progress of medical study will find in

the same life interesting allusions to controversies then carried on at Paris, and to the strife between those who supported Galen, and those who wished to improve on Galen's mode of practice.

Mayerne had been physician to Henry IV. of France, and being rejected as a Protestant by Mary de Medicis, he afterwards settled in England. His devotion to the house of Stuart was remarkable.

In the Life of Harvey we find the admirable provisions of the Charter of Incorporation, designed as they were to encourage learning, producing the noblest of their results.

Harvey's education had been complete; he took his degree in Arts at Caius College, Cambridge, and afterwards, travelling through France and Germany, studied at Padua, then the most celebrated school of medicine in the world. On entering the University of Padua, Dr. Munk says that his teachers were surprised at the accuracy and extent of knowledge which he evinced in the examinations preparatory to his doctor's degree.

It cannot be doubted that with less intellectual training and less severe preparatory study, his great ability would have enabled him to profit more than other men by the teaching of that renowned university; but it is also certain that the habit of close reasoning, and of concentrating his mental power on abstruse subjects, helped him to the solution of the most difficult physiological problem which was ever proposed to human ingenuity, and to the greatest of all additions to the stock of medical knowledge.

The tumultuous time made it unlikely that any great scientific discovery should receive a national reward; but it is strange that the public of calmer periods have never yet thought of repairing the omission. The inscription appended to the statue erected by the Fellows in the first College of Physicians is all that was preserved when the statue itself was destroyed together with the building in the fire of 1666, and is the only memorial in existence. We recal, with pleasure, a graceful tribute to the memory of this great man by the oldest, as well as one of the most distinguished, of living statesmen. The remarks, which we venture to repeat, were spoken privately in the College of Physicians on the occasion of the inauguration of the statue of Jenner by the Prince Consort; but it is not unfair to record them openly. Speaking of Harvey's discovery of the circulation of the blood, he said "that inestimable benefit has always been appreciated by mankind, though the bestower has received no such honour as we now confer upon the memory of another." He went on to observe that all foundations for charitable purposes are transient, because all are subject to abuse and the institutions to decay, so that the intentions of the original founders are frustrated by the course of time; but that truths once discovered are subject to no change, and remain for all succeeding generations.

We are glad to record this graceful testimony to the value of true science. Of Harvey's munificence to the College we shall speak hereafter. The impulse given by Harvey to apply anatomical investigation to the furtherance of physiological discovery, was soon extended

to another branch of medical science. We find the same course promoted by Dr. Goulston, who in 1632, whilst Harvey was still lecturing, founded an annual lecture in the College, providing that a dead body should, if possible, be procured, and two or more diseases should be treated on, thus laying the foundation of morbid demonstrations.

Dr. Goulston was an eminently learned man, having, before he applied himself to medicine, taken his degree of M.A. at Merton College, Oxford, of which he became Fellow. His early academic devotion to that classical lore which was then peculiar to Oxford, resulting as it did in several critical treatises, did not prevent his adopting and furthering the most practical of all means by which light could be thrown on the nature and progress of disease.

An instance of the exercise of the judicial power which the College possessed over its own members is to be found in the biography of Dr. John Bastwick. He was expelled the College in consequence of being under sentence from the High Commission Court for calumniating the bishops. It appears also that, when the Long Parliament sent for Bastwick from his prison in the Scilly Islands, and when he, with Prinne, was received on his entrance to London by the populace as a martyr to the oppression of the Star Chamber, the College reinstated him as licentiate. In regard to his expulsion, there is no room for charge against the College of undue subservience to the Government; we should rather be disposed to applaud the act of purifying their body from a member disgraced by the law. Whether there is equal reason to uphold the College for their readiness to readmit him is not so clear, making all due allowance for the difficulty of calm judicial acts in those disjointed times, even by a scientific assembly. But the conduct of Dr. Bastwick after his legal sentence was little likely to entitle him justly to such leniency, for his violence on all occasions amounted almost to insanity. The notice of him in the Roll, viewed as a short historical episode, affords much interest for the general reader.

Continuing our rapid review of the contents of the Roll, we come to a remarkable measure adopted by the College in the presidency of Sir Edward Alston, who kissed hands at the Restoration as king's physician. The measure alluded to deserves some examination. It seems that a large number of honorary fellows were admitted into the College, paying liberal fees or fines, some amounting to a hundred pounds—a large sum for that period; this was an innovation in the practice, but not in the principles of the charter; it was a mere gathering within the pale of the corporation of those who ought before to have been its legal members, but who had neglected to apply during the period in which every institution was either neglected or abused. The College took advantage of the restoration of order in the State to recruit their diminished ranks; and men who had been fully educated, but who, having been in practice without a licence, had become too old to be examined, were admitted, a heavy fine being accepted as a composition for foregoing the examination. Thus far,

in an exceptional exigency of affairs, the proceeding cannot be condemned; but the College, taking occasion of this departure from the strict rule of the charter, and wishing to replenish their empty coffers, admitted men of rank and influence out of the profession; to the temptation of the payment was added, as we may suppose, that of being honoured by the association of men of power: this was undoubtedly a departure from the true business of the College. Even supposing that the amateur fellows were really actuated in their desire for enrolment by a pure love of science, it must be remembered that the College was bound to form a body, not of mere learned men, but of learned physicians. In regard to the amateurs, it must not be forgotten that no society existed at that time for the prosecution of general science, and that natural philosophy was studied by all men of education; those who wished, therefore, for special improvement, had no legitimate place of resort, and the attempt to be embodied into any learned corporation admits of much excuse. The Royal Society, which so soon after was established, was of course more comprehensive in respect to the pursuits of its members; but that corporation also assumed a false position in regard to the aristocracy, choosing members, not because they were learned as well as noble, but because they were merely noble and rich. It was a remnant of the old system, under which science and literature existed only by the patronage of the great.

The examination of apothecaries' apprentices, which was also resumed at the same time that the number of members was increased, requires some observation. The examinations had been, as far as we can discover, merely acts of supervision made by the College to protect the public from having medicines dispensed to them by men who could not read prescriptions; it was done simply to ascertain that those men had acquired Latin enough to do so. Neither this, nor the examination of the apothecaries after they had finished their apprenticeship, was any departure from the legitimate function of a College of Physicians; for there was no association of those persons with the members; the proceeding was a mere act of supervision, and was analogous to an inquisitorial duty performed until lately by the censors in their visitation of apothecaries' shops; on those occasions the censors found fault with, and even destroyed, drugs which were unfit for public use. It is by no means certain that the relinquishment of this latter duty was a wise step on the part of the College. There was no remuneration for the visitation of the shops; and, as far as can be traced, there was none for the examination of the apothecaries. It is important to define clearly the distinction between the act of authority which was resumed in 1664, and the newly-assumed functions of the present day; it will be perceived that the latter, however desirable they may be, have in reality no parallel with the former.

One of the most distinguished presidents of the College was Dr. Francis Glisson, in whom was combined a discoverer in anatomical science and a great promoter of natural and experimental philosophy in general. He was president in 1667, and was one of the few who

instituted private meetings, which proved the germ of the Royal Society, incorporated in 1682.

Sir George Ent is chiefly known as the champion and friend of Harvey, for whom he appears to have acted as amanuensis. It was whilst he held the Lumleian lectureship that the high place which the College then occupied in public estimation was testified by the presence of the Sovereign. Charles II. attended Dr. Ent's lecture, and knighted him afterwards in the Harveian museum. Sir George Ent was afterwards president.

It is impossible to pass over the biography of Dr. Whistler, a man who seems to have lived respected and beloved, but whose memory is handed down in obloquy, without some serious investigation. Dr. Munk records an instance of gross peculation on the part of Dr. Whistler, and finishes the notice of his life by a sarcasm which, if the charge were true, might not be too severe. A careful examination, however, of such evidence as still exists, shows that the case will bear a more charitable construction, which would rescue the fame of Dr. Whistler from reproach, or at least leave the charge in the highest degree problematical. Dr. Whistler was registrar in 1681, treasurer in 1682, and president in 1683. Not only whilst he held the office of treasurer, but apparently up to the hour of his death, his character remained unimpeached; for at the end of his accounts the following statement is to be found, in the writing of the bedell, signed by the proper officers:

"*April the* 30*th*, 1684.

"We whose names are hereunder written, Electors of the College of Physicians, London, have examined the account before mentioned, and doo find the same to be true, and that there doth justly remain due from the College unto Dr. Dan[l]. Whistler, the sum of three hundred eighty-four pounds seven shillings and sevenpence.

"Memorand.—The account mentioned in the verdict above doth only refer to the account given in by Dr. Whistler, which begins the 18th April, 1683.

(Signed) G. Ent.
Tho. Coxe.
Walt. Charleton.
Geo. Rogers."

There is one other memorandum to exactly the same effect signed by the bedell, but there is no allusion whatever on record to the "peculation," except what is contained in the bare minutes of two secret meetings of the 13th and 24th May, 1684, in which Dr. Whistler is named as lately dead, and some delinquency not specified is said to be the business. The minute is thus worded: "Maij xiii. Comitiis extraordinariis, Consultatio fuit de peculato insigni Danielis Whistler, Presidis nuper defuncti, assistenti amplissimo ac prudentissimo viro, Johanne Cutlero Baronetto." The minutes of the second meeting run thus: "Maij xxiv. Comitiis privatis. Nihil actum præterea de rebus Doctoris Whistler, nisi quod ejus nummi, vasa argentea, et id genus pretiosa, coram Præside, Johanni Cutlero Baronetto, &c., in loco tuto reponebantur donec altertestamentariæ procurationi præpositus advenerit D[nus] Lowther." (Solicitor?) Showing that valuables were

taken possession of until the will could be proved. We are able to add the facts that Sir John Cutler, who was present at these meetings, was a relative of Dr. Whistler's, that it appears that as early as 1675 the College had borrowed of Sir John Cutler money on bond, and also that the numerous entries in following years show a complication of transactions between him and the College.

It is important to observe that Sir John's being present when the meeting came to the decision that money had been embezzled, he not being a member of the comitia, indicates that he was some way conversant with the affair in question. In the absence of any further evidence, it is not unfair to surmise that sums of money might have passed from Sir John Cutler to the College through his relative, the President, and that a portion being missing, the fault might with impunity be charged to the dead man's account. This hypothesis, which would exonerate a man whose reputation had been until then unsullied, transfers suspicion to another whose character proved in the end to be the reverse of honourable.

It appears that there were further considerable money transactions after Dr. Whistler's death between Sir John Cutler and the College of Physicians, and Pennant distinctly charges him with want of faith. The exact nature of these transactions is involved in some obscurity, but it is certain that although a statue was erected in the College to Sir John Cutler in gratitude for benefits received, the inscription was obliterated when his character fell into disrepute. Again, Sir John Cutler's conduct to the Royal Society was beyond all doubt dishonourable: in 1664 he founded a professorship of mechanics, endowing it with 50*l.* annuity during the life of Hooke, the first professor. In 1689 Hooke, by the authority of the Council, sued Sir John Cutler in the Court of Chancery for the payment of the salary. If, therefore, the short and mysterious allusions in the records of the College be fairly considered in connexion with the known character of the man who was involved in the transaction does not warrant a complete assumption of Dr. Whistler's innocence, it must be regarded as insufficient to defame his memory.

The author of the Roll has been influenced in his general remarks on Dr. Whistler by passages in the Athenæ Oxonienses. It is, however, well known that Wood was most untrustworthy as an historian. Specimens of his spiteful personal detractions are to be found in every page; and he gives his own evidence that in 1693 the Senior Proctor in his speech called him "scurra et calumniator." One of his ill-natured taunts against Dr. Whistler was that "he married a rich widow and died poor." This charge may have been true enough, for professional men who marry widows with large jointures mostly do die poor: during the husband's life there is a heavy drag to match the lady's contribution, and when he dies, her income does not count among his property.

An incident illustrating the proverbially bad faith of princes, and the accidents which befal suitors for court favour, is worth extracting. Dr. Thomas Wharton, who was remarkable for his anatomical know-

ledge, remained in London in the visitation of 1666, long after most of his professional brethren had fled. His constancy was almost failing, when the Government lured him by a promise that he should receive the first appointment of King's Physician, if he would remain and continue his attendance on the Guards. He did so, and in brighter times claimed the reward; the royal promise was evaded by the still current phrase about the "necessity there was to appoint another person." He received instead the gracious substitute of an "honourable augmentation to his paternal arms;" and for this favour he was obliged to pay Sir William Dugdale a fee of ten pounds.

Though some of us now have to put up with broken promises, not many have the consolation of admiring a "dodge" so clever as to enable the royal patron to help a functionary and put off a claimant by a single act. It is fair to add that Dr. Barwick and Dr. Hodges both remained at the post of duty during the plague, when most of the College officers fled into the country, leaving the treasure-chest to be robbed of its contents.

Tracing the development of medical science by the labours of the members of the College, it is impossible not to notice Sydenham, who introduced an era of fresh enlightenment. He was the most rational of practitioners, following the steps of Hippocrates in close discernment of symptoms; surpassing him in reasoning on what he saw, he rose above fanciful attachment to system and nostrums. He overset many mistaken theories of medical superstitions embodied in the doctrine of signatures and symbols. Amongst other instances, his treatment of small-pox was a happy novelty in its simplicity and good sense.

Sydenham, though Fellow of All Souls, was prevented by accidental circumstances, in the course he took at the University, from becoming Fellow of the College; we cannot but agree with Dr. Munk that his exclusion ought in no way to be referred to adverse feeling; for though he might have enemies, yet the fellows have rarely been guilty of combining for purposes of envious oppression. We cannot, after naming Sydenham, pass in silence the name of his great cotemporary, the author of the 'Religio Medici,' Sir Thomas Browne, who was as much distinguished by success in practice as he was for his great literary work. It was of his son, Dr. Edward Browne, when President of the College, that Charles II. said that "he was as learned as any of the College, and as well-bred as any of the Court."

Among those who most adorned the College, Sir Thomas Millington has a distinguished place. He was educated at Westminster and Cambridge, and afterwards became Fellow of All Souls, and Sedlean Professor of Natural Philosophy at Oxford. To many qualities which made him admirable both as a man and a physician, was added the gift of eloquence in a remarkable degree. The sketch of his character given in the Roll shows it to have been worthy of study and imitation by all physicians who, to higher aspirations, add the desire to elevate the standing of their calling in society.

It is mentioned of Sir Thomas Millington that he died of gout and stone, which is worthy of remark, on account of the great number of

his professional brethren who suffered in the same way about the same period. The fact may, perhaps, be referred to the habit of sitting for many hours in carriages, a custom chiefly adopted under ideas of professional dignity, as well as to the grossly convivial habits which even the best characters of those days indulged in; the salutary custom of an annual escape to foreign lands, or at least to a different scene and air, was unknown to the victims of sedentary habits.

In Dr. Charles Goodall, president in 1708, we recognise an ardent supporter of the institution. He devoted himself to the study of records bearing on its history and function—a study which, if not a sufficient object for a life's pursuit, is at least imperative on all who are responsible for the preservation or improvement of the laws. 'Goodall on the College' is a valuable book of reference; but it appears that the author was not a mere pedantic archæologist. His general learning and practical merits as a physician are testified to by Sydenham, who, in a dedication, amongst other praises, calls him "*arte nemini secundus.*"

Looking further down the Roll, we come to a group of Fellows, of whom Dr. Henry Sampson may be taken as a representative. Dr. Henry Sampson fell on times when nonconforming principles were rife; having been ordained in early life, he obtained, as Fellow of Pembroke College, Cambridge, one of the richest rewards which the University yet has to give. The Fellows of Pembroke appointed him to the rectory of Framlingham, worth two thousand pounds a year. His scruples about uniformity caused him to resign the living and to study medicine; he became a successful practitioner, and an honoured Fellow of the College.

The name of Radcliffe is too prominent to be passed over in the most cursory review. His character was anomalous; Fellow of Lincoln College, Oxford, and M.P. for Buckingham in 1713, he was the earliest type we find recorded of the rough-mannered physician—a race which has found, like Radcliffe, its profit in surprising rather than in pleasing, and whose time, we hope, has passed away. There are anecdotes of his rudeness which swell the facetiæ of medical biographies. We are more concerned with the records of his vast benefactions for various purposes in Oxford; these will be specified in their place.

A curious sign of lingering remains of superstition where it was supposed to be extinct, is to be found in the life of Sir Richard Mannington, son of the Bishop of Chichester, who gained much credit for detecting the imposture of Ann Toft, the rabbit-breeder, after surgeons and lawyers had been baffled. The impression made upon the public mind by such a piece of jugglery is remarkable; and it is said that Queen Caroline, when Princess of Wales, was earnest in instigation of more searching inquiries. We may flatter ourselves now that a similar cheat would be thought unworthy of grave examination, and believe thereby that we have renounced the folly which still clung to the period of the Georges. Such, however, are the vagaries of credulity, that although contempt would probably meet the pretensions of a rabbit-breeder, we find ourselves often asked,

after a century and a half of further enlightenment, to argue calmly about the cropping up of similar superstitions—such, for instance, as necromancy in the form of spirit-rapping. Any one who thinks it worth while to look over old treatises on the occult sciences, and their adaptation to Platonic philosophy, will find the germs of all the quackeries which have in later times deluded or amused the public —Mesmerism, homœopathy, and others, even craniology. The mine from which these have been dug is by no means exhausted, and a little ingenuity might easily adapt much of the remaining rubbish to supply paying baits for the appetite of lovers of the marvellous.

We perceive that the history of the College is not destitute of its own little passage of rebellion; like our own and most other political constitutions in their progress of development, it had to pass through troublous times. These occurred in the presidency of Sir William Browne, whose life seems to be full of amusing anecdotes. At the beginning of the eighteenth century, the profession having expanded, and many Scotch physicians having repaired to London, the College found it politic to admit many persons who had not been educated in the English universities. Faithful, however, to their traditions of requiring preliminary education according to the standard of Oxford and Cambridge in all their Fellows, they admitted all who had not received those advantages into the class of Licentiates, and restricted the governing power to the Fellows, making a saving clause to admit a very limited number of such Licentiates as attained distinction into the governing body. In consequence of this, those men who had not chosen, or had not been in circumstances to procure the proper qualification for the Fellowship, caballed against those who had; they coveted the oil of other people's lamps. Unfortunately for themselves, they did not restrict their outbreak to a war of words; and an account, which would have been grotesque were it less disgraceful, is given of a riotous incursion into the presence of the comitia, of the insurgents being barred out, and of a bribe offered to a smith to break open the iron gates of the College in Warwick-lane. A lawsuit at length restored order to the agitated College, and established the right of the Fellows to govern according to their charter. Again we must refer to the manners of the period. It is probable that these "rebels" had not the excuse of being conversant with the histories of the English universities, but the time was then not very long passed since it was common for the newly-appointed wardens and heads of colleges at Oxford to obtain possession of their preferment by force or stratagem in the midst of tumult.

We are sorry to add that Sir William Browne was terrified into the resignation of his office, a defeat the more to be regretted as he has an honourable place in the list of benefactors to his university.

Among the list of College authorities we meet with a group of men whose names are prominent in all literary records of the times, giving and receiving lustre in their intercourse with great contemporaries—Lawrence, Brocklesby, Heberden, Warren, and others. All these were the friends of Johnson, his companions during life, and his attendants

during his last illness. Macaulay, in a niggardly tone towards men of science, which too often blemishes his writings, gives the names of many who surrounded Johnson, such as Garrick, Goldsmith, &c., and even records that "Windham disposed his pillows;" but he disposes of the rest in one lump as "HIS physicians and surgeons." The surgeon, we may observe, was the celebrated Cruikshanks. It is to be regretted that Macaulay afterwards states the fact that they gave their aid gratuitously, as if it were a notable instance of professional liberality. We must here hazard a remark, not without caution, lest we should seem to hint at a desire to deprive the medical profession of their best possession—their large and willing charity, foregoing pecuniary claims to all who would be burthened by the payment. Yet we cannot but observe that the expectations of a large portion of the public exceed all reasonable bounds. Exemption from a just debt is claimed by many who would never dream of reciprocating such terms for any good offices which they might render in their own calling.

Having thus broken a lance with the great historian, we may suppose ourselves for the moment, as reviewers of Dr. Munk's work, to be champions in defence of the College of Physicians against all the world, and in that character repel an injustice done to the name of one of the Fellows who lived shortly after Lawrence and Heberden. The sarcasms which were heaped upon Lord Sidmouth on the subject of his origin, lose, it is true, a portion of their sting when referred to the bad habits of personal invective, the result of the furious party spirit of the times. Whilst the tongue was allowed unbounded licence, it was not to be expected that any well-grounded reproach of being lowly born would be repressed. The scorn, however, with which historians allude to the parentage of Lord Sidmouth could not lead future generations to suppose that his father, Dr. Addington, had been a man highly educated at Winchester and Oxford, that he had been the friend of the great Lord Chatham, and had been employed in many political negotiations. It matters little that the young Canning, sprung himself from the meanest of the people, should have tried to aid his patron's cause* by pasquinades, making game of Addington and Addington's relations; but it was more to be regretted in soberer times, on the occasion of Lord Sidmouth's death, that the same sort of language was uttered on the floor of the House of Commons by a nobleman whose fame is as high in literature as for administrative success—a man, moreover, noted for his liberal principles and generous feelings. Lord Sidmouth could not boast the blood of all the Howards; but his father was never in a position to permit the memory of the son to be taunted with the stigma of low birth. Something bearing on the same subject, though in a lighter vein, is suggested by meeting a little further down the Roll with the memoir of Sir George Baker. It calls to mind a flippant notice of him in Washington Irving's 'Life of Goldsmith,' which is quite unworthy of a literary man. He relates, "Miss Hornecks invited Goldsmith to meet Reynolds, Angelica Kauff-

* Macaulay's Life of Pitt.

man, Garrick, &c., at the house of *a* Dr. Baker, a friend of her mother's." It happened to be Sir George Baker, one of the most distinguished scholars as well as physicians of the day, Fellow of King's College, Cambridge, President of the College of Physicians, Physician to the King, and a baronet; whose name, kept duly in the shade by the little prefix "a," has honour done it by the happy chance of playing host to an actor, a second-rate female artist, and Miss Hornecks; and happier still, to shine in the borrowed lustre of being friend to Miss Hornecks's mother.

Passing by such trivialities, and approaching towards the close of the eighteenth century, we find in the College list names great among discoverers in natural philosophy. There was Young, who matured and established the Undulatory Theory of Light, which has now become the favourite hypothesis: he shared with Champollion the credit of deciphering the Hiëratic inscriptions; and so various was his learning, both in literary and scientific subjects, that he went by the name of "Omniscient Young." Again, we find Wollaston, who preceded Frauenhofer in discovering the lines in the solar spectrum, which are now known by the name of Frauenhofer's lines. Mrs. Somerville regrets that he had not the courage of Young and Davy to enable him to press forward his discoveries. They were left to be developed by Wheatstone, Bunsen, and Kirchhoff, whose labours, aided by "a great improvement in the optical arrangements used," have had those wonderful results which promise to reveal the material of other worlds besides our own.

The last great name which we shall dwell upon is Baillie, a man whose labours formed an epoch in the progress of that branch of learning which it was the special object of the College to promote. Tracing briefly the steps by which medical philosophy rose above the ignorance of former times, we have seen Vesalius ascertaining structure by boldly examining the dead body; Harvey, using the same mode of investigation, revealing his own wonderful discovery; and we come at last to Baillie, still, by the same means, opening out the vast field of instruction to be found in examining the progress of disease and fatal change. It is with that course of study that the true science of medicine, as a practical art, may be said to have begun. Hitherto physicians had observed and argued, and still only guessed at truth. Since then they have observed and reasoned, and have proved it. Thus the oldest and the wisest have an unfailing means of self-education which they may continue to the last moment of their practice; and whoever does not value this—whoever, after anxious watching of some obscure case, noting the anomalies, seizing the remotest evidences, and finally arriving at a full conviction—stands at the "post-mortem" without the same breathless eagerness to see the truth, the same modest willingness to learn it as he ever did when the mysteries of disease were first displayed to him, may be a popular physician, but is no true philosopher. That he may be the first, and not the second, is no vain antithesis, but a melancholy fact—a fact in which lies the fatal germ of all that is to sink the profession, should such be its future fate, below the great position it has lately held.

It will be no consolation to those who deplore the event, that the public, when they have lost the powerful aid they might have had, have brought it on themselves. It may be an inevitable consequence of a forced state of luxurious civilization, that it weakens manly courage, and makes it hard to look upon unwelcome truths. There may be other reasons for the general feeling, but it seems certain that there is a growing preference of the aid of inferior knowledge, accompanied with flattering promises, to that of sound treatment based on full information of the fatal truth. People now would rather be deceived as children than be served like men. The same want of fortitude in the public mind, combined with an ignorant, and sometimes querulous, want of confidence in medical skill, has, no doubt, an evil influence on modes of treating cases which are understood, and are remediable. It is hard for the physician, who is called in, perhaps just not too late, to leave the favourite resort to excess of stimulants, and to take that other course which his experienced judgment tells him affords, in that particular case, the only chance to stop the havoc of disease; he knows that chance may fail, and he knows that all around are ready to impute to him the failure. It is very hard in such a crisis to the bold and self-forgetting, but it is very easy to pursue the fashionable mode of treatment, and when all is over to say that no risks have been run—all has been done that can be. It would be an ungracious task to press the moral bearing of this every-day occurrence, in which the faults of society and the profession act and react upon each other; but it may be asked, ought we to blame the public for its want of confidence, or the physician for not having taught it to respect him? There is but one hope for a better state of things—that is, in a system, whatever that might be, which would ensure that the leading rank in the profession should be filled by none but men strong in moral courage as well as deep in learning.

In closing this slight review of the Roll of the College of Physicians, a few facts collected from the history of the institution may interest the statistician.

The proportion in which the College has been connected with the English Universities is apparent from the statement that in the first two centuries after the incorporation one hundred and two Fellows of the College of Physicians had been also Fellows of Colleges in Oxford and Cambridge. In the third century—viz., from 1700 to 1800—there were but thirty-six. Seven Fellows were heads of colleges in the universities. The first Fellow who was raised to the rank of a Baronet was Sir Edmund Greaves;* he was followed by two more prior to the year 1700, and there were thirteen such creations between 1700 and 1800.

Nine of the Fellows have been members of Parliament, one of

* Wood, with one of his usual sneers, which for some reason or other he was particularly fond of bestowing on physicians, said of him, "at length a pretended baronet." He is, however, mentioned by Guillim, and the patent is dated Oxford, May 4th, 1645. Wood's antipathy to physicians possibly arose from a college feud, which was organized to oppose the institution of Sir William Clayton, M.D., to the wardenship of Merton. Mr. Weld, in his History of the Royal Society, errs in stating that Sir Hans Sloane was the first baronet.

whom, Dr. Goddard, was sole representative of the University of Oxford in 1652, and was appointed by Cromwell one of four to act, during his absence in Scotland, in all matters relating to grants and dispensations which required the Protector's assent.

It was at Dr. Goddard's lodgings, in Wood-street, Cheapside, that certain private meetings were held for philosophical inquiry; these meetings were composed of four Fellows of the College, besides Dr. Wilkins, afterwards Bishop of Chester; Mr. Foster, professor of anatomy at Gresham College; and Theodore Haak, a German; and to them may be attributed the foundation of the Royal Society. On the incorporation of the society, the first list of candidates, who were to supply vacancies as they occurred, was half composed of Fellows of the College. Dr. Croone was the first Registrar, and the first council contained four Fellows of the College of Physicians out of sixteen. On the second charter being granted to the Royal Society, the same proportion of Fellows of the College of Physicians were on the council.

Three Fellows of the College of Physicians have been presidents of the Royal Society. The benefactions of the Fellows of the College to the English Universities of Oxford and Cambridge have been numerous and important; to instance a few:

Linacre established professorships both at Oxford and Cambridge.

Caius enlarged Gonville Hall, and added fellowships and scholarships, with rich foundations.

Sir William Browne founded the Browne Medals at Cambridge, as well as a scholarship in the University.

Dr. Battie founded the University Scholarships with his name at Cambridge, and several other scholarships at King's College, of which he was Fellow.

Dr. Glynn also founded scholarships at King's College, Cambridge.

Dr. Radcliffe's rich endowments at Oxford are well known—the library, the infirmary, and fellowships.

Dr. Addenbroke founded a hospital at Cambridge.

Dr. Woodward left his museum of geology, and founded a Professorship of Geology at Cambridge.

To these it may be added that Lady Sadleir, the widow of Dr. Croone, founded seventeen algebraical lectureships in the University of Cambridge of 40*l.* and 60*l.* each. The mathematical students might do well to inquire when these lectures are given.

The few benefactions which now produce an independent income to the College have all been derived from Fellows, chiefly in the form of bequests. Linacre's property in Knight Rider-street has been already named; Harvey gave his patrimonial estate in Kent; Dr. Baldwin Hamey, jun., gave an estate in Essex of considerable value.

Lord Lumley and Dr. Caldwell united to leave small rent-charges* on their estates to found a professorship.

* It would be well for those who grant benefactions, to observe the inconvenience of making them in rent-charge; the difficulty which may attend the collection in future years is very serious, for if the original property is ever sold in divided portions, each of those portions becomes chargeable with a part of the rent-charge, according

Dr. Goulston also left a small rent-charge for a similar purpose.

Lady Sadleir, widow of Dr. Croone, left a small property to the College and the Royal Society conjointly, to found lectureships.

Dr. Baillie, together with his museum, left a sum adequate to keep it in repair.

The Marquis of Dorchester, an honorary Fellow, left the whole of his valuable library to the College.

We have perhaps done but scanty justice to the work before us by passing over, in the short review of its contents, many amusing anecdotes and curious facts, as well as by refraining to extract some striking passages of literary merit.

The Roll proceeds no further than the close of the eighteenth century; it leaves off at a period when we perceive the corporation carrying out with honest vigour the purpose of its foundation; it was powerful in usefulness and influence. At that time every young man at the beginning of his professional career, however brilliant may have been his honours at the University, however flattering his circumstances or strong his consciousness of power to succeed, felt his admission to the Fellowship of the College of Physicians to be an honour and a step forward in his social position; it was an auspicious moment to pause in the College history. We should be grieved to have to confess that it was the moment of its zenith, still more to have the painful task of telling of a period of decadence in after years! It is not our purpose either to scrutinize its present condition or to prophesy its future; for the latter we must hope; but a reasonable hope can rest on nothing but in holding to the same principles which produced three centuries of prosperity; and though admitting cautiously as well as liberally any modification which the changing spirit of the times may call for, in doing faithfully its proper work—viz., the work of making sound and good physicians, and gathering within its pale all who are eminent in learning and experience in the profession.

REVIEW II.

A Practical Treatise on Phthisis Pulmonalis; embracing its Pathology, Causes, Symptoms, and Treatment. By L. M. LAWSON, M.D., Professor of Clinical Medicine in the University of Louisiana, &c. —*Cincinnati*, 1861.

THE comprehensive nature of this work, as well as its logical arrangement, is well shown by the table of its contents. It is divided into four parts, and each of these into a certain number of chapters and sections. The pathology of the disease constitutes the first part, its etiology the second, and its semeiology and therapeutics the third and fourth.

to its value, therefore the bequest has to be collected from a number of proprietors. Another objection depends on the variable value of the bequest, which remains absolutely the same sum, whilst the value of money changes, and the property which the rent-charge represented, increases in value.

The analysis of it as a whole, extending over 557 pages, comprising a well-arranged and useful index, we shall only partially attempt, the subject of phthisis having been so often and so recently brought under the notice of our readers. We shall comment chiefly, and that briefly, on those portions of it which are most novel, or which on other considerations appear to be most deserving of attention.

Dr. Lawson begins with a well-sustained proposition, that there is a predisposition to the disease in those who are subject to it, and that predisposition is, however obscure it may be, a morbid state the opposite to a normal healthy condition perpetuating itself.

In the first section—that on "the Physical Conformation"—he shows the independence of his views in not recognising any well-marked form of body distinctive of future phthisis. We quote the following remark, according as it does with our experience, and founded as we believe it to be in truth. After referring to contradictory statements, he proceeds:

"Each observer must be left to decide in accordance with what passes under his own immediate observation; and guided by this rule, I have long since reached the conclusion that there are no certain and infallible external indications of the tuberculous constitution. It is true certain inferences may be drawn from incomplete, irregular, or preternatural development of the organization; it may become a fair conclusion that in such systems premature decay, or the development of disease, acute or chronic, will more often supervene than in well-developed bodies, but, at the same time, it is impossible to know that such persons will become scrofulous or tubercular, or whether they may not fall victims to other forms of chronic disease. If we meet with a person exhibiting the conformation of the chest described by Fournet, *and we know that he comes of a tubercular family*, we might safely predict the occurrence of the same form of disease; but if we observe a similar condition of the thorax independent of a known hereditary taint, we would not be authorized in the present state of knowledge to declare such a person to possess a tuberculous constitution."

Further, he rejects the too commonly entertained idea that a contracted or ill-formed chest is, one or other, the accompaniment of phthisis. On the supposed marks of the tubercular constitution, he expresses doubt as to their reality, well observing:

"We must not always expect to find the full development of the external signs said to characterize this peculiar constitution, nor in their absence are we authorized to conclude that a predisposition to disease does not exist."

We attach importance to these preliminaries, both for the value of the remarks in themselves, opposed to popular views and to the views of many respected authors, too hastily, as we think, adopted; and, on another ground, as showing that excellent attribute of independent thought without which no science can make an advance.

Relative to the primary morbid changes which, Dr. Lawson is of opinion, precede the production of tubercle, we think, as we have stated in a recent number of this Review, when commenting on Dr. Edward Smith's work on consumption, that there is room for doubt, believing as we do that the existence of tubercle in its earliest stage

is hardly to be detected, and is not incompatible with such an amount of vigour and health as to excite no suspicion of the organic mischief that is latent. To this subject we shall have an opportunity of reverting under the head of Symptomatology.

Dr. Lawson's several sections on tubercle, comprising its physical character, varieties, histology, and chemistry, will well repay perusal. He meets it in all its obscurities and difficulties, satisfying us, if we had not been persuaded before, that notwithstanding all that has been made known by microscopical and chemical research, much remains to be ascertained before we can say what tubercle precisely is. Our author's own view is an eclectic one, that it owes its origin to exudation, and its increase in bulk to imperfect cell-growth; that it is a formation *sui generis*, is composed of a modified albuminous and fatty matter, and is destitute of phosphorus and sulphur. Of the two kinds, the grey and the yellow, he considers the latter as most deserving of the title of true tubercle, being the kind prone to undergo softening, giving rise to excavations; whilst the grey, he is of opinion, is subject to a different change—that of conversion into a cretaceous mass. This view of the last-mentioned tubercle we cannot but consider as belonging to the hypothetical class, and wanting the support of exact pathological evidence; he admits that occasionally it softens, much in the same manner as the yellow accretion.

On the condition of the blood in phthisis, the information afforded by Dr. Lawson, derived from his own researches and those of other pathologists, is hardly more satisfactory than that on tubercle. All the experiments hitherto made, of which the results have been published, have been on venous blood. According to him, its peculiarities are chiefly the following (that is, when the disease is fully established),—a deficiency of red corpuscles, a slight deficiency of fibrin, an increase of albumen, of white corpuscles, and probably of fats and salts—altogether indicative of a depraved state of the circulating fluid, and a low state of vitality.

Relative to the secretions, the information brought together is anything but satisfactory, owing not to any want of inquiry on the part of our author as to what has been done, but to the little accordance in the results of those pathologists who have given their attention to the subject. Neither the state of the bile nor of the urine appears to be materially modified by the disease, their character seeming more or less in accordance, when dilute, with the anæmic state of the system, and when otherwise than dilute, with a febrile or inflammatory exacerbation.

On the growth of tubercles, Dr. Lawson holds the opinion, that though they be, as he views them, an extra-vascular formation, they possess a low vitality, and are subject to laws which govern vital actions, cells being their epigenesis, granules their elements, and an exudation their initial blastema. He consequently rejects the idea, supported by some high authorities, that they consist of metamorphosed epithelia or of any form of retrograde morphology. And he assigns, we think, good reasons for his preference.

The obscure nature of tubercle is further well displayed by Dr. Lawson's remarks on the two kinds of these products—that which he designates the yellow, though not always yellow or of a distinctive colour, according to our experience, and the grey and granular, which, contrary to the opinion of many pathologists, he considers as essentially distinct. The difference between the two he places in a lower degree of vitality belonging to the yellow than the grey, and in the formation of the one (the grey) being attended by an inflammatory act, feeble, indeed, in degree, which is absent in the production of the other.

On the seat of tubercle and the mode of its deposit, Dr. Lawson gives the views of different authors. His own, as a fundamental portion of the theory of the disease, we shall quote, and the more willingly as it seems to us most in accordance with what is best known of the disease:

"In reviewing all the facts which have been developed, it seems to me sufficiently evident that the process of tubercular exudation or formation bears no direct relationship to inflammation. Nor is the evidence sufficient to prove, notwithstanding the high authority of Virchow and Schroeder Van der Kolk, that the process consists of a transformation of the epithelial cells into tubercle, or that they are in any sense connected with the formation of that substance. In relation to the analogy existing between inflammation and the tuberculizing process, the microscopic and chemical constitution of tubercle afford abundant evidence that it is not a product of a high degree of action, or, in other words, that it is not of inflammatory origin. For, notwithstanding the declaration of Dr. Sieveking, that he observed exudation-corpuscles to be present, they do not enter into the composition of tubercles, and therefore must be regarded as purely accidental. Indeed, making all due allowances for the constitutional influence, it must still be admitted that if inflammation were truly present, as the basis of the process, there would necessarily occur more definite signs of the existence of that morbid state than the presence of a few bodies bearing the form of exudation-corpuscles. The only conclusion, it seems to me, which can be deduced from the known facts is, that the exudation is a *specific* act, and the product a compound *sui generis;* and hence, that it is neither the legitimate result of inflammation nor congestion, and that it is not necessarily accompanied by either of these elementary lesions of circulation. The mode of deposit, therefore, in its elementary character, bears a closer relationship to glandular secretion than to any known action; but the whole process, as well as the resulting deposit, I regard as essentially specific, and therefore unlike all other actions and products." (p. 77.)

He further states:—

"It appears to be a fair inference that the tubercular material is secreted from the capillaries of the pulmonary artery. The relation of these vessels to the air-cells, and the chief deposits occurring in these structures, favours the belief that the pulmonary vessels furnish the morbid material; and if this supposition be true, it disproves the opinion that tubercle is simply a lesion of nutrition, for the nutritive function belongs essentially to the bronchial arteries. The function of the pulmonary artery is to convey venous blood to the air-vesicles; and as this variety of blood is not destined to perform nutritive acts, it becomes impossible to connect the physiological textural changes with the capillaries belonging to this system of vessels. And hence the deposits of tubercular matter must be regarded as a new act, and not a perversion of an ordinary function."

This statement, however, he qualifies, for he adds:—

"We are not authorized to conclude, however, that the capillary vessels of the bronchial arteries are incapable of depositing tubercular material; for the fact that the morbid deposits are met with in the bronchial glands, which are supplied with blood by these vessels, is conclusive that these arteries may furnish the material. It seems sufficiently evident, however, that the great mass of morbid material is received through the medium of the venous blood, and is thus eliminated by the pulmonic capillaries."

The chapter which relates to the changes that tubercular deposits undergo is marked by much ingenuity of reasoning, and is supported by minute clinical observation; and yet, from the very nature of the subject, it partakes more of the character of conjecture than of demonstration; and this indeed might be expected from the mere titles of the sections: 1. Absorption prior to Consolidation. 2. Absorption after Softening. 3. Contraction, or a Stationary Condition. 4. Softening with Elimination. 5. Cretaceous Transformation.

The chapter on the changes following the softening and elimination of tubercles, including those of the pulmonary tissue, the condition of the bronchi and that of the pleura, is an excellent example of descriptive pathology, brief, and yet exact; and the same commendatory remark applies to the chapter which follows it, on the distribution of tubercle. His conclusion as to locality, from a wide induction of observations, is, "that tubercular deposits are most frequent in the *right* lung; but the difference is too inconsiderable to render the observation of any material service either in diagnosis or treatment."

The chapter on the secondary and intercurrent lesions, such as pneumonia, pleurisy, bronchitis, emphysema, pulmonary œdema, pulmonary hæmorrhage, pulmonary gangrene, is written with critical discrimination. In some of his remarks, he seems to us to refine beyond the warrant of facts. He lays, we think, too little stress on inflammation in connexion with tubercles; indeed, in one or more passages, he seems to imply that tubercle and inflammation are antagonistic and in some way incompatible—a doctrine to which we must at least suspend our assent, especially where coupled with the bold conjecture that inflammatory action in tuberculosis may be a curative process.

The chapter on the tertiary lesions, those affecting the organs of circulation and digestion, and the condition of the fluids, the blood, lymph, and chyle, is a brief one; and the observations it contains are less precise than we should have expected, especially considering the importance he justly assigns the subject in relation to treatment. He expresses a decided opinion that the heart in phthisis is more prone to atrophy than to the opposite state. Our own observations accord best with those of Dr. Boyd and of Hasse, quoted by him, that this organ, under the influence of tuberculosis, and the obstructed pulmonary circulation the consequence of tuberculosis, is oftener heavier than of normal weight.

In his chapter on the varieties and forms of phthisis, setting aside other classifications, he reduces them all to two, the inflammatory and non-inflammatory. We shall not stop to express an opinion on this

matter, one that is so open to objection, is involved in so much difficulty from the essential obscurity of the disease in its complications, and which, in relation to treatment, we cannot consider of the first importance.

In the chapter on the nature of phthisis, he criticizes the principal modern theories which have been advanced on the subject, these no less than ten in number. We shall name them, as they well display how widely inquirers have differed in their views, and consequently, how great is the obscurity in which the disease, from this point of view, is enveloped. His enumeration of them is the following, and in the following order:—1. Impaired digestion. 2. Imperfect development of chyle. 3. Morbid states of the lymph. 4. Defective respiration. 5. Morbid states of the blood. 6. A specific poison. 7. Changes in the condition of the albumen and fibrin. 8. Retrograde morphology. 9. Derangement of the organic nervous system. 10. Inflammation. All these views, and certain others which have been formed from the time of Aristotle downwards, he considers unsatisfactory, as founded on no wide induction—on the substitution too often of effects for causes. Our prescribed limits will not allow us to follow him in his remarks on them. They are acute, and well deserving of a careful perusal. His own conclusions, which are at least sufficiently comprehensive, and which he considers as fairly deducible from the statements he has given, are the following:—

"1. The tuberculous element originates in the metamorphosis of the tissues.

"2. It seeks elimination through the lungs, and may continue to pass in certain quantities for an indefinite period, without inducing local deposits.

"3. When the morbid element reaches a certain degree of concentration, or when, by long-continued action, it produces a morbid effect on the lungs, a local deposit takes place.

"4. The first deposit is the elementary morbid substance known as the amorphous stroma; this is followed by the development of molecular granules and peculiar cells, which constitute tubercle.

"5. After the existence of solid tubercle for a given period it softens, and the *débris* seeks elimination through the bronchial tubes.

"6. The morbid action extends to the adjacent tissues, causes inflammation, softening, and disintegration, too often resulting in fatal disorganization.

"7. The perfect uniformity of tubercle throughout the body, in whatever tissue or organ deposited, exhibits strong evidence of the specific character of the disease, and that it could not originate from the ordinary derangements of nutrition.

"8. The chemical and histological character of tubercle favours the opinion that the whole process is specific in origin and development." (p. 179.)

Comprehensive as the preceding is, and consistent with the general phenomena of the disease in its various forms, we must view it still as an hypothesis; indeed, how otherwise can it be viewed, so long as the *materies morbi*, his specific substance, produced by a specific action, cannot, as he admits, be demonstrated, and is known, as he says, or inferred, as we would say, by its analogies and effects? As an hypothesis, it reminds us of portions of the history of astronomy and chemistry, of the cycles of Ptolemy and the phlogiston of Stahl, which, whilst they sufficiently explained or brought into accordance the known facts,

were unfounded in reality. As a provisional scheme, this of Dr. Lawson we think highly of, and the more so as it is well fitted to incite to further research, by which its fundamental truth or erroneousness can alone be established.

On the very important subject of the etiology of phthisis, we cannot do better than transcribe the author's introductory remarks, they are so just, so well expressed, and so informing.

"In attempting to estimate the influences which operate in the production of phthisis pulmonalis, we necessarily direct our attention to those causes and conditions which are natural or hereditary, and those which may be considered accidental or acquired. The concurrent opinions of the entire profession fully establish the fact that the tuberculous predisposition is capable of transmission from parent to offspring; nay, more than this, that in some examples the actual disease itself is thus communicated, tubercles having been formed in the fœtus *in utero*, and therefore strictly congenital. In a majority of cases, however, it appears to be only the *predisposition* which is transmitted, and the open disease becomes subsequently developed. The intensity of this predisposition, and the certainty of its development, are quite variable; in some examples the hereditary taint is so decided that, even under the most favourable circumstances, or at least without the application of any obvious exciting cause, the disease becomes fully developed; whilst in other instances the tendency to local disease is much less intense, and requires some of the usual exciting causes for its development. We are not permitted, however, in the present state of our knowledge, to assume that *all* cases are of hereditary origin; for examples are sufficiently numerous in which no *known* hereditary taint existed, while the development of the disease can be traced to some evident special cause. The causes of phthisis, therefore, are necessarily divisible into those which are natural or hereditary, and those which are accidental. But this statement requires greater precision, in order to bring clearly to view those conditions and agents which seem most likely to develop the disease, and hence we must take into consideration the predisposing and exciting causes. As already intimated, we are not prepared to assign an hereditary taint as the universal cause of phthisis; and when even this predisposition does belong to the constitution, it is often requisite to apply an exciting cause to bring the disease into activity. Again, a predisposing cause, if sufficiently intense and prolonged, may be competent, without any pre-existing natural tendency, to develop the disease.

"It is probable, also, that the tuberculous constitution may be congenital, while the ancestors were altogether free from that form of disease. That is, an imperfect organism may be transmitted from parent to offspring, which tends to the development of phthisis, while the parents were free from that disease, although exhibiting other defects." (p. 184.)

In the chapter on congenital predisposition to phthisis, he gives many valuable statistics, and arrives at the following conclusions:— 1. That there is a greater frequency of transmission of the disease from mothers and grandmothers than from fathers and grandfathers; and further, that fathers probably transmit it more frequently to sons, and mothers more frequently to daughters. 2. That when an hereditary predisposition is transmitted by non-phthisical parents, it is not a transmission of a specific disease, but merely a weakened vitality, in which the ultimate affection is readily engendered.

In the chapter on internal causes, he lays it down as a principle, that when the tubercular diathesis prevails, these causes act more

speedily and with greater certainty than in a perfectly sound state of the system, so that in the hereditary class the influences operate merely as exciting causes, whilst in those not hereditarily predisposed to the malady, they act both as predisposing and exciting.

On the geography of phthisis—its proportional frequency in different regions of the globe—Dr. Lawson has collected much interesting information.

European countries appear to be its special habitat; generally throughout Europe, he estimates that the disease affects one in from every two hundred and fifty to three hundred persons living, and causes about one-sixth of the total mortality. In Asia, on the contrary, including Persia, Syria, China, India—indeed, wherever in that continent we have any reliable statistics to refer to—it is comparatively rare and little destructive. The same remark applies to those few regions of Africa which are best known, such as Egypt, Algeria, the Gold Coast. Respecting its degree of frequency in the southern hemisphere, the evidence hitherto collected is too scanty and contradictory to allow of any other conclusion than the probability that it is more common there than in the corresponding regions north of the equator. As to the vast country included once under the United States, it would appear from careful statistical research that phthisis progressively increases from the south to the north, gradually diminishing from Maine to Florida, being three times greater in the northern than in the southern divisions; and this, which is opposed to previously conceived notions, is the more remarkable, inasmuch as pneumonia is statistically shown to prevail more in the south than in the north; the seeming anomaly Dr. Lawson attributes to the predisposing influence of malaria in the former region.

As regards mere temperature, apart from various disturbing causes, the conclusion our author arrives at is in conformity to what he has stated under the geography of the disease—viz., that the two extremes of heat and cold, of an arctic and tropical climate, and of regions approaching in character to them, are nearly equally opposed to the production of tubercle. His explanation is founded on the supposition that extreme heat and extreme cold act similarly, the one by diminishing the transformation of tissues by the protecting agency of carbon; the consumption of carbon in respiration being less in a warm climate than in a cold climate; the other by the depressing effect of intense cold retarding, as he supposes, organic movements. We will not stop to criticize this hypothesis, which, we must confess, to us appears far from satisfactory. Were we to speculate on the subject, we should be disposed to adopt one part of his inference and to reject the other, and attribute the effect of a very cold dry air, such as that of the Arctic regions, to its depurating influence, connected with high vital and healthy action, and a rapid disintegration of tissue, such as under the circumstances seems essential to sustain animal heat and life itself.

Relative to atmospheric moisture and dryness, he concludes from his statistics that the former, *per se*, is an unimportant agent in the production of consumption; but that extreme dryness, such as that of

Upper Egypt, of New Mexico, and Arabia, has a salutary preventive influence. He extends this latter inference to the rare atmosphere of mountainous regions. We need hardly remark, that in accordance with common consent, he holds atmospheric impurities to have a prejudicial influence and to conduce to tuberculosis, with the reservation, however, that the presumed tendency is exaggerated, and that mere increase of carbonic acid in an ill-ventilated room does not clearly produce the consumptive or scrofulous diathesis.

On the question of temperaments as predisposing to consumption, he rejects a commonly-received opinion that the lymphatic temperament ranks foremost; it is the feeble constitution, whatever the temperament may be, which, according to his experience, is most subject to the disease.

Age he considers merely in the light of a predisposing cause; an inference which, as it seems to us, hardly accords with the preceding deduction, inasmuch as the disease affects most those in the vigorous period of life, from puberty upwards, and especially from the age of twenty and twenty-five to thirty-five years.

On the disputed question, as to the relative frequency of phthisis in the two sexes, he is of opinion that it is definitely settled that the preponderance is to females. The various statistical results which he has collected bear him out in this conclusion. He attributes the difference not so much to a greater natural predisposition in women to the disease, as to their in-door occupations and sedentary habits.

On occupations in relation to consumption, Dr. Lawson makes many interesting remarks, which are supported by statistical results. The *general* elements which run through most, if not all, the unfavourable occupations, he holds to be the following—"The inhalation of irritating vapours, constrained positions, want of exercise, impure air, deficient light, innutritious food, mental depression;" and the last, mental depression, of all bad influences most. Some other elements, he is of opinion, act chiefly on the predisposed, such as the inhalation of irritating substances. No professions, he thinks, afford actual protection from the disease; those supposed to do so, affording immunity only in degree, such as that of butchers, coal-miners, fishmongers, tanners.

The subject of ingestion Dr. Lawson treats with his usual caution. Starting with the question, whether the disease can be transmitted in the nurse's milk, he comes to the conclusion that there is a want of scientific evidence to establish the fact of such a transmission, as there is equally regarding the influence of the milk of diseased cows. Nevertheless, he points out the danger to which an infant is exposed from the use of the milk of an unhealthy nurse or of a distempered cow; the mother's milk being the proper food of the child, accompanied with the mother's loving care. Extending the inquiry as to diet generally of the different races of men in different climates, he finds insurmountable difficulties in his way inferentially considered. The only inference he can arrive at is, that "diet occupies a much lower position as a cause of tuberculosis than has been usually assigned to it"—that is,

in creating the essential diathesis; but that where that diathesis pre-exists, then, *cæteris paribus*, a poor diet will favour the development of the disease, especially when associated with impure air and mental depression.

As to alcoholic drinks, the conclusion which he comes to after careful inquiry is—he states it as a general law—

"That while persons addicted to the use of ardent spirits have an abundant supply of nutritious food, the appetite and digestion remaining good, there will be but little danger of the development of phthisis; and that the evil effects arising from the intemperate use of ardent spirits are not manifested in the production of tubercle, but that their morbid effects are witnessed in the development of functional and organic diseases of the stomach, liver, kidneys, and brain. When, however, intemperance is conjoined to scanty food, ill-ventilated habitations, exposure to all the incidental evils of want and poverty, tuberculosis may readily be developed in those predisposed to that form of disease."

His conclusion regarding the influence of impure water is very similar to the preceding—viz., "that various impurities may be capable of deranging the stomach, and will therefore prove injurious to those predisposed to phthisis."

In the chapter on the "Pathological inducing Causes of Phthisis," he treats of the influence of pneumonia, pleurisy, pulmonary congestion, pulmonary hæmorrhage, of influenza, pertussis, asthma, and typhoïd disease. The subject he admits is full of difficulties. Some of these diseases, he thinks, favour the development of tubercles, such as low pneumonia and typhus; and that others do little more than promote its outbreak when there is a pre-existing diathesis. Even in the instances of pneumonia and typhoïd disease when apparently acting, as he presumes, we should not forget that not only the diathesis may be present, but, as we believe, even tubercles may be latent in their earliest stage.

Malaria he views as antagonistic to consumption, and as decidedly retarding or preventing the appearance of the disease. The facts he brings to bear on this disputed question are numerous, and to our minds convincing.

On the influence of eruptive fevers, of secondary syphilis, of diabetes, gout, rheumatism, cancer, of diseases of the heart, not omitting the question of the influence of pregnancy, Dr. Lawson exercises his critical analysis with great judgment, oftener expressing doubt than conviction, and when admitting their action, commonly qualifying the mode of it, as favouring, as conducing to the development of the disease, not creating its diathesis. His remarks on the subject are very deserving of careful perusal *in extenso*. Of the diseases which have most influence in producing consumption, the diathesis, as he supposes, not pre-existing, he ranks secondary syphilis highest. Diabetes he views as having an inducing tendency, by its debilitating influence; and accordingly it is remarkable for not following, but always preceding, phthisis. Of the influence of pregnancy, and of the puerperal state, he writes with qualifications. Under favourable hygienic conditions, he is of opinion that the growth of tubercles in their early stage is

arrested by pregnancy; but that in their advanced and softened state the progress of the disease is accelerated, and this by lactation as well as by gestation. Lastly, regarding gout and cardiac disease, and certain other ailments supposed to exercise an influence favourable or unfavourable on tuberculosis, he expresses his opinion mostly with reserve for want of sufficient data. Regarding gout he remarks, that as tubercular persons are not prone to gout, so gouty persons cannot have a phthisical constitution. Cancer, he is inclined to think, is antagonistic of tubercle, and that of diseases of the heart, cyanosis may be in the same relation; whilst ordinary diseases of the heart, according to the statistics, are rarely associated with consumption.

Dr. Lawson concludes his chapter on the etiology of consumption with the remark, that "we have much to learn in relation to the affinities and antagonisms of phthisis and other forms of disease;" from his point of view, tubercle is a substance *sui generis*, possessed of specific properties.

On the semeiology of phthisis our author is very elaborate, and all his observations are deserving of respectful attention. Commencing with the disease in its chronic form, he recognises four stages—the precursory, the stage of tubercular deposits, that of softening, and that of excavation. His remarks on the symptomatology of these several stages extend over seventy-eight pages. The following is his brief *résumé* of the subject, restricted to the most prominent features, in the order of their relative importance:

"1. Precursory Stage. *Symptoms.*—Diminution of strength and weight (often slight); lowered calorific power; chills and febricula; slightly impaired vascular action; disease of the fauces and tonsils; occasional slight, nearly dry cough; occasional hæmorrhage, which may become copious.

"*Physical Signs.*—Slight restriction of movement, overcome by forcible inspiration; diminished resonance; weak and jerking respiration.

"2. Stage of Consolidation. *Symptoms.*—Increase of all the preceding general symptoms, except hæmorrhage, which is often more frequent, but less copious, than in the first.

"*Physical Signs.*—Diminished and partial expansion; depression; dulness on percussion; feeble, harsh, blowing, or bronchial respiration; intensified expiratory sound; jerking respiration; dry crackling; sibilant rhonchus; tubercular crepitus.

"3. Stage of Softening. *Symptoms.*—The constitutional symptoms all rapidly increase.

"*Physical Signs.*—Humid crackling; increase of sputa.

"4. Stage of Cavities. *Symptoms.*—The constitutional symptoms become greatly aggravated.

"*Physical Signs.*—Cavernous rhonchus; respiration and cough; pectoriloquy; purulent sputa." (p. 380.)

He well remarks, that the facility with which the diagnosis of phthisis may be made depends greatly on the stage; thus few (he says)

"Would mistake the stage of excavation, while a still smaller number would detect the disease in its earliest manifestations."

And further on he observes:

"If the physical signs are fully developed, the diagnosis can at once be safely made; but in the absence of clearly-defined signs, what class of general symptoms afford evidence of tuberculosis? This," he continues, "is a difficult question to answer; nevertheless, the experienced practitioner in whom the *tactus eruditus* is well developed may often detect the existence of phthisis when the physical signs are indecisive. But this will not avail the inexperienced physician; and the question recurs, what amount of general and local symptoms, unaided by decisive physical signs, justify the diagnosis of phthisis? I would answer the question thus: if the history reveals an hereditary taint, and the present symptoms show gradual loss of weight, a persistent non-catarrhal cough, sputa (purulent or not), with more or less hæmoptysis—the condition having persisted for at least three months—I would not hesitate to diagnosticate phthisis, although the physical signs might be negative. It must be remarked, however, that obscure cases will often arise in which all classes of phenomena are too indefinite to admit of positive and unconditional conclusions. In all such examples the only practicable course is to give due attention to the history of the case, analyse carefully all the symptoms, present and past, note carefully the results of auscultation and percussion; and then, as a matter of judgment, decide in the most enlightened manner possible, according to the probabilities of the case, or as the weight of testimony may incline, in favour of or against phthisis. With this kind of cautious and philosophical investigation, the enlightened physician will seldom fall into serious error." (p. 388.)

We have expressed already the doubts we entertain respecting the symptomatology of the precursory stage, as defined by Dr. Lawson; and we must confess that these doubts have been rather strengthened than removed by the fuller account of it given by our author. And may we not refer to the extracts we have just given in support of our scepticism? At the same time, we cannot but appreciate Dr. Lawson's attempt to diagnosticate this early and most important stage, and to express our opinion that his description of it is deserving of attention—as, indeed, is his clear and very satisfactory account of the other stages, the symptoms and physical signs of which *commonly* are so much less ambiguous. We lay stress on the word "commonly," inasmuch as even when tubercles have formed, provided they are not numerous, nor superficially situated, they may, we are persuaded, escape detection so far as physical signs are concerned, and have (as already stated) no appreciable effect on the general health. More than this, we believe that the softening of tubercle, under the same circumstances, may take place without being discovered or even suspected.

The duration of phthisis—that is, of the disease in its chronic form—he estimates to be from nine months to three years, making the calculation from the beginning of the stage of tubercular deposits; "the variable character and manifestations," he remarks, "of the precursory stage being such that no computation of its length can be more than conjectural."

From the chronic disease, the main subject of his work, he passes on to inflammatory phthisis, including the acute form of tuberculosis, owing its intensity and rapidity of progress to the quantity of tubercular matter deposited, and as complicated and accelerated by pneumonia, bronchitis, and pleurisy.

This portion of the work is least elaborated, and least marked by original observation. It needs not special notice in the way of analysis. The only remarks we shall offer are, that we are not so fully satisfied as is our author that the grey miliary tubercle is the result of inflammation, or that laryngeal phthisis is a primary disease, and not commonly the sequela or epiphenomenon of pulmonary tuberculosis.

Dr. Lawson, in introducing that part of his work which treats of the therapeutics of phthisis, justly censures the want of discrimination displayed by certain practitioners, who prescribe for all stages of the disease alike, trusting to some imagined panacea—satisfied with giving cod-liver oil from the beginning to the end of the malady. He, of course, recommends a treatment varying with the stage—the four stages already mentioned, with the addition of a fifth, the stage of complications.

In the first stage, which he views as a state of lowered vitality, he trusts chiefly to hygienic measures, to the due regulation of the exercise, to diet, clothing, change of climate, not omitting, in certain cases, a general tonic course of medication. In a hygienic point of view, he deprecates the excessive use of tea and coffee, and the abuse of tobacco. In relation to climate, he thinks one that is warm, dry, and free from malaria should have the preference, in the instances of northern patients, such a climate being commonly most marked for the infrequency of the disease amongst its native inhabitants; whilst for southern invalids he is of opinion that a change to a northern climate in summer is best, on account of its invigorating influence. When medical treatment is needed as an auxiliary and of the tonic kind—other being rarely applicable—he recommends preparations of iron, cod-liver oil, and alcoholic stimulants, these varied, as to kind, according to circumstances, and restricted more or less according to the period of the stage.

His comments on hygiene, climate, medication are always judicious, and mark the experienced, accomplished, and discriminating physician. His attention is not confined to the constitutional symptoms; it is extended to the local, especially of the throat, to which he attaches much importance in the earliest stage. Nitrate of silver is his chief remedial means for this ailment, applied to the affected parts; and if the tonsils be diseased, he recommends their excision.

The stage of tubercular deposits he divides into three periods—that of the deposit in its solid state, that of its softening, and that of excavation—each needing its special treatment. The treatment in the first of these conditions he considers most difficult, on account of the different phases of morbid action, general and local, to which it is subject: on one side, he thinks there may be a hope of retrograde action; on the other side, the certainty of softening after the attainments of a certain point. The indications which he lays down for the treatment of tubercular deposits are—

"First, to suspend the constitutional disease, and render the tubercular deposits inert; or, if the disease be gone too far to admit of the tubercles being absorbed or rendered inert, the second indication is to *limit* the morbid action, and keep it within curable bounds."

We raise a sigh in transcribing this short paragraph ; well may the author speak of the arduousness of the attempt. For the means which he proposes to carry out his indications we must refer to the work itself, in which the subject is at least ingeniously reasoned. What he most trusts to is climate, with hygienic influences ; and as medical agents cod-liver oil, and preparations of iron and quinine, the last in conjunction with other nerve-tonics and alcoholic drinks. His remarks on this medication and on hygienic treatment, comprising diet, clothing, exercise, conditions of the atmosphere, appear to us judicious. Our only doubt is, that he refines and discriminates too much—i.e., beyond the limits of well-established facts. This our criticism more especially applies to the means recommended for the elimination of the tubercular matter when liquid, as he infers it to be, when first exuded ; to be carried off through the depurating organs of the skin, the liver, and kidneys ; and next, for the removal of it by absorption when solid ; the recognition of both which even our author, as we have seen, admits to be difficult.

On the treatment proposed for the other stages of the disease, that of softening, that of cavities, that of incidental symptoms, of complications, of acute and inflammatory phthisis, followed by special questions as to medication, including the special consideration of climate, our restricted limits compel us to be silent, except so far as to say that each of these sections is deserving of, and will repay, a careful perusal. Would that we could add, that we can adopt his remedial suggestions even with the moderate confidence with which they have been given by him. We are checked by the terrible fatality of the disease, and the doubt whether, though certainly capable of alleviation, it is ever, or if ever, completely curable.

We would specially recommend attention to Dr. Lawson's observations on the climate of different regions of America in relation to phthisis, and to his very judicious remarks on the relation of pregnancy to tuberculosis, and on the question of sea voyages. In the consideration of the last-mentioned, he very properly throws out of account the experience obtained in ships of war and the commercial marine, the condition of sailors, as of soldiers, being such as specially to promote the production of tubercles ; and consequently the degree of prevalency of tuberculosis at any station amongst the troops there serving, or in the crews of ships, is no just criterion of the rate at which the native inhabitants suffer.

The last part of Dr. Lawson's work is entitled "*Prognosis—Conclusion.*" We shall make some extracts from this portion. He says :

"In accordance with my own observations, I am fully satisfied that in the favourable class of cases and with judicious treatment, a fair proportion may recover ; and further than this, I am equally assured that in examples presenting even more unfavourable elements of prognosis, a smaller but still encouraging number may secure either temporary suspension of disease, or even permanent relief."

The conditions which justify a favourable prognosis he states to be the following :

"1. When the tubercles are limited to one lung, are not very extensive, and have not been associated with inflammation, either as a sequence or an inducing cause.

"2. The general health remaining in a fair condition, without rapid emaciation, fever, or derangement of digestion.

"3. A hereditary tendency to phthisis being slight or entirely absent.

"4. The patient possessing naturally a good constitution with a sanguineous or nervo-sanguineous temperament.

"5. The occupation being favourable, or at least not of a character to induce phthisis, or the patient being in a condition to make a change to a more suitable business.

"6. The patient having confidence in his medical attendant, and a willingness to submit to treatment, and the ability to avail himself of all incidental means and conditions capable of favouring his recovery, including a change of climate.

"7. A cheerful and hopeful mental constitution, and a desire to contribute his share to the successful treatment."

The unfavourable elements, according to him, are the following:

"1. When tubercles occupy both lungs to a considerable extent, or involve a large portion of one.

"2. When the disease has advanced to the stage of softening, with extensive disorganization of the pulmonary structures.

"3. The general health being greatly impaired, as shown by the existence of extensive emaciation, deranged digestion, hectic fever, and night-sweats.

"4. A decided hereditary tendency to phthisis, and especially if received by a son from a father, or a daughter from a mother.

"5. A naturally feeble constitution, with a phlegmatic or bilious temperament.

"6. The occupation being unfavourable, and the patient not able or willing to make the proper change.

"7. The patient being of a fickle disposition, wanting in confidence and perseverance in medical treatment, and unable or unwilling to secure the advantages of a change of climate and other incidental means of relief.

"8. A desponding and gloomy cast of mind, with a presentiment of a fatal issue." (p. 548.)

In opposition to his sanguine hopes of favourable results, of many recoveries under the first class of conditions, and of not a few under the second, he feelingly and eloquently writes:

"But, unfortunately, a large (perhaps the larger) number, at least in this country, do not seek reliable aid until they have passed the period of cure, or even of palliation. Our country abounds with designing charlatans, who falsely proclaim their ability to cure consumption with certainty and facility, and the press teems with alluring advertisements and inspiring certificates, proclaiming the discovery of specifics before whose magic power disease recedes as the night before the rising sun. And pale victims crowd these halls of false promises and heartless deceptions, eagerly grasping the gilded bubbles; but, alas! the dream is not realized, and the deluded victim finds relief in his narrow house, while the heartless mountebank goes on dispensing false promises and reaping a golden harvest. What a retribution must come upon the deceiver who thus makes merchandize of human life! and scarcely less is the responsibility of those who, from reprehensible design or mistaken philanthropy, lend their names to certificates in relation to subjects of which they have no competent knowledge. Let prudent men, and public functionaries generally, whose influences are too often surreptitiously obtained, ponder well these

terrible truths, and act as wisdom, justice, and humanity dictate. Finally, when these palpable evils shall have been abated, and patients learn to seek the aid of enlightened physicians during a curable stage of disease, the proportion of recoveries will be largely augmented, and phthisis will no longer be regarded as the opprobrium of our profession." (p. 549.)

In parting from our author, though we cannot enter into all his hopeful views of the cure of phthisis, yet we can most willingly express the satisfaction we have had in the study of his work: our analysis of it, imperfect as it is, would not otherwise have been so lengthened. No subject in medical science has been more productive of monographs of high ability than this disease—of monographs which have become classical. We have some confidence that this work will rank amongst them. For acuteness of observation, for sober discrimination and sound judgment, and fair criticism of the writings of others, and especially of contemporaries, and for the wide knowledge which it displays of the literature of his subject, we know few books superior to it. We bestow our praise the more readily, our author being an American; yet though an American of Anglo-Saxon race, as his name implies, and one who we trust will, with all his right-minded countrymen, still cherish a love of the stock from which he has sprung, abhorrent of the vulgar clamour sadly now prevailing against England, as if the American States, whether united or separated, Federal or Confederate, had not with our country a common interest, apart from the community of blood, that of language, of literature, and of laws.

Review III.

On some of the more Important Diseases of the Army; with Contributions to Pathology. By John Davy, M.D., F.R.S. Lond. and Edinb., and Inspector-General of Army Hospitals.—*London*, 1862. pp. 438.

Two classes of men, if not absolutely opposed to each other, at least strongly discriminated in their mental characteristics, stand prominently out in the cultivation of medical science; the one eager, ingenious, and speculative—the other cautious, sober, and scrupulous. In some few the qualities that form these descriptions of intellect are found in abounding measure and in rare and happy combination; but in most men, even of superior endowments, one class of mental qualifications predominates over the other. We could not do without either of them: one class is needed to urge on our progress, the other to assure us of its soundness; and if we follow the former in their speculations with most interest, we certainly rest in the views of the latter with the feeling of greatest security. It is to the latter class of intellect that we would be disposed to refer the author of the valuable work of which we propose at present to offer some account.

Nothing can exceed the scrupulous exactness of Dr. Davy's statement of matters of fact, while his freedom from anything approaching

to dogmatism or undue zeal for a preconceived opinion, and the cautious modesty with which his deductions are offered, are equally remarkable and praiseworthy. We are constrained, however, to mention, that suggestions for the improvement of strictly medical practice, and even the remarks on general hygiene, are much less full and explicit than we should have liked to receive from one whose high standing, long experience, and previous contributions to science would have led us to expect. The resolute determination of the author, moreover, to limit himself to his own personal experience has prevented him from entering fully into some subjects which we should have been happy had he discussed at more length.

Dr. Davy has lived and served during the times when heroic practice was the order of the day. Are we altogether wrong in imagining that the erroneousness of some of the views on which that practice was founded, the extravagant length to which it was carried, and the indiscriminateness of its application, have produced a painful reaction in his mind, and led him to adopt somewhat desponding views as to the future progress of his art? If it be so, we can, to a certain extent, sympathize with him; but the feeling may go too far, and is, we believe, essentially unfounded: it is a feeling depressing in the highest degree to a good man, or to an earnest votary of his profession; while to an indolent or unconscientious practitioner it is productive of consequences still more injurious, leading him to indifference regarding the remedial measures he ought to pursue, seeing that, do what he may, things will take their own course, either to recovery or death, influenced little or not at all by any procedure he may adopt. Now, without going very deeply into the controversy, keenly agitated lately and even yet by no means composed, regarding the merits or demerits of the depleting practice which held sway during the earlier part of Dr. Davy's professional life, we think he might, even in his own statistics, have found proof that it was not so radically and universally injurious as its opponents now allege, and as he himself, judging from the tenour of some of his remarks, is inclined to believe.

His statistics of pneumonia (if we read them aright) give an average mortality in round numbers of about 1 in 23. This result compares by no means unfavourably with the results obtained in more modern times from the expectant practice, as fully carried out by Dietl and in the homœopathic hospitals, where we have no reason for doubting that the general hygienic regulation of the patients is minutely and skilfully attended to. Now we are perfectly aware of the fallacies that may arise from such comparisons as this: we have no wish to strain our facts or our reasoning, but if the mortality of the military and of the *expectant* hospitals be equal, and in fact the balance is in favour of the former, it is proved demonstratively that the military practice was not lethal, indeed, not in any degree injurious. And we certainly are entitled to regard it as improbable that remedies so violent and disturbing to the processes of nature as were ordinarily employed at that time should have failed to produce very mischievous consequences indeed, had there not been something in the character of the morbid

process going on *then* which we never or very rarely see now. Nor does a supposition of this kind involve the apparent contradiction, or at least very serious difficulty, that Dr. Davy seeks to deduce from it. He says—"The average of life *now* is admitted to be greater than in preceding ages; how remarkable this would be were it associated with a diminished *vis vitæ*." The maintenance of the opinion we have stated above does not necessitate any such contradictory assumption; all that is required is to believe that the morbific influences to which mankind are now exposed (of whose nature Dr. Davy most strongly affirms our perfect ignorance, whilst of their existence and potency as manifested in their effects no doubt can be entertained) produce a pathological condition different from what they did in former times, and of a more asthenic character. And when we consider the stress that our older writers lay on what they call the epidemic constitution of the atmosphere, the accounts they give of what they describe as typhoïd pneumonias, and the constant and anxious reference of all—Sydenham especially—to the importance of determining the varying character of the same disease from year to year, or from one series of years to another, we shall see that this view is no afterthought devised to escape from a present difficulty, but simply the application of an old opinion held by the best and soundest observers in our profession, and supported by the strongest analogy. It must not be supposed from these remarks that we seek to apologize for the unjustifiable and injurious extent to which depletion was carried during the period we refer to; we do not seek to deny or extenuate the mischief resulting from it, nor have we any doubt that the prevalence of erroneous or defective or premature medical theories have had a share in causing the application of this practice to cases for which it was unsuited, and in maintaining it after it should have been abandoned; but when Dr. Davy intimates his opinion that this is the sole account of the altered practice of the present day, we cannot help thinking that he has fallen into an error, and this error has given a tone of despondency to his remarks on the treatment of disease which we are sorry to meet with.

There can be no doubt that very exaggerated views at one time prevailed of the power of mere medication. There can be as little doubt that these views rested upon a pathology unsound and erroneous, inasmuch as it took no account of the restorative powers of nature; but juster views now prevail, and are held not only by a few enlightened men, but by the mass of the medical profession; and considering the tendency of the human mind to pass from one extreme to its opposite, it is only what we might reasonably expect, that opinions of a nature greatly too depreciatory of the usefulness of medical practice should be expressed sometimes by the more thoughtful section of the non-professional public, as well as by a host of frivolous and scoffing pamphleteers.

To proceed with our notice of Dr. Davy's work. After an introductory chapter containing remarks on the average weight of different organs, their colour, consistence, and some points not decisively ascertained, such as the temperature of the body after death, the condition

of the blood after death, &c., which, from Dr. Davy's exactness and caution, we strongly recommend to the study of all engaged in pathological researches, he proceeds to the consideration of fevers, intermittent, remittent, common continued, and yellow. Typhus he excludes, as being a disease of climates colder than those in which his professional life has been spent. All these forms of fever Dr. Davy is disposed to regard rather as varieties graduating into one another, and that often by degrees not very definitely marked, than as distinct species. So far as our present knowledge extends, we are inclined to agree with Dr. Davy, but with him we would hesitate before committing ourselves to an absolute opinion, for however painful to the mind a state of doubt may be, it is safer and more philosophical to admit the uncertainty of opinions rather than prematurely to regard them as established. The affinities and convertibility of febrile diseases is a most interesting subject, and one that perhaps has not been sufficiently studied. We ourselves have, among others, notes of a case of clearly-marked influenza, in which, during the convalescence of the patient, first, two of her relations, and then several members of a neighbouring family (the only other in the hamlet), became successively affected with ordinary continued fever. A female attendant, who had come from some distance, sickened, and was sent home, where she died with the usual symptoms of malignant typhus. Several members of her household had the disease after her death, one of them recovering with great difficulty. Dr. Davy's observations on the etiology, pathology, and treatment of fever lead to conclusions almost entirely negative; he regards it as impossible to connect, as cause and effect, the lesions discovered after death with the symptoms exhibited during life, and while evidently leaning to the view we mentioned above, he very candidly admits that "there are not wanting arguments in favour of a certain distinctness of species;" which arguments he finds especially in the habitats of different fevers, and the distinctions observed in their sequelæ. One important remark coming from so careful and experienced an observer (though still of a negative character) is, that there are on record no observations which warrant the opinion that the fluids are primarily concerned, and that his observations on the blood-corpuscles in yellow fever failed to discover any deviation from their normal appearance at whatever stage of the disease they were examined.

On the important and mysterious subject of malaria, Dr. Davy's conclusions are still almost entirely negative. He considers an elevated temperature as the only condition that can be justly regarded as uniform, or standing in the relation of cause and effect; a low temperature favouring the production of typhus, a higher the appearance of intermittents, and a higher still, continued, remittent, and yellow fever. But even this relation, he says, is only general, not precise or regular. From a table of fever cases in the Ionian Islands classed per mensem, it appears that whilst the total number was greatest in the hottest month (July), intermittents were most numerous in April, continued fevers in July, and remittents in August. Hence, something else besides

a high temperature is required for the production, especially of fevers of a remittent type, this something, cognizable only by its effects, has been called in modern times malaria. Of this mysterious agent, whose presence and efficiency we are compelled to assume, we know absolutely nothing, and there are difficulties and anomalies apparently insoluble in all that relates to its production. Among these are the extreme irregularity and capriciousness of its appearance, or at least of the diseases ascribed to its operation; whole districts in the West Indies, in Ceylon, and in the Ionian Islands being sometimes decimated by remittent fever for months, and then its ravages ceasing without any appreciable climatic or other external conditions having preceded or accompanied its origin and abatement. The prevalence of agues and remittents in the Pontine Marshes is notorious. In the south-west coast of Ceylon, where the ground is similar and climatic conditions favourable to the production of malaria, its effects are scarcely felt. Certain districts where vegetable exuviæ are rapidly and abundantly undergoing decomposition are free from malaria fever, while it prevails in the hill districts of Zante, in the little island of Meganisi, and in the still smaller one of Vido, where there is little moisture, the soil is extremely dry, and vegetation very scanty, the two Ionian Islands referred to being little else than rocks. The origin, too, of malarious fevers limited to circumscribed spots, with the exemption of others in all respects similarly circumstanced, as in one of the rooms of the barracks in Vido, where a large proportion of the soldiers were attacked, whilst the occupants of another room, separated from the former only by a narrow passage, remained free from disease, increases our difficulty in arriving at positive conclusions on the subject of malaria.*

From this statement of facts, Dr. Davy deduces the following conclusions—viz., that we are entirely ignorant of the nature of malaria; that the causes are independent of luxuriant vegetation, or of the decomposition of vegetable matter; that they cannot be referred to the action of the solar rays on moisture, superficial or underground, and that they are independent of the intermixture of fresh and salt water, or the alternate inundation and exposure of muddy surfaces. Our investigations respecting malaria must begin with an admission of entire ignorance. That it is a substance *sui generis* Dr. Davy seems to have no doubt; it may possess properties peculiar to itself, and to discover these, new instruments and methods of research may be required. Could processes analogous to those by which iodine and bromine were discovered in the ocean be brought as easily to bear on the mass of aerial fluid that surrounds us, new substances might possibly be discovered in it, for doubtless it contains in amount, however minute, a portion of everything volatile. And the matter of blight wafted by the winds, the spray of the sea, carried inland for miles, and showers of dust falling over a considerable extent of surface, give credibility to the view that solid bodies exist in it in a state of ex-

* We should have been glad to know in this last case the condition of the room as to crowding, or the possible evolution of human emanations.

tremely minute subdivision. One conjecture Dr. Davy throws out after the remarks we have thus endeavoured to condense, that there are various species of malaria, a notion, he says, countenanced by the analogies of nature and the character of epidemic diseases, resulting probably from atmospheric influences. While thus strongly affirming our utter ignorance of the malarious poison, Dr. Davy insists on the lessons taught by a dear-bought experience as to the best means of escaping its effects. These may be summarized under the heads of exposure, diet, and clothing. It seems to admit of no doubt that the noxious influence is by far most potent when the sun is below the horizon. On this head Dr. Davy's facts are clear and unequivocal, and in unison with all we know on the subject; hence the great importance of never sleeping in the open air, and of not imposing upon troops nocturnal duty except when it is rendered unavoidable by an imperious military necessity. Hence, also, the importance of so constructing the sleeping apartments of soldiers that they shall not be under the temptation to escape from an over-crowded offensive room, by exposing themselves to the even more pestilential influence of the night air, and that probably while bedewed with perspiration. On the subject of clothing Dr. Davy is, we think, not very clear, mixing up the effect of night exposure with defective clothing, and the influence of malaria with the effect of atmospheric variations. He seems to approve of flannel, or of coarse soft cotton, as underclothing. He advocates a generous diet, expressing his belief that the mischiefs of intemperance have been somewhat exaggerated, at least so far as malarious diseases are concerned, stating the apparent paradox that many of the soundest constitutions are most liable to malarious influences, and accounting for this by the somewhat extraordinary assumption that organic disease acts as a preventive against it.

In the choice of sites for public buildings, barracks, &c., Dr. Davy holds that the only safe guide is experience of their salubrity from the healthiness of the neighbouring inhabitants. When this cannot be ascertained, we must be guided by the probable salubrity of the spot selected—a point concerning which, considering the inherent difficulties of the subject, it would be somewhat difficult to come to a conclusion. We have epitomized this part of Dr. Davy's book because he is, we think, the latest writer on the subject, and has gone into it more at length than perhaps any other, and because it is interesting in itself, most important to the military establishments of the country, and closely related to the sanitary movements and speculations now so much agitated.

In perusing this book, it is impossible to avoid being struck by the numerous hints dropped of the extreme injudiciousness of many prevalent arrangements respecting the soldier's health, and the apparent want of power on the part of the medical officers to correct or improve these. His occupations when off duty, his lodging, his food, his clothing, indeed, all the details of military life, seem to be devised and carried out with little or no regard to their effect upon health, sometimes without consultation with any medical

authority, sometimes in direct contravention of medical opinion. Abundant proof, indeed, of this is afforded not only by our author, but by every other writer on military medicine. We rejoice to admit the very great improvement that has taken place in many respects since the dear-bought experience of the Crimean war, the "hideous and horrible" exposures of which thoroughly aroused public attention to the subject.* But all such efforts as were made at that time are apt to be somewhat spasmodic in character, and followed by a period of inertia and languor; we would therefore consider it a matter of great importance that the subject of military hygiene should be kept steadily before the eye of the educated public. Without insinuating any special blame, we know how strong the tendency is in all departmental action to degenerate into a matter of routine, and to lag behind the requirements of the time. We would therefore earnestly wish that all qualified like Dr. Davy to speak on such subjects should make their observations known and felt so that public opinion may bear intelligently and effectually on those in high places. One fact clearly brought out by Dr. Davy is equally apparent in the writings of Sir John Pringle—this is the comparatively small proportion of officers who are either attacked by fever or die of the disease in relation to an equal number of private soldiers; nearly three times as many out of equal numbers of the two classes die among the latter. This difference is due, undoubtedly, to the smaller exposure, better diet, clothing, and lodging of the officers; and while it may to a certain extent be unavoidable, it is surely possible, we would think, that it should be somewhat diminished.

The doubt which even yet hangs over many points connected with the origin and causation of malarious diseases ought, we think, to suggest caution in their reasoning to some of our zealous sanitary reformers. The importance of sanitary inquiries, and the benefits to be derived from them, cannot well be exaggerated, but we think there is occasionally a haste to arrive at conclusions which may lead to partial failure, and this again to discouragement. The whole of medical history presents a contrast to that of the purely physical sciences in the slowness of its progress and the uncertainty of its conclusions; this arises from the want of uniformity in the sequence of phenomena in medicine when compared with the invariable relations discovered in these sciences—the first step, even the observation of matters of fact—is beset with great difficulties in medicine. Facts may be recorded partially or defectively, or with a multitude of casual adjuncts that obscure their meaning and distract attention. So observed, their arrangement or classification becomes either of no use or of extreme difficulty, and the discovery of their true relations, especially the relation of uniform antecedence and sequence, almost impossible. Even

* While we give full credit to the late lamented Lord Herbert for his efforts to promote the well-being of our soldiers, it is right that the public should be reminded that he was preceded in the same course by the present Earl Grey (at that time Lord Howick) when in the War Office—a man whose rare ability, indefatigable industry, and unspotted integrity have scarcely yet attained that place for him in the estimation of his countrymen to which he is justly entitled.

when some progress is made in this respect, our application of the knowledge we have acquired may be rendered fallacious by the intervention of a new series of unknown causes. But while bearing this in mind, it is not the less our duty as reasoners and inquirers to act on such presumptions as are within our reach; and surely, after all the admissions demanded of us by Dr. Davy, our ignorance is not so absolute but that we may act with some degree of assurance. Though we believe it is scarcely possible respecting any given spot in tropical countries to say, *à priori*, that it will not be subject to malarious influences, there are certain features in a locality, and these having reference chiefly to moisture and vegetable exuviæ, which enable us to conjecture with more or less probability that it will be the seat of fever. Moreover, some of our author's statements are, we venture to think, scarcely so full and precise as to warrant determinate conclusions. We would inquire what is the character of the whole surface of these islands described as "barren rocks," where malarious fever shows itself. And further ask, if in those exceptional districts where malaria might be supposed to exist, yet does not evince itself, there may not be some unknown cause at work, the laws of whose operation prevent or modify the noxious agency?

We have dwelt so long on our author's first section, that we must pass very rapidly over the remaining portion of the volume. The chapter on Dysentery, Acute and Chronic, which follows that on Fever, is one of the most definite in the book; Dr. Davy's views, as to the causes and treatment of the disease, being given more unhesitatingly than usual. In addition to a high temperature, he refers it to indigestible and innutritious food, especially the immoderate use of salt provisions, and to the drinking of impure water. The lesions Dr. Davy discovers in his autopsies are well described, the primary ones being the ordinarily recognised results of inflammation and ulceration of the large intestines. Among the complications we were struck by the very small number connected with the liver. In 15 cases of acute dysentery, only one case of hepatic abscess occurred; in 19 cases of chronic dysentery, only 5, a result which, we think, justifies the disapproval expressed by Dr. Davy of a mercurial treatment in this disease, both in the acute and chronic form, especially the latter, in which it seems often to have been carried to a most injurious extent. Calomel in moderate (not heroic) doses, ipecacuanha, and, above all, opium, are the remedies on which Dr. Davy depends; expressing also an approval of occasional leeching, but, unless in very exceptional cases, condemning general bloodletting. On comparing Dr. Davy's views with those of our old authority, Sir John Pringle, we cannot fail to be struck by their almost perfect similarity. We have only to imagine the causes operating in a higher state of activity, and Sir John's account of the disease and its post-mortem appearances, as witnessed by him in the Low Countries, might apply perfectly to tropical dysentery, while as to prevention and treatment the ancient and modern authorities are nearly one. Sir John lays more stress on alternations of temperature, from the men lying on the cold, damp ground after toilsome marching under a hot sun, and strongly affirms

the contagious nature of the disease, which Dr. Davy is more than half inclined to deny. The similarity of pathological and practical views between Dr. Davy and Sir John Pringle, instead of being discreditable to medicine as implying a stationary character, affords a gratifying proof of the stability of medical conclusions when the observations on which they rest are on subjects fairly within reach, and have been carefully made under circumstances sufficiently varied to admit of the elimination of error. Both authorities dwell on the vast importance of hygienic precautions, and on the great difference between the frequency and mortality of the disease among officers and men. And here we may be allowed, in justice to our profession, to point out, that the various military reforms for which recent administrations have obtained so much and such well-deserved credit, are little more than the carrying out of suggestions, and listening to representations that have been urged by the highest medical authorities in the army for the last century. These improvements, it may be said, are, after all, only the dictates of common sense; be it so; then, in this most useful and important commodity, the doctors have been in advance of all our higher officials, and common sense, be it remembered, does not mean that sense is common to all or most men, but it means sound judgment and just reasoning applied to common things.

We must now draw our remarks on this interesting volume to a close. On several of the chapters, comprising cholera morbus, hepatitis, consumption, and other thoracic maladies connected with it, we do not intend to enter. They are all characterized by the author's exemplary fidelity and diligence; but the examinations we have found it impossible to condense, or to arrange so as to deduce from them any general principles, which, indeed, Dr. Davy himself does not attempt. We may note, however, that the chapter on phthisis concludes with some very strong remarks, especially from a writer so guarded as Dr. Davy, on the utter disregard shown to the soldier's sanitary condition.

But there is one chapter on the coagulation of blood in the vessels during life, to which, however shortly, we wish to point attention, as specially interesting from its relation to tubercles on the one hand, and embolism on the other. Of this phenomenon Dr. Davy has observed forty-three examples, and records twenty-three. In all his cases the patients laboured under disease of an asthenic type, and were of a cachectic habit. The coagulum appears to lose its colouring matter first; the remaining fibrinous clot, while firm externally, exhibiting, like tubercle, a central puriform softening. The blood, when mixed with hydrate of lime or potassa, yielding stronger traces of ammonia than usual, and when agitated with air disengaging gas, not absorbing it, both circumstances indicating, in Dr. Davy's opinion, a morbid state of that fluid. The relation of the formation of coagula to cases of sudden death, to the progress of tubercle, to the production of unhealthy suppuration round the anus, and even to otherwise inexplicable internal hæmorrhage, Dr. Davy indicates as interesting and important subjects for future inquiry.

We have now exhausted the space we can afford to give to this volume. The pathological facts, detailed with great care and accuracy, we can only recommend to attentive study and consideration; and we conclude by expressing our gratitude to Dr. Davy for the laborious and faithful account he has here presented us of his long and ample experience.

Review IV.

Notice Historique sur l'Établissement de Pisciculture de Huningue (Département du Haut-Rhin), appartenant au Gouvernement Français et placé dans les attributions de l'Administration des Ponts et Chaussées.—Strasbourg, 1862. pp. 143.

Historical Notice on the Establishment for Pisiculture at Huningue, belonging to the French Government, &c.

This is a very valuable document, and highly creditable to the Imperial Government; one merit of which, at least, is that, however much it curtails the liberty of the citizen, it spares no pains or cost to promote his material prosperity. Considering the importance which, in a sanatory as well as in an economical point of view, pertains to the question of supplying fish as an article of food in large quantities, and having in a former number of our Review given an account of the salmon and its congeners in connexion with the new Salmon-fishery Act, we are led to bring to the notice of readers the great experiment which has been made in France, and is still in progress, on pisciculture, and with such success, that the results, we think, only require to be known to encourage more exertions of the same kind than have hitherto been made in our own country, where, in truth, they are almost as much needed as in France, as we endeavoured to show in our former article.

The history of the pisciculture establishment at Huningue is not without interest. A few years ago a humble French fisherman, of the name of Remy, employed the process for breeding fish propounded and practised by Jacobi more than a century before, probably ignorant that he was following in the steps of another, and with such success—stocking rivers before barren of fish—as to attract the attention of the Government, marked by a well-merited reward which it conferred on him. The subject had next the attention of the naturalists, and under Government auspices varied experiments were made by M. Coste at the College of France. M. Coste's report was of a very satisfactory kind, proving to demonstration the practicability of the artificial method of propagating fish, and the great advantages which might accrue from pisciculture.

In 1852 the trial was begun, and in 1854 it was continued on an enlarged scale at the recommendation of the Director-General of Agriculture and Commerce, and under the Département de l'Administration des Ponts et Chaussées. Up to the present time the sum of about 265,186 francs has been the outlay on the necessary works.

These, as now completed at Huningue, occupy a space of about seventy statute acres, and consist chiefly of tanks and ponds, of sheds, and other buildings, the former supplied with water partly from a spring, the temperature of which is nearly constant at 10° Cent., partly from a rivulet, and also from the Rhine, with the adjuncts of a marsh adjoining for the breeding of food, such as tadpoles, for the young fry. We particularize the supply of water, inasmuch as that is of the first import in relation to the success of the process; the conditions requisite being that it should be unfailing, securing against drought, and of a certain degree of coolness, pure and well aërated cool water of about 10° Cent., equivalent to 50° of Fahr., being most favourable to the vitality and hatching of the ova. The spot finally chosen—Huningue, in the neighbourhood of Basle—has the recommendation of being near the frontiers of the countries, Switzerland and Germany, from whence the impregnated ova of the different kinds of fish the subjects of the trial, are to be obtained.

The fish, the ova of which have been experimented upon, were of two kinds as regards the season of spawning, such, namely, as shed their ova in the beginning of winter, as the salmon, sea-trout, common and great lake-trout, and charr; and those which shed them at a warm or milder period in spring, such as the hucho of the Danube and the grayling. Operating on the first, the success of production has been great; but hardly so on the second—the ova of these, for prevention of failure, requiring precautions of a kind yet to be ascertained.

We shall briefly give some of the results obtained in one year, that of 1861. Of the first class of fish, 6,382,900 ova were procured, of which 2,602,400 perished or aborted, equal to 41 per cent.; 3,360,000, equal to 53 per cent., were sent away, variously distributed in a healthy state; and 420,500, equal to 6 per cent., were hatched on the spot. Of the hucho (the *huche* of the French), 43,500 ova were obtained; 35,450 aborted, 81 per cent.; 200 were distributed, and 6050 were hatched. Of the grayling, 1,028,000 ova were procured, of which 550,500 aborted, 54 per cent.; 251,500 were distributed, and 221,000 were hatched at the establishment.

There is another fish the ova of which have had a trial, the fera, a species of coregonus, a lake fish, extremely prolific, and highly spoken of. Of its ova 11,995,000 were collected, 12,000 were lost or aborted, 9,519,000 were distributed, and 2,464,000 were hatched on the spot. There can be little doubt that this fish might be naturalized in our lakes. Should the feed which they afford agree with it as well as that of the Lake of Geneva, it would prove a valuable addition to our table. There it attains a size from half a pound to a pound, and in the Geneva fish-market it is always in request.

We have made mention of the total outlay on this establishment: the annual expenditure is stated to amount to the moderate sum of about 55,000 francs—this including the pay of the persons employed and all the charges attending the collecting, nursing, and distributing the ova and the young fry. The latter, it may be remarked, have been forwarded to a very limited extent only, the ova having been

found to have a greater chance of success than the very young fish, and the cost and trouble of their conveyance being very much less.

We cannot here enter into a detail of all the means employed in furtherance of the hatching process. The chief precautions to be observed are the securing an ample supply of running water; the removing the aborted eggs, the death of which is denoted by a loss of transparency and their becoming of an opaque white; and the selecting for transport only such ova as are well advanced. Two persons constantly resident are competent to the ordinary work of the establishment. Some idea may be formed of their labour from the fact that, during the year 1861, ova and fry have been sent to as many as 335 applicants, of which 296 were French, 39 foreign; the former from 76 departments, the latter from 17 countries. Of the foreign, the Prussian rank highest, having been 26; the English only 11.

The rule of the Administration is to receive favourably every request for a supply, on security being given that care will be taken of the ova and fry, and that the results obtained be recorded and reported on. Appended to the Historical Notice are elaborate tables, specifying results, which, taken as a whole, are of a very encouraging kind, inasmuch as they afford proof that in the short space of less than ten years a large number of the rivers of France are, to a certain extent, stocked with valuable fish—rivers before either barren or little productive. Nor is this surprising when we consider how prolific all fish are, and how rapid is their growth.

Incidentally many interesting particulars are given respecting the several kinds of fish under observation, especially regarding the time required for the hatching of the ova and the season of spawning. These are specified as follow. Of the common trout, the great lake trout, and the white or salmon-trout, the spawning-time is from the end of October to the middle of February; the time of hatching is from one hundred to one hundred and twenty days. Of the ombre-chevalier, or charr, the one is from the beginning of November to the beginning of February; the other, the time of hatching, is completed in seventy days. Of the salmon of the Rhine, the spawning-time is the same as that of the charr; the time requisite for the hatching fifty-six days. Of the fera, the spawning lasts from the middle of November to the beginning of January; the hatching occupies a month. Of the grayling, the one operation, the spawning, extends from the end of March to the middle of May; the hatching-time is reported as variable,—from two weeks, strange as it must appear, to two months. Of the hucho, the time of spawning is from the beginning of April to the beginning of May; the hatching-time variable: commonly from two to three weeks. We have thought it right to give this statement, as it may be some kind of guide to those who may wish to apply for ova, keeping in mind the remark already made, that they all bear transport best, not as soon as shed, but in their advanced stage of development, when the embryo has become visible through its transparent membranes. Temperature of course is greatly concerned in their development: the cooler the weather and the water, the later will be the hatching, and *vice versâ*.

Apart from the 'Notice Historique,' the able author of it—M. Courme, l'Ingénieur-en-Chef des Travaux du Rhin à Strasburg: this is his address—has issued a circular paper relative to the form to be observed in making an application for a supply of ova or fry, and the precautions to be taken on receiving them and their after-treatment. We shall notice merely those most requisite. The applicant, besides his name and exact address, should state his profession, and should specify the kind of ova he wants, and the exact quantity. The only expense he will have to incur will be that of the conveyance. The ova, packed in wet moss or in aquatic plants, as soon as received should be carefully taken out of the box in which sent, and this under water, and immediately transferred to water suitable to their hatching—i.e., either to a tank with a bed of gravel through which there is a current of water, or, as we would recommend, if the ova are few, to a shallow vessel of porcelain, the water in which, three or four inches deep, on clean gravel, should be changed at least once daily. A precaution is given, about the propriety of which we entertain some doubt—viz., that if the ova happen to be frozen *in transitu*, they should be put into water only a degree or two above the point of congelation, so that their thawing may be slow. According to our experience, the freezing of the ova is fatal to them; they may indeed be included in ice without a loss of vitality, and then the precaution in question may be acted on with advantage. After the hatching, no food need be supplied for a month or six weeks—that is, not till the yolk-sac at first pendent externally disappears, its contents affording the first nourishment to the young fish. After its exhaustion, if the fry are not set at liberty where, in lake or river, they can find their own food, they require to be fed. What has been found to agree with them best has been the muscle of any kind of animal, mammal, fish, or frog, broken up small, and given in small quantities twice or thrice a day in its raw state, care being taken, if the water is stagnant, to keep it free from polluting *débris*.

We must not conclude without expressing our thanks to M. Courme for his very able and instructive memoir. The administration of which he is the chief may well pride itself for the initiative which it has taken in pisciculture on a scale worthy of the Government under which it acts. Before 1850, the process of artificial breeding had been tried in Great Britain and Ireland, and with a perfect success; but then, only in a very limited way, and by individuals or angling associations. The merit of the French Government lies in the magnitude of the enterprise and the liberality with which it has been conducted. The author, in the section of his memoir relating to the stocking of public and private waters, remarks, summing up the advantages of the undertaking:

"First of all, it is for the honour of France to contribute to foreign countries information obtained by our experience, casting a light on a question of high social economy. Secondly, that the relations formed with establishments in foreign countries, similar to ours, promise ultimately to lead to an exchange of products, and to aid in the acclimatization with us of fish on which the process

of artificial fecundation has been effected in their proper habitats. And, thirdly, that the French Administration receiving supplies from abroad, will feel it to be for its interest to oppose the prejudices which too often have threatened its proceedings. It will be necessary to prove that the number of adult fish needed for each *récolte* is not large, and that the taking of them need not be attended with any loss of the individuals, and that above all things, that the proprietors and lessees of fisheries should be convinced that the removal of the mature milt and roe, in place of injuring their revenue, can only augment it, as they can return the fish alive and unhurt after the operation."

Happy would it be for nations were rivalries, instead of being exercised in feats of arms and destructive war-struggles, more frequently directed to works such as we have been considering, conducive to the common good to a vast amount, in increasing and cheapening supplies of articles of diet as agreeable as they are wholesome, from which almost all but the wealthy are at present excluded. The cost of one ship of war, or of one regiment, how enormously does it exceed the expense of this beneficent establishment of Huningue! As to results, we abstain from making a comparison.

In another point of view, fish, as a diet, is not without interest; we refer to its medicinal use, which hitherto in this country has received so little attention. We are assured by a writer on Siberia,* that there it is had recourse to, especially in chronic ailments, when other means fail, and that cures, even of cases despaired of, are often effected by means of a *raw-fish diet*—sea-fish—persisted in for some months. Iodine, and probably bromine, enters into the composition of sea-fish, and also into the migratory kinds of the salmonidæ—the salmon and sea-trout, on account of which it may be inferred that they are most wholesome when fresh from the sea, and in their highest condition.

Review V.

Reports of the United States Sanitary Commission. Series, from 1 to 59.—*New York.*†

In the last number of our Review we gave a brief account of the origin, organization, and working of this patriotic commission; at the same time expressing our admiration of the public spirit to which it owed its creation, and of the judgment and science with which its operations had been conducted.

In this article we propose to resume the subject, and to give as much information as our restricted limits permit on some of those topics contained in the Reports which we thought it advisable then to pass over.

This American civil war, though not unprecedented as to kind—for what country has not experienced like struggles of great parties?—is at least almost without parallel as to magnitude, and entirely so in modern times. Hence much of its interest; and, considering the

* Revelations of Siberia, edited by Colonel Lach Szyrma, vol. ii. p. 191. London, 1853, second edition.

† The various documents issued by the Commission, varying in length from two or three pages each to one hundred, collected, would form a thick 8vo volume. We have before us as many as sixty-nine.

races engaged, men of our own blood, and how the vast armies brought into action have been extemporized, their history, brief as it is, should be full of instruction and warning.

The quantity of materials before us, having been favoured with fresh documents, is so ample, that we hardly know how to begin, or how, without exceeding our limits, to communicate what we wish to give, so as to convey clear ideas of the particulars to our readers. The mistakes committed, the evils resulting from carelessness and incompetency, will most require attention. It is in war that their effects are most strongly displayed, and in the most terrible manner. To avoid misstatement when bringing examples of them under review, we shall be under the necessity of giving extracts, and more than otherwise we could wish to offer.

We shall commence with the recruiting of the army. An excellent letter is addressed on this very important subject to the President of the United States by the Executive Committee of the Commission. It is written in strong and yet respectful language. Its main intent is to point out the necessity of a careful examination of recruits by skilled and competent medical officers, officers who have been trained to the duty, with an adequate knowledge of the qualities that fit a man physically to become a soldier for active service. Referring to the past—the levies of the spring and summer of 1861, and looking forward with apprehension to the 300,000 new recruits about to be called into the field in the summer of 1862, they remark:—

"The wise and humane regulations of the United States Army, that require a minute and searching investigation of the physical condition of every recruit, were, during the spring and summer of 1861, criminally disregarded by inspecting officers. In twenty-nine per cent. of the regiments mustered into service during that period, there had been no pretence even of a thorough inspection. Few regiments have thus taken the field that did not include among their rank and file many boys of from fourteen to sixteen—men with hernia, varicose veins, consumption, and other diseases wholly unfitting them for duty, and which could not have escaped the eye of a competent medical officer; and others with constitutions broken by intemperance or disease, or long past the age of military service. Each of these men cost the nation a certain amount of money, amounting in the aggregate to millions of dollars. Not one of them was able, however well-disposed, to endure a week's hardship or render the nation a dollar's worth of effective service in the field. Some regiments left ten per cent. of their men in hospitals on the road before they reached the seat of war. No national crisis can excuse the recruiting of such material. It increases for a time the strength of the army on paper, but diminishes its actual efficiency. It is a mere source of weakness, demoralization, and wasteful expense, and of manifold mischief to the army and to the national cause. The frequent spectacle of immature youth and of men of diseased or enfeebled constitutions returning to their homes shattered and broken down after a month of camp-life, destructive to themselves and useless to the country, has depressed the military spirit and confidence of the people. How can we escape a repetition of this manifest evil, except by a more vigilant and thorough inspection of our new levies? And how can such an inspection be secured?"

After some excellent comments on the neglect of sanitary laws, they remark:—

"But we cannot contemplate the needless renewal of their painful experience

without warning Government that the loss of life by debility, disease, and immaturity—ten times that of our bloodiest battles—is wholly unnecessary; that of every ten men lost by the army during the past year, nine have been needlessly wasted; that by proper medical inspection of recruits, the material of disease can be reduced to the lowest possible sum; and then, by a proper distribution of the raw recruits among the regiments already formed, and of all new officers among existing regiments, we may at once communicate all that is most important in the sanitary experience of our veteran army to the new levy of 300,000 men, and thus save them from seventy-five per cent. of the mortality to which they will otherwise be inevitably exposed. From a sanitary point of view, the urgency of the policy is clear. *If all the* 300,000 *men now about to be recruited, were recruited without a single new regiment being formed, it would save the country, sooner or later, thousands of lives and millions of dollars.* We should get a far better class of men. They would have a thorough medical inspection, and every man would soon cease to be a raw recruit when absorbed into a veteran regiment. Thus all one year's costly expenditure would be saved, and the perils of ignorance, inexperience, and crudity be avoided."

The passage in italics may be too sanguinely expressed, yet we are satisfied that there is truth in it. It and its context would be well deserving of the attention of our own Government, should it ever be necessary to employ our volunteer force in active warfare.

On discipline, the following injunctions are excellent. No doubt they are specially needed in such armies as the Federal, formed chiefly of citizens, amongst whom, under their republican government, gradations of rank have been in a manner ignored. We are the more induced to quote them, as they are almost equally applicable to our own volunteer corps. They form a part of the "Revised General Instructions for Camp Inspections," from the central office of the Commission, under the head of "Etiquette and Discipline." We shall enforce them by an extract from a letter from the field.

"Unquestionably the first of all conditions of health in the army is strict discipline. Do all, therefore, in your power to encourage and strengthen a good purpose in this respect; do all in your power to sustain it. Honour in your own conduct the strictest rules of military etiquette, and let it be seen that you expect them to be stringently enforced. Let it be known that you consider no disease so destructive to an army as laxity of discipline. Demand, whenever you properly can do so, that the standard of the volunteers shall be at least as high as that of the regulars in this respect, and reprove any intimation that this is not to be attempted."

An inspector, writing from the field, states:—

"Disease has disabled ten of our soldiers for every one the rebels have been able to destroy. Above all things urge on the Government the importance of enforcing military discipline. Every regimental camp I visited is a mere nursery of disease, because its officers neglect or ignore the United States Army regulations they are bound to obey. We cannot hope to see these sanitary regulations enforced under a system of discipline so slack and nerveless as ours. We have been waging war for more than a year, but no sentinel has been shot for sleeping at his post, and far too few officers have been publicly disgraced for inefficiency. It is not surprising that the important sanitary regulations of the service have been neglected, though their neglect has cost us many thousand lives."

In armies on active service, one of the first difficulties is the forming and maintaining an efficient commissariat and purveying department; and of course the larger the forces the greater is the necessity. From the documents issued by the Sanitary Commission, the United States armies have, as regards the commissariat, been better provided for than perhaps could have been expected; but the same remark is not applicable to the purveying branch of the service, that which has charge of supplying the hospitals. It is sad to see how often, after a battle, the most necessary things have been wanting, and how, notwithstanding the exertions of the Commission in sending supplies from their stores, these have been inadequate to the emergency. In a paper dated September 11th, 1862, it is remarked—

"Notwithstanding the generous support that has been rendered to the Commission, its present expenses far overrun its receipts. And although it is daily relieving a fearful amount of suffering and saving many lives, it is now and long has been our lot to witness a far greater amount of suffering and of death which it has never had the means to relieve."

It is added:—

"The following articles of hospital clothing are especially and urgently required: *Sheets, woollen shirts, drawers and socks, flannel and other bandages, lint, pillows* (feather) of medium size. They are invaluable in bringing men with broken limbs from the field of battle. Wines, spirits, farinaceous food, condensed milk, beef-stock for soup, Boston crackers, canned fruits, preserved meats and vegetables; cast-off outer clothing, coats, pantaloons, vests of any material, are of great use."

The following illustrative extracts are from letters written by the Commission's inspectors from battle-fields.

"On communicating with the surgeons on the ground, I learned that there was a lamentable lack of medical and sanitary stores, the supplies having been cut off by the raids of the enemy. Forty-two wagons laden with medical stores were captured at Manassas. Many of our wounded soldiers had been without food for two days, and were soon to start for Alexandria and Washington over a rough and stony road, at the mercy of merciless insubordinate ambulance-drivers. . . . . Pressing inquiries came from all sides: 'Have you stimulants? have you bandages, lint, dressings, splints, sponges, food, anything for the wounded?' . . . . One melancholy question was asked me: 'Have you any chloroform?' No stimulants, no chloroform at the head-quarters of an army—thirty miles from the unfinished dome of the Capitol! Such are the accidents of war."

From another, in a letter of the 7th September, 1862, it is stated:—

"Everything we brought came into play. From Saturday to Wednesday nearly two thousand of our wounded lay on the battle-field without food or water. Even the surgeons were *starving*. One told me he was glad to pick up a piece of a cracker he found lying in the mud, and to eat it. The sufferings of the wounded during this interval were alleviated by a heavy thunder-shower, which gave their lips the only water they tasted. Some were taken to farm-houses, some received food from the country people, but *many, very many died* of starvation and exposure, while . . . ."

The sentence unfinished is suggestive of painful inference, such as we do not venture to make.

One more extract we shall give before quitting this part of our subject, as it is a good example of the want of judgment in sending supplies by individuals, and not through an organized central agency; and we are the more induced to offer it, as a warning to benevolent persons who, as recently during the distresses of our manufacturing districts, acted in the same way:—

"In obedience to the call for help lately issued by the Secretary at War, the New England people sent more than 150 tons of hospital stores to Washington, consigned to the care of a very high officer of Government. The excellent lady to whom he entrusted the distribution sent an order to each surgeon in charge of an hospital in or near Washington, for so many boxes of hospital stores. One of them showed me his order, and told me he really did not want these stores, for what Government did not supply, the Sanitary Commission did. Miss D—— says that the hospital stewards and nurses are having a good time scrambling for the plunder. It is a great pity that the bounty of the people should be thus wasted, when it might be made so much more useful, if dispensed through the comprehensive organization of the Sanitary Commission."

What the Commission accomplished is stated in a paper, No. 48, of the 24th September, 1862, amounting briefly to this, that they had answered the requirements of eighty general hospitals, besides regimental and other hospitals; and that after the great battles they had furnished supplies two days in advance of the Government issues, this in consequence of their independent means of transport; and it is justly remarked that "the first *two* days are more important than the next ten to the saving of life and the relief of misery."

"Within a week (it is stated) we dispatched successfully by teams to the scene of battle from Washington alone 28,763 pieces of dry goods, shirts, towels, bed-ticks, pillows, &c., bandages, old linen, &c., 3188 pounds of farina, &c., 2620 pounds of condensed milk, 5050 pounds beef-stock and canned meats, 3000 bottles of wine and cordials, and several tons of lemons and other fruits, crackers, tea, sugar, rubber-cloths, tin cups, and hospital conveniences."

In a letter from one of their inspectors, of the 22nd of September, it is remarked—

"A single item will show the value of our supplies; we have given out over thirty pounds of chloroform within three days after the battle. The medical authorities had not one-hundredth part of what was needed, and in many places important operations were necessarily neglected and life lost. *Our chloroform saved at least fifty lives, and saved several hundreds from the pain of severe operations.* The want of chloroform was the most serious deficiency in the regular medical supplies, and as the result, amputations which should have been primary, will now be secondary or impossible."

The same writer describes how he found the wounded—

"I saw fifteen hundred wounded men lying upon the straw about two farms, within sight of each other! Indeed, there is not a barn, or farm-house, or store, or church, or school-house between Boonsesborough, Kiedysville, and Sharpsburgh, and the latter and Somoketown, that is not gorged with wounded —rebel and Union. Even the corn-cribs, and in many instances the cow-stables, and in one place the mangers, were filled. Several thousands lie in the open

air upon straw, and all are receiving the kind services of the farmers' families and the surgeons."

It is a pleasure to find him adding—

"I hope I shall never forget the evidences everywhere manifested, of the unselfish and devoted heroism of our surgeons, regular and volunteer, in the care of both Federal and rebel wounded."

The newspapers have made us acquainted with the vast frauds perpetrated by army contractors and army officials during this deplorable war. It redounds to the credit of the Sanitary Commission that their transactions, so many and complicated, conducted chiefly by unpaid agents, are an exception, and certainly a most honourable one, and, so far as the people are concerned as a community, a redeeming one. A gentleman, whose name is given, who made it his duty to undertake a strict inquiry into the manner in which they conducted the business of affording relief, expresses himself, in a Report expressly on the subject, as perfectly satisfied of the correctness of the agents of the Commission, and the absence of any abuse. He states that only one box of 25,000 forwarded is known to be lost. He says—

"I have taken pains to inquire of soldiers, officers, and surgeons what they knew and what they thought of the Sanitary Commission and its work. I could give many valuable testimonials to the fidelity and efficiency of the Commission. Said the chaplain of a Delaware regiment—'I have tried the Sanitary Commission, and know that its action is wise and beneficent.' Said a surgeon just from the battle-fields of Antietam—'O the suffering there, and but for the hospital supplies of the Commission which were there—twenty-five four-horse wagon-loads of them two days before the Government supplies came—the suffering and death would have been still more terrible."

The following is the announcement of what the Commission has been, and is still doing, by means of its funds—these amounting to 200,000 dollars in the treasury, at the time the Rev. President and Chairman of the Executive Committee wrote—viz., October 22nd, 1862—

"1. Maintain constant inspection of camps for the dissemination of intelligence regarding the prevention of disease.

"2. Maintain the preparation and distribution of short, but thorough medical and sanitary papers, for the guidance of medical and other officers.

"3. Relieve the wounded on battle-fields, by supplying them with condensed food, stimulants, and means of preserving life, as at the battle of Antietam, when 20,000 dollars were expended in a few days.

"4. Keep a corps of experts in constant circulation in all our hospitals, reporting defects, correcting evils, and doing their utmost to alleviate the radical sources of suffering.

"5. Maintain the machinery for collecting and distributing the supplies furnished by the homes of the land—a business of great labour, expense, and wide agencies.

"6. Afford special relief at our various 'homes' for sick and wounded men who are *in transitu* from camps and hospitals.

"7. Make the general wants and condition of sick and wounded men a constant study, and strive, by influences on Government, on Congress, and the public, to secure such new laws or general orders, or *to make such a public opinion* as will induce constant improvement in their condition."

With the immense forces in the field, estimated at from half a million to a million, the hospital requirements were of necessity on a corresponding scale of magnitude. In a Report of the 22nd of October last, the number of sick and invalided soldiers needing aid was stated to be 130,000; of these 70,000 were in general hospitals, 10,000 in regimental hospitals, and perhaps 50,000 more in convalescent and other camps. The state in which the inspectors found the hospitals was, as might be expected, very various; and the same remark applies to the encampments, there being little system or unity of action observed. In a Report written in September, the author of it relates—

"I spent five days in and around Washington visiting hospitals, observing the methods of management and the condition of the patients. I had every facility afforded me by the Surgeon-General and by the officers in command. I am happy to say, that in general the patients were made more comfortable than might seem possible. Nearly all the hospitals are large and airy, and many with gardens and surrounding grounds. There never was before such a sick room as the Rotunda in the Capitol, in which lie nearly three hundred patients, and four hundred more in the Senate Chamber and House of Representatives. Every patient in all the hospitals which I visited lies upon a cot bedstead, not upon the floor, and in general the bed-clothes and the clothes upon the patients were decently clean."

Here is another account, written at an earlier period. The hospital was the Marine Hospital at St. Lewis. A small part of the Inspector's Report will suffice: "The beds all dirty and disgusting, men sleeping in their clothes; no sheets or bed-clothes, except a comforter to each man. The house bad-smelling, the men disgusting, furniture all broken."

The following is a part of an account of an hospital in Cumberland, one of fifteen in that town. It is—

"A three-story brick building, formerly used as an hotel. It is badly placed for ventilation, and the surroundings are filthy in the extreme. 1*st Floor:* The main hall is large, but in a shocking state of police. Ward 1 is a good room, 36+18+11=7128 cubic feet. It has recently been occupied by twenty-seven men, lying on the floor as thickly as they could be packed, *each man having about twenty-three square feet space.* It is in a horrible condition; straw scattered all over the floor, upon which are placed three rows of filthy bed sacks, with no other bedding."

The description of the other rooms differs but little from the preceding—

"The condition of the yard of this building defies description. It is simply disgusting. The out-houses are filled with dirty clothes, such as sheets, bed sacks, shirts, &c., which have been soiled by discharges from sick men. The privy is fifty yards from the house, and is filthy and offensive *ad nauseam.* It consists of a shed built over two trenches. No seats, simply a pole passing over each trench for the men to sit on."

After describing the several rooms, and how they were occupied, he remarks—

"*We have* 205 *persons occupying* 47,040 *cubic feet, or about* 229 *cubic feet each.*"

He adds—

"I do not hesitate to say that such a condition of affairs *does not exist in any other hospital in the civilized world;* and that this hospital is altogether worse than any which were such *opprobria* to the allies in the Crimean war. It is under the charge of Drs. —— and ——, the former a citizen, the latter belonging to an Ohio regiment. He was sent by the Governor of Ohio. There are five ward-masters, twenty-seven nurses, five cooks, and ten matrons. The nurses are uninstructed, and their duties very badly performed."

The accounts of the encampments show similar contrasts, and almost as marked differences as regards the health of the troops. Two examples may suffice—

"—— *Regiment.*—I found (reports the Inspector) camp-streets, tents, spaces between tents, drains, and edges of the tents filthy. Refuse-slops were buried in the trenches, but the trenches were nearly filled before the dirt was filled (*sic*). The men were undisciplined. The horses tied very near the tents, and their dung not removed. The cooking bad, the men dirty. In short, by want of cleanliness and attention to the requirements of civilized life, the men were in danger of losing all self-respect."

"*Sixth Indiana Regiment.*—This was in excellent condition. The colonel is a gentleman and a soldier, alive and active in his duties. The surgeon, Dr. C. S. Schussler, is eminently well qualified, and devotes himself untiringly to his duties. Guided by science, he is saving many lives by taking those precautions necessary to prevent sickness. Means were used to promote cheerfulness, and the men were in good spirits. The streets of the camp are beautifully turnpiked and well drained. The tents are struck or raised from the bottom often. The slops are carefully disposed of, so as to be not in the least offensive; the men clean, their clothing well washed. The sink was on the leeward side of the camp, in the woods, at a proper distance, neither too far nor too near. A nice walk was cut to it through the woods. Most of the companies have built loghouses, with fireplaces and chimneys for kitchens well adapted for the use designed. But two men were so sick but that they would join their regiments, were an order given to march; one of these disabled by an accidental wound, the other sick with fever."

Did our limits permit, we could give from the Reports striking examples equally of the good effects of attention to sanitary rules in the preservation of health, and of the reverse from their neglect in the production of disease. We hope to be able, in a future number of our Review, to contribute an article expressly on this subject, from the documents now before us.

Of the medical officers belonging to the volunteer forces, in a Report of December, 1861, it is stated that "the surgeons of 176 out of 200 regiments were sufficiently qualified; of 4 incompetent; of 13 of doubtful competency; and as to those of 7 regiments, the point is not reported on." The following is a more general account of them, prefaced with the astounding remark as to the suspicion alluded to:—

"It is not true, as it seems to be too generally suspected, that when a medical man accepts a military appointment, he thereby and at once sells himself, body and soul, to the devil. On the contrary, I do not hesitate to say, that the most hard-working, self-denying, earnest, and conscientious officers of the army are its surgeons. I do not, of course, arrogate to the class any superhuman virtues. They are all simply men, and have man's imperfections. And there are those among them so ignorant, and others so depraved, that they are a curse to the service, *opprobria* to the profession, and a disgrace to

those by whom they were commissioned. Yet such are a few. Most are laborious, faithful, and meritorious. The greater part have passed a rigid examination before a competent medical board, by whom they were declared well qualified for their duties; and have since, by their services in the field, vindicated the propriety of their selection from the great number of candidates for the places which they hold. During the past year all the surgeons have been overworked. None, that I know of, have escaped disease contracted in the discharge of their duties; many have gone home with their health permanently broken, and not a few have been martyrs to their faithfulness."

The same writer eulogizes the medical officers of higher rank—the inspectors of hospitals; but not so, many of the general officers, those who, in their military and fighting *furia*, view sick and wounded men, thereby disabled, much as slaveholders at one time considered their slaves. Here is an instance:

"One general of division, within the last few months, and under my own observation, determined to eradicate sickness from his command by ordering all men under medical treatment to appear daily at dress-parade. And so they did, day after day; those able to walk dragging themselves out under a broiling sun to witness the ceremony, those unable to help themselves dragged thither in ambulances. The system, if pursued sufficiently long, would doubtless have been successful, driving all malingerers back to the ranks, the really sick rapidly to their graves."

Here is another instance of a nearly allied madness:

"Another military chieftain, commander of a great army at a later date—a very recent date—led his forces, by rapid marches, across a State; many, if not all, his regimental surgeons being prohibited, by special order, from taking with them any medical supplies whatever. Some of them are to-day, as I know, following their regiments with no other remedial agents than such as they carry, in defiance of orders, about their persons. Will it surprise you, then, if I tell you, that when the forces of this general met the enemy, and a bloody battle ensued, there was no adequate preparation for the wounded; and, as a consequence of this want of preparation, there was great suffering, and lives were lost? Nor will it surprise you to learn, that the chief medical officer of this army—an eminent surgeon, a most efficient officer, a man endeared to all his associates in that army by his kindness and courtesy, after months of endurance of what seemed a studied disregard of the claims of his department, felt compelled to ask to be relieved."

As regards the medical service, one of the great defects and deficiencies of the military system of the Federals, as at present conducted, is that it cannot claim the aid of either the quartermaster's or commissariat department, and can only get assistance in a casual way, subject to the caprices of those in command—having, accordingly, no independent means of transport, or even of subsistence, for the sick and wounded, and this though the Sanitary Commission, it is stated, and the Surgeon-General have for months urged the necessity of supplying such means.

In the numerous Reports and other documents before us, there is much that is deserving of attention, and which we could wish to bring under the notice of our readers; we reserve them, hoping, as we have already said, to recur to the subject, that portion of it which relates to the sickness and mortality of the United States Volunteer Forces,

its causes, and their prevention; and when we shall have an opportunity of briefly reviewing the several treatises on the predominant diseases of the army, published by the Commission as handbooks for the use of the surgeons, of which we have before made laudatory mention.

If our readers view the extracts we have given in the light we do, they will consider them of no small value, partly as exhibiting war in its terrible features, and partly because, in ordinary campaigns, instances and details of suffering, especially those occasioned by wilful neglect, are on principle suppressed; and with the exception of the Crimean war, the errors and incompetency of officials are kept from the public, and are, as it were, ignored. Let us hope that no hostile army will ever again invade our shores; should it, we could wish that every medical officer of a volunteer corps which would then have to take the field, were well read in these documents which we have so partially reviewed. No reading, that we know of, is so well fitted to give either an insight into the incidents of war and its horrors, or of the qualifications which medical officers should possess to check and mitigate its evils.

From one of the series of these papers, we ventured to indulge in hope that the end of the unnatural warfare is not far distant—a paper in which the Commission is forecasting what is to be done when the struggle is over; when, should it last only a few months longer, the country will be burdened, according to their calculation, with "100,000 men of impaired vigour, maimed or broken in body and spirit;" and, what is worse, with 100,000 more "men demoralized for civil life by military habits, endangering the order, industry, and security of society." The Reverend the President of the Commission has written admirably on the subject. But though a gentleman has been commissioned to inquire how the invalids of European armies are dealt with and provided for, our hope of a near approach of peace is checked by a declaration in another Report, in which determination, as a sacred duty, is expressed to persist in the contest until the so-called rebels are subdued, and the union of the States is re-integrated.

We shall conclude with one more extract, regretting much, what appears to us, its sophistry. Ought they not to remember that exhaustive wars have often ended in despotism; that no peace is so insecure as that which is compulsory, and that there can be no brotherly unity without brotherly love?

"For the sake of mankind on this continent, we must not have the experience of Europe repeated here; we must go on and on, and ever on, with this our war, until such an end is reached as will save constant recurrence of wars; we must make any necessary sacrifices to firmly and finally establish here the policy of co-operation and brotherly unity, against the policies which from time to time will arise through the impatient ambition, the instability or perversity of this or that part of the people of the land."

Review VI.

Army Medical Department.—Statistical, Sanitary, and Medical Reports for the Year 1860. Parliamentary Paper, 1862. pp. 488.

When we reviewed the first Report of the Army Medical Service in October, 1861, we stated our opinion that of all the reforms introduced into the department, this plan of publishing an annual statement was the most important. We have been still more impressed with this conviction on reading this second Report, which chronicles the medical history of the army during 1860. In a succinct form the occurrences of the year, as far as they bear on the health and lives and happiness of thousands of men, are placed before us; their influence is tested by minute statistical analysis, and suggestions are made which may tend to lessen or avert unfavourable results. It seems clear that as long as the officers of the department do their duty, it is impossible that the British soldier can ever again suffer from the neglect and ignorance of former times. It is gratifying to be able to state that the medical officers appear to be faithfully reporting to their head-quarters everything which affects the health of the men under their charge. We have considered with the greatest interest this information, as epitomized by the heads of departments and laid before Parliament, and we earnestly commend the study of this Report to our professional brethren. The brief description of its contents which we can give will but faintly indicate its value; it ought to be in every large medical library in the kingdom, for it possesses a high scientific as well as historical value.

As with the first volume, this Report is divided into three sections.

First comes the Statistical Report for 1860, drawn up by Dr. Balfour. It is the most complete statement which has yet been published, and includes returns from every station of the army, India included. It must be very gratifying to Dr. Balfour, who, as a young assistant-surgeon, had the honour of co-operating with Marshall and Tulloch nearly a quarter of a century ago, in drawing up the first statistical report of the health of the Army, to see the system brought to such perfection.

A significant indication of the value of such statistical returns is shown by the fact that the French Government, after an intermission of sixteen years, are about again to commence the publication of complete numerical records of their army. Several reasons have rendered this desirable, and among others a very curious one—viz., that it is found necessary to dispel the exaggerated notions entertained by the public of the yearly losses of the French army from disease; notions which have been created, or at any rate augmented, by the obstinate silence of the Government. Those French returns are, we understand, to be issued every three months, and are to be brought up to the latest date, and thus the Minister at War and the public at large will receive the most complete information of the health of their army at the time.

There are many advantages in publishing such frequent reports, though with our scattered army it would be almost impossible to do so. It may be questioned, however, whether, if the documents are carefully worked out at the several regiments or stations, so as to lessen the labour of arrangement and calculation in London, the statistical return could not be ready at an earlier date. We know, however, the time these calculations necessarily take, and that even the Registrar-General, with his immense staff, is usually eighteen months in arrear with his annual return. It is probably impossible to have both accuracy and early publication, and if we must make our choice, there is no doubt which alternative we should prefer.

Passing from these points to the Report itself, it is gratifying to see that, with a few exceptions, the extraordinary improvement in the health of the army still continues. The mortality of the army at home amounted in 1860 to nearly 10 per 1000, but varied somewhat in the different arms and regiments, ranging from 3·27 in the Household Cavalry to 14·86 per 1000 in the Depôt Battalions. In the cavalry regiments the amount was 6·09 deaths per 1000 as against 7·94 in 1859; and in the infantry regiments it was 9·95 per 1000 as against 7·59 in 1859. The admissions into hospital ranged from 513 per 1000 in the Household Cavalry to 1418 per 1000 in the Cavalry Depôts; this last high number being caused by the number of injuries received by the recruits while learning to ride.

The invaliding in 1860 ranged in the different services from 9·61 to 24·65 per 1000; the greatest amount being in the Foot Guards (24·65 per 1000).

Dr. Balfour traces out carefully the effect of age, and then proceeds to the enumeration of the different diseases causing admissions into hospital and mortality.

We shall only notice under these two headings, that as far as regards admissions into hospital, the class of "enthetic (venereal) diseases" gave the following—

	Ratio of admissions per 1000 of mean strength.	
	In 1860.	In 1859.
Household Cavalry	119	120
Dragoon Guards and Dragoons	356	402
Royal Artillery	446	571
Royal Engineers	324	468
Military Train	427	580
Foot Guards	287	338
Infantry Regiments	324	399
Cavalry Depôts	353	—
Depôt Brigade R. A.	511	—
Depôt Battalions	312	400

At Portsmouth the admissions from venereal were 503 per 1000 of strength; at Woolwich, 473; at Plymouth, 440; at Dublin, 409; at Chatham and Sheerness, 351; and all other places in less proportion.

It is surely time that some action should follow the never-ending and apparently fruitless discussions on the best means of preventing

venereal diseases among the troops. While the doctors quarrel the patient is dying; and this indeed is literally true, since there is no doubt that the syphilitic cachexia plays a most prominent share in the etiology of many fatal diseases, liver and lung affections among the rest. Is it not time to do something, when at Woolwich—that hotbed of vice—every other artillery recruit suffers from some form of venereal disease within the year? And year after year the same thing goes on, because some persons think it wicked even to discuss the subject, and others to adopt the obvious means of prevention. We should like to have an accurate history of the future diseases and length of service of the men who are thus diseased at the very commencement of their career; we believe the record would be a startling one. We are convinced that whatever sanitary measures are adopted in the army, they will never bear their full fruit until this great and constant evil is boldly met and dealt with.

Among the causes of death on home service, tubercular diseases still hold the first rank. The Foot Guards still show very unfavourably in this respect—the deaths from tubercular diseases being not less than 5 per 1000 of strength, and the invaliding from the same cause being 10·68. Altogether, the strong, powerful men of the Foot Guards lost nearly 16 per 1000 of their strength in 1860 from tubercular diseases alone. The infantry regiments of the Line only lost 3·06 by deaths, and 3·82 by invaliding, per 1000 of strength in the same time. This astonishing difference ought to lead at once to a thorough re-investigation of the conditions affecting the Foot Guards, as to lodging, diet, clothing, duties, &c.

With regard to suicide in the army at home, it appears that only 26 instances occurred among 83,387 men serving in the United Kingdom in 1860, or at the rate of ·31 per 1000. Dr. Balfour questions whether this is greater than among the civil population; but as in his table referring to civilians he is obliged to include accidental as well as violent deaths, he doubts whether the comparison can be drawn without more accurate details.

Dr. Balfour gives some interesting statistics on the rejections among recruits. It appears that 318 men are rejected at the primary inspections out of every 1000 recruits; the proportion in France is stated to be 317 per 1000. England and Wales, from a population of 20,061,725 persons (census of 1861), gave 15,756 recruits; Scotland, from a population of 3,061,329, gave 2983; and Ireland, from a population of 5,792,055, gave 8937 recruits.

Of every 1000 recruits,		England and Wales . . .	furnish	566
„	„	Scotland	„	107
„	„	Ireland	„	321
„	„	Colonies & Foreign Countries	„	6
				1000

The causes of the rejection of recruits are very carefully given. Small or malformed chest and curvature of spine, diseases of the eyes or lids, disease of veins, muscular tenuity, defects in lower extremities,

general appearance of unsound health, give the largest proportions of primary rejections (more than one-half). There are no less than thirty-nine headings of diseases or conditions which cause rejection. The ages, height, weight, and state of education of the recruit are also very carefully stated. Of every 10,000 recruits, 2409 were between 64 and 65 inches in height, 2075 were between 65 and 66, 1764 between 66 and 67, 1243 between 67 and 68, 811 between 68 and 69, 480 between 69 and 70, 294 between 70 and 71, 138 between 71 and 72, 57 above 72 inches or 6 feet. A few were below 64 inches. The Scotch were the tallest men on an average, the Irish the shortest; the greater number weighed from 120 to 130 pounds.

Such an immense mass of facts is indeed recorded by Dr. Balfour, that we are doing him the scantiest justice by taking out these few points from his elaborate analysis of the health of the army at home; we trust, however, we have said enough to induce our readers to study this instructive work for themselves.

On the various foreign stations the health of the troops in 1860 appears to have been pretty good. At Malta and Ionia both admissions to hospital and deaths were much less numerous than in 1859; at Gibraltar, on the other hand, there was a slight increase in mortality, owing partly to an outbreak of cholera.

In the West Indies there was no very striking incident, except that at Trinidad there was not a single death among the white troops during the whole year. Among the black troops at the same station there appears to have been no less than 8·54 deaths per 1000 from suicide.

In Jamaica the mortality was 20·2 per 1000, which is an increase over the loss of 1859, owing to paroxysmal and "continued" fevers. It would be very important to learn precisely what the "continued" fever of Jamaica is? Is it not chiefly typhoïd? The term "continued" is a most unsatisfactory one, leading to no conclusions as to cause or suggestions as to prevention.

In Canada the loss was 10·33 deaths per 1000. There were fewer admissions than usual from continued fevers.

We pass over all these and other stations to turn to the chapter on the "Health of the Troops serving in India." This is the first time that statistics of all the Europeans in India have been brought together in an official Report. We wish our limits would allow us to make a critical examination of this important chapter, but we must content ourselves with a few extracts only. The following table gives the broad results:

	Average strength.	Admissions into hospital.	Deaths. In India.	Deaths. Of invalids.	Deaths. Total.	Ratio per 1000 of strength in 1860. Admitted.	Ratio per 1000 of strength in 1860. Died.	Annual ratio of deaths per 1000.*
Bengal	42371	85693	1569	99	1668	2023	39·37	55·56
Madras	10696	15901	193	49	242	1487	22·63	39·76
Bombay	11388	22013	332	29	361	1933	31·70	26·09

* Average of five years—1850-54.

This table bears out the old saying of "Madras for Health" as compared with Bengal and Bombay, but in all the Presidencies the sickness and mortality are far greater than they should be. The forthcoming Report of the Sanitary Commission on India will doubtless strongly direct the public attention to the causes of this yearly loss—causes which we already have learnt from the striking pages of Chevers and many other Indian surgeons. Suffice it now to say that we feel sure future years will tell a very different tale from that Dr. Balfour now puts before us. One point even now is satisfactory—it is, that the mortality, great as it is, is still less than in former years.

In Bengal there are stations, such as Saugor, Meerut, Jullundur, Ferozepore, and Nowshera, where the death-rate is scarcely more than at home. At Jullundur (Punjaub), indeed, it was only 7·34 per 1000, and at some of the very much smaller stations, where the numbers are too few to make a single year's returns of much value, as Futtygur, it was even below this.

In some stations, again, the mortality was immense; in Calcutta it was 92·53 per 1000; at Morar (Gwalior) it was 119·33 per 1000; and at Raj Ghat, Benares, it was 161·89 per 1000; no less than 121 men out of a strength of 1014 having died in hospital. Cholera of course is to blame for these high numbers, and probably next year's report may tell a different story.

Dr. Balfour very properly remarks, that his numbers "may be useful in calling the attention of medical officers to those stations where a high rate of sickness and mortality has been observed." We should hope, however, that there will be no need for this prompting as soon as the numbers are known in India.

In the analysis of the diseases in Bengal, we are struck with the large number of cases returned as "continued fever." At Calcutta, 320·7 men per 1000 were admitted, and 1·4 per 1000 died. At Benares, 378·8 per 1000 were admitted, and 5·9 per 1000 died. At Peshawur, 404 men out of every 1000 were admitted in the year, and 2·72 died. We must again remark that it is most important that a clear diagnosis should be given of this class. Is it typhoïd, or relapsing fever, or obscure malarious remittent, or something else?

At page 121 a table is given of the different corps; on looking through it, it seems as if half the army were in Bengal. Two troops of horse artillery, sixteen batteries of foot artillery, two companies of royal engineers, four regiments of cavalry, and forty-four regiments of infantry,* make up (with the remnant of the old Company's troops) the imposing army which watches at the same time the cowed nations of the north-west and the wild tribes roving on the slopes of Nepaulese and Affghan hills. And every year, from deaths alone, it is as if nearly two regiments disappeared.

In Madras, both the sickness and mortality are less than in Bengal, and in some stations, as at Cannanore and Rangoon, the death-rate was only 7·08 and 5·12 per 1000. The greatest loss was at Secun-

* These numbers do not include the old Company's regiments, which, at the date of the Report, had not been amalgamated.

derabad, that place of ill repute, where twenty-five men died out of every 1000, though even this was an improvement over the average amount at this fatal locality. In an after part of this volume is an excellent paper by Mr. Crawford on Secunderabad, which explains very completely the causes of this mortality. Five companies of artillery, three regiments of cavalry, and ten regiments of infantry, compose the army of this Presidency, and of these, death removes only a quarter of a regiment annually.

The returns from Bombay are not sufficiently complete to allow Dr. Balfour to enter on any analysis.

The number of soldiers constantly in hospital amounts in Bengal to 3173, or more than three regiments; in Madras to 672; and in Bombay to 754, or nearly two regiments more, so that it may be said that a number equivalent to five regiments out of the army in India are constantly non-effective. The average duration of illness is 13·51 days in Bengal, 15·55 in Madras, and 12·5 in Bombay.

We leave Dr. Balfour's report with reluctance, for to us these dry tables possess the highest interest. Year by year, as comparison becomes easier and more certain, they will gain in interest and in importance. As it is, we know no work of the kind of greater value; it is a credit to our country and the department which issues it.

The second division of the Report is occupied by the documents presented by Dr. Logan, the head of the Sanitary Branch. It consists of several valuable papers. First, there is a very long and elaborate account drawn up by Dr. Logan, of the sanitary condition of all the chief stations of the British army. The amount of accommodation, the warming, and ventilation of the barracks, the cooking arrangements, provisions, bathing, water-supply, clothing, condition of latrines, drainage, gymnastic exercises, &c., are all recorded. We most earnestly commend the suggestions made by Dr. Logan to the attention of the authorities. Every commanding officer ought to read this Report, and to endeavour to carry out the improvements recommended. It is almost impossible that the central authority can issue specific instructions on all the points which require attention, whereas officers commanding regiments or stations can, in many cases without difficulty, either at once remedy evils, or can much facilitate the official routine which has to be gone through. But there are certain points with which the central authority can alone deal, and we will refer to a few which have struck us in reading Dr. Logan's excellent Report.

Thus, in the home stations, it appears that the men are still too crowded in barracks, and it is by no means uncommon for them not to get their regulation amount of space. No doubt time must be given to pass from the old to the new system, and to carry out precisely the present regulation, which allows to each soldier in permanent barracks six hundred cubic feet of space.

But we infer that much apathy prevails in carrying out this regulation; whenever it is inconvenient it is at once set aside, and the amount of cubic space at present given in some barracks is below the half of

what the man is entitled to. This is a great error in all ways; an error as a matter of hygiene, for it is impossible that ventilation can be properly carried on without a sufficient allowance of cubic space; an error as a matter of discipline, for a regulation once made should never be set aside, without the most formal statement of the reasons for a temporary alteration. Better at once to alter the regulation, and to make a rule which can be adhered to, than to let an official order be constantly over-ridden and set at nought. What, perhaps, is wanted here is a determination on the part of the War Office authorities to carry out their own order, and a more thorough recognition on the part of commanding officers, that it is as wrong to deprive a man of his ration of air as it would be to deprive him of his ration of food. Good air and plenty of it is just as important as good food; an officer would be horrified if his men were to receive only half their allowance of meat; but every day, without the least hesitation, he allows them to be with half their allowance of vital air. No one will pretend that the Queen's Regulation errs on the side of excess of air; six hundred cubic feet of space is, after all, a very poor allowance.

But not only is the ration of air deficient, the ration of food is still not what it ought to be. We learn from this Report, that the Director-General has urged the necessity of increasing the amount of meat. At present a man receives 12 ounces of uncooked meat; deducting 25 per cent. for bone, and allowing a loss of weight of 30 per cent. or 35 per cent. in cooking, and his daily allowance falls to barely 6 or at most 7 ounces. This is the amount which is given in workhouses to men who are leading the idle life of a pauper, and is evidently quite insufficient for a young soldier in full occupation. But it appears that the expense of the change would be too great. Now this we are sure is a false economy; if the amount of meat is insufficient, it must tell in some way; it must lessen the force of the soldier, and his value as an agent of force; it must, in a definite degree, impair his health, and if it were possible to deduce the amount of ill health, and the necessary expense resulting from this ill health, which cannot but proceed from this cause, we should find that the State is paying with one hand what it is holding back in the other. No more certain rule can be laid down than that anything which improves men's health is economical. We trust that the Director-General's wise suggestion will yet be carried out.

Another point is urged in Dr. Logan's Report. At present the soldiers receive from the commissariat certain parts of their food, such as bread and meat; they buy others, such as vegetables, tea, sugar, milk, &c. At Aldershot the system has been commenced of allowing the men to buy many of these articles from the commissariat at cost price. The system has worked very well; the men buy better articles at a cheaper rate, and Dr. Logan, with the sanction of the Director-General, urges an extension of the system. We are certain this is a move in the right direction; from an examination we have ourselves made into this point, we have found that the soldier buying his articles in the open market pays at least 25% too much for coffee, and in a less proportion for tea and sugar.

Lord Herbert was of opinion that the commissariat should supply everything, and probably this system will be gradually adopted.

Another point, the unsatisfactory state of the cooking, is also noticed by Dr. Logan. When the Royal Sanitary Commission discovered, in 1857, that the British soldier lived for twenty-one years of his life on boiled beef, every one was ready to pity the unhappy wretches condemned to a diet of such utter monotony. Roast and baked meat were introduced a certain number of days weekly. Well, the British soldier now appears to be sighing after his boiled beef. His small modicum of meat appears so very much smaller after roasting than after boiling, that he turns with regret to the time when his meat was more bulky if more tasteless. In fact, the loss of weight in roasting is often 35 or even 40 per cent. with the commissariat meat, and though the loss is chiefly water, it makes the amount of meat appear very small. Care, however, should be taken that the fat and juices of the meat are got by the soldier; it is one of our absurd customs, that the fat of roasted meat becomes the perquisite of the cook. If this happens to be done in military kitchens, there is some reason why the soldier should prefer his boiled beef, all of which, at any rate, he obtains. Stewing meat with vegetables is, after all, the best dish for the soldier, as there can be no loss of this kind.

Dr. Logan mentions in several places the effect produced on the men, especially in the Rifle Brigade at Aldershot, by the custom of carrying their packs and kits on field-days. Young soldiers especially suffer, and there would be still more suffering were it not that the men constantly manage to leave their kits at home, and carry their packs empty. Some commanding officers wisely shut their eyes to this habit, but the fact that the men find their full packs so dreadfully oppressive should lead at once to a full examination of the accoutrements of the soldier, and what he should be called on to do in respect of carrying his kit on ordinary duties, such as sentry, guard-mounting, &c. From some inquiries we have made, we are convinced that there is no subject of more immediate importance than this. The present accoutrements of the infantry soldier are extremely faulty; they cause considerable sickness and loss of efficiency, and are irksome to the wearers in a degree only to be appreciated by those who have either carried them, or who have got soldiers to talk to them without reserve on the subject.

The system of gymnastics is being gradually developed in the army, and in addition to a fine gymnasium at Aldershot, which is admirably conducted by Major Hammersley, gymnasia will be constructed at Chatham and other stations where there are depôt battalions, and then at all other places. They are intended as means of physical training, and also as places of recreation and amusement for the men. At present the system is in its infancy, but the Government are evidently pushing it on. Yet a little more vigour is necessary here. Physical training, especially of the recruit, is still too much neglected. A young man or boy of eighteen or nineteen years of age has a frame which is exceedingly immature both as to its bones and muscles; incalculable harm is done by improper exertion at this important age, while as

much good is done by judicious training. On this subject we would allude to an excellent little book by Dr. Aitken, of the Army Medical School, on the condition of the bones of the young soldier, in which the evils to be avoided, and the general plan to be followed in training men, are pointed out very clearly.* The increase in the girth of the chest and in the size of the muscles, by proper gymnastic exercises, is most remarkable. Dr. Logan gives a table at page 200 of the increase in height, girth of chest, and size of fore and upper arms in twelve men trained at the Gymnasium at Oxford. In some cases the height increased three-quarters of an inch; the girth of the chest three inches; the upper arm one and a quarter to two and a half inches.

At Aldershot, results even more remarkable have been brought out, even when the training has been carried on merely for an hour or two twice a week. The average increase in 360 men who last autumn went through the training was: increase of girth of chest, one inch and five-eighths; of fore-arm, half an inch; of upper arm, three-quarters of an inch.

From some statistics which we have had an opportunity of seeing, it appears that many young soldiers under two years' service are discharged from various causes, but especially from lung and heart diseases. The probability is that the causes of this are several, but that faulty training and the pressure of improper accoutrements are the principal. The authorities should certainly see to this point without delay, in justice both to the State and to the men themselves.

The clothing of the soldier at home is considered by Dr. Logan to be tolerably satisfactory; he adverts to the *vexata quæstio* of flannel under-garments. No doubt there are some difficulties of first expense, replacement, and washing, but these are not to be set against the hygienic importance of flannel next the skin, and we trust medical officers will endeavour to get a woollen or mixed woollen and cotton shirt introduced instead of the present cotton one. The high "military heel" of the boot (which is about the most unmilitary make which could be devised) has been complained of in some regiments as throwing the weight of the body on the toes. We thought Camper, Meyer, and Humphry, and the indefatigable Mr. Dowie, had settled this point.†

We have been sorry to notice a decided tendency to return to the old custom of tight-fitting and scanty tunics. The "modernized" tunic is, it appears, two inches shorter in the skirt than its antique model of three years ago. Why is this? The more covering a man can get over the thighs the better; the coat ought to be as long as it can be without touching the ground when the man kneels in rifle practice. The difference of even two inches more covering over the hips and thighs is something when a poor soldier has to march for hours through rain. Then, let us ask, is there no hope that the tunic may loosen out into a blouse, and allow a man not only to use his muscles with perfect freedom, but in winter to put a jersey or some under-garment under his

* See our Bibliographical Record in the present number.

† See No. lix. of this Review, p. 116.

coat, instead of wearing, as he does now, exactly the same amount of dress winter and summer?

One remark by Dr. Logan will certainly amuse our readers; there is a quiet irony in it which is very telling. He writes: "The great boon recently conceded to the soldier in allowing him the wear of his great-coat in winter or inclement weather, irrespectively of his being on duty, must be pronounced in the minds of all medical officers an inestimable benefit."

It appears, then, that the soldiers' great-coat has been chiefly to look at; and that it is only when he was on duty that it was permitted to stand the brunt of "inclement weather." It was, we presume, feared that the spongy and miserable cloth of which it is composed, through which the wind blows as through a sieve, and the rain passes as into a sponge, would be torn into shreds and tatters in a few weeks if the great-coat were put to its legitimate use. We are happy to learn, however, that the great-coat is not only to be worn, but that it is to be made fit to wear. The excellent system commenced at the Government clothing establishment at Pimlico is doing great things for the soldier; it is not only giving him excellent boots, but is providing a good great-coat, warm, serviceable, and tolerably resistant to wet. It only wants a waterproof cape which could be removed at will, and a hood, to make it a garment fit for a soldier. The hood, however, should be at once added; to a man who may be called on at any moment, not merely to march through pelting rain and bitter wind, but who may have to lie out all night under an inclement sky, there is perhaps nothing so comfortable as the waterproof hood which keeps the head and neck dry and warm. It is time that the extraordinary prejudice against this contrivance should be given up.

After reviewing the home stations, Dr. Logan proceeds to describe the foreign stations with the same fulness and care. We shall not follow him through his summary, though some of his statements elucidate remarkably the statistics of the same places given by Dr. Balfour. The two reports must, in fact, be read together; they are complementary of, and mutually illustrate each other.

Dr. Logan's summary is followed by a paper by Dr. Rutherford, on the "Sanitary Condition of the Troops employed in China in 1860;" and at a subsequent page, the "Medical History of the War in the North of China" is given by Dr. Muir, C.B., the principal medical officer of the expeditionary army. Both papers are of the greatest interest and value. What lives might not have been saved if, at the commencement of the Crimean war, any accounts like these of previous campaigns had been accessible! Every point connected with the equipment of the force and its preparation for the field, with its final organization, and with the successive phases of that brilliant campaign (which, short as it was, had medical difficulties and dangers of its own), is here set forth. These Reports will be the guides of future medical officers in all wars; they lay down excellent sanitary regulations, and show how these were carried out, and what were the results attained.

Dr. Muir's paper is, indeed, something more even than this; it is

really a history of the war, written with a vigorous and practised pen. Short as it is, it will occupy a lasting place in our military literature, and future historians will use it for their chief authority on this eventful war, which broke up the antique civilization of China, and introduced, for weal or woe, singular and momentous changes among the most populous kingdom on the globe.

We find it impossible to give any analysis of these two admirable reports; they are so concise that compression is impossible, and extracts would do them injustice.

In addition to this Report, Dr. Rutherford contributes a paper on the promontory of Kowloon, the portion of mainland opposite Hong Kong, which after the war was ceded to England. It would seem that a locality much healthier than Hong Kong has been found, and that the men will have much more breathing space than can be given them in the confined limits of Victoria. But Dr. Rutherford concludes his paper with some recommendations which are at once so sensible and so simple, that the authorities will surely at once adopt them.

"It ought not, however, to be lost sight of, that position of barracks alone forms only one of the many items to be considered when the health of the soldier in China is concerned. Useless will it be to erect spacious and expensive barracks on the best sites in Hong Kong and its neighbourhood, if other and most important considerations be omitted or neglected. Let the soldier be dressed in loose, roomy flannel or serge dress. Let all unnecessary drills, parades, and fatigue duties be abolished, particularly in the hot season. Let the guard duties by day and night be reduced exactly to the minimum required by strictly public contingencies; and to carry out this most essential requisite, let boards of senior officers periodically inspect every sentry-post, with a view to considering the necessity for its further continuance. Let 'bayonet' and 'flying sentries,' where and when practicable, be established. Let all guard-rooms, cells, and 'lock-ups' be adapted to the wants of the occupants. Improve the rations of the troops; and, in the case of men on guard, let there not be so long an interval of fasting — viz., from five o'clock P.M., when a scanty and unstimulating 'tea meal' was or is given, and eight o'clock next morning, when a breakfast of similar materials—bread and tea—was partaken of. Let the men who have passed twenty-four hours on guard, eight of which on foot—no inconsiderable amount of labour in the hot season—be exempted from all parades, drill, &c., on the day succeeding. Let bathing parades be encouraged and enjoined at due times and under proper inspection. Let each man have fully seven nights or more in bed. Cut him off as much as possible from the pernicious influence of noxious drinks, by encouraging him to pass his unemployed time in such establishments as the 'Institute,' established and carried on with such success in Hong Kong in 1860." (p. 313.)

The next paper is a Report on Secunderabad (Madras Presidency), by Dr. Crawford. It is a history of this notorious station, round which the English dead are buried in thousands. For many years one of the chief duties of the medical officers stationed at Secunderabad has been to make vehement, but ineffectual, reports to Government on the unhealthiness of the old barracks. In that dry and oppressive climate, with an average annual temperature of 80° Fahr., the European soldiers were crammed into barracks which were condemned by the

highest medical authority in the Presidency, as "unfit for human habitations in any climate." At length, in 1839, these shambles were pulled down, but unfortunately, at the instance of the Brigadier commanding the station, and in opposition to all medical advice, the new barracks were placed "on the old and ill-starred site," and even these new barracks, though better than the old, were badly built. The consequence has been, that the waste of life and of money at Secunderabad has been, and even is now, something appalling, and is a deep stain upon our administration of India. A new barrack has now been built, but the old building is still used, and will doubtless continue to be used until some determined and sensible Governor, like Metcalfe or Dalhousie, closes for ever the ill-omened pile.

But the mistakes of this region are, it appears, not yet over. One of the newest buildings, the hospital, is said to be an "enormous blunder;" and the following extracts from a Report of Dr. Cashman's, quoted by Dr. Crawford, will give our readers an apt illustration of how still in India "the best way not to do it" is occasionally followed:—

"The following dimensions give some idea of the magnitude of this hospital:—

Extreme length	235 feet.
„ width	93 „
Width of outer verandahs (each 12 ft.)	24 „
„ inner „ (each 13½ ft.)	27 „
Width of main ward	42 „
Height of each story	20 „
Total elevation of building from ground to top of parapet	48 „

"In this measurement no account is taken of inner partitions, if such can be said to exist, there being only pillars and open arches.

"In the roof of the inner verandah of the upper story are ten ventilators on either side, each a foot in diameter; two others of double that size, opening on the ceiling of the lower flat, pass through the upper one from the roof. Each flat is divided into one main ward 154 feet long and 42 feet broad, and one smaller one 42 feet by 18 feet, the longer diameter of the latter being transverse to the main length of the building. At either end, in the north-west and south-west angles, are small rooms each 13 feet by 11 feet, used as offices, and another larger one open on one side, and used occasionally as a special case ward, but ill suited for that purpose. There are also small rooms in the other angles now used as lavatories and bath-rooms, but for what purpose originally intended is not known. They are very unsuitable for the use to which they are now converted.

"Beyond its dimensions nothing can be said in its favour. In most other respects it appears to have been an enormous blunder in hospital construction. Its interior is nothing more than a great shed. That great principle of breaking up the sick into small numbers under separate roofs has been completely lost sight of, in fact reversed, thus rendering its very magnitude a radical error. It has been proposed to divide each flat transversely into four small wards, but the obvious objection to this would be the great extent of dead wall, which would far more than counterbalance any benefit otherwise derivable therefrom.

"The ventilation is either in excess or none at all; the former state oc-

curring in high winds, sometimes amounting to gales, and during the hot seasons dust storms and the hot winds being even more obnoxious to the sick; the latter, during the afternoons and evenings of the hot season, when the atmosphere is motionless. At such seasons, a man lying in the centre of the main ward, and being forty-six feet from the outer wall on either side, lives in an atmosphere which I believe to be, under these circumstances, as much localized around him as if he were shut up in a room six feet square. There are no ventilators in the roof of the main ward in the upper story, and but two in the lower one. There are ten round holes, about two feet in diameter, in the roof of the inner verandah of the upper story; none in the lower one.

"The great width of the building certainly serves to maintain a cooler temperature in the centre during the mid-day heat of the hot season, but there are certain conditions occurring towards evening and night which render it impossible to replace the entire volume of air within the ward, the atmosphere being so completely motionless, often for six or eight hours at a time, that no perflation can take place. It is under such circumstances that cases of heat apoplexy have been observed to occur.

"The porous state of the roof, and the failure of the engineers to make it water-tight, is severely commented on, and the extraordinary resonance of the building is described as not only injurious, but irremediable."

Some of the new barracks are also badly placed; and, in fact, it would appear that even after all the outlay, Secunderabad is destined still to be the *bête noire* of the medical department.

A curious and interesting attempt is made by Dr. Crawford (p. 328) to give a numerical statement of the causes producing sickness at Secunderabad. It is given merely as a first attempt, but the plan seems to us in every way worthy of being carried out on a large scale. Of 100 cases of disease (belonging to the miasmatic and enthetic orders), Dr. Crawford calculates that the causes are—

General.

1. Peculiarities of climate	in 25
2. Overcrowding and defects of accommodation (remediable) . .	in 15
3. Defective sanitary supervision of cantonment (remediable) . .	in 10

Personal.

4. Venereal (entirely under personal control)	in 17
5. Drunkenness (ditto ditto ditto)	in 10
6. Defects and errors in cooking, hours of eating, and composition of diet (within administrative control)	in 10
7. Neglect of personal cleanliness, slovenly habits, want of exercise (personal, and therefore under individual control) . .	in 7
8. Other undefined agencies and contingencies	in 6
	100

The large amount of remediable disease seems extraordinary when matters are put before us in this way; yet our opinion is, that the case is rather understated than otherwise, and that further observations will reduce the number of cases attributed to "peculiarities of climate." Dr. Crawford has adopted the true way of dealing with the subject; the study of causes is the true philosophy of medicine. Some practical suggestions close this very able and interesting Report.

The next paper is a pithy "Topographical Report of Nova Scotia," by Deputy Inspector-General McIlree; and then follows an admirable "Review of the Progress of Hygiene during the year 1861," by Dr. Parkes. This Review is stated to be written for the purpose of bringing before the army medical officers the latest important observations made during the year on the subject of the prevention of disease. The design seems to us a useful one, and well executed.

This closes the sanitary section of the Return, and is followed by the Report of Dr. Mapleton, the head of the medical branch.

In this Report all the departmental intelligence, circulars, &c., are given. It appears that in 1860 there were 1075 medical officers on full pay on the 1st of January; 32 died in the year, or at the rate of 29·76 per 1000 (if the number 1075 be assumed to represent the mean of the year), a very large mortality, as the department is now officered by young men; we should much like to have the ages and causes of death of these 32 gentlemen. Mr. Neison, the actuary, showed some years ago that there is an extraordinary mortality among the junior medical officers of the Queen's army, and he strongly urged that inquiry should be made into this point. The numbers we have just quoted have recalled this remark of Neison to our mind; and we beg to reiterate his request that the matter be looked into. Besides these 32 deaths, the department lost 7 men by resignation, 11 were placed on permanent half-pay from ill-health and other causes, and 17 on temporary half-pay. Altogether there was a loss of 67 officers; and to make up this loss, 58 gentlemen entered the service.

In Dr. Mapleton's Report are contained Dr. Muir's "History of the Chinese War," already noticed, and the following papers:

1. "Cases of Frostbite occurring in China," by Dr. Currie, Deputy Inspector-General. Twenty-one cases are shortly but clearly related; 7 died, and all the remainder lost part of the feet.

2. "Report on Ophthalmic Surgery at Fort Pitt," by Dr. Philip Frank. This paper occupies no less than fifty-three very closely-printed pages; it contains an immense number of most important and in many cases original observations, and is illustrated by some chromolithographs. We find it impossible to analyse it, but we beg to direct the attention of ophthalmologists to it, as we believe it will be found to be one of the best papers ever written on the subject. There appears to be a most curious collection of cases among the invalids at Fort Pitt, and the use of the ophthalmoscope has singularly elucidated many of the obscure causes of inefficiency arising from defects of vision. Dr. Frank enters at some length into the question of the so-called "military ophthalmia," and the nature of the "vesicular granulations" which exist in that disease. How commonly this condition prevails appears from the fact, that vesicular granulations were found on the lids of men belonging to no less than forty-one different regiments in various parts of the world. The very interesting observations of Assistant-Surgeon Marston, R.A.,* also bear out the conclusion that this disease prevails extensively in our army.

* Beale's Archives, 1861.

Dr. Frank has no doubt of the normal existence in the lids of closed solitary follicles, structurally identical with the closed follicles of the intestines, the Malpighian follicles of the spleen, &c. The sago-like vesicular granulations arise from "multiplication of intra-follicular corpuscles, frequently combined with germinative cell-growth in the surrounding connective tissue, under the influence of irritating agencies."

That the disease is contagious Dr. Frank has of course no doubt, but he does not seem disposed to conclude that it cannot arise *de novo*. Indeed, he thinks Stromeyer's observations show the production of vesicular granulations in the eyes of animals when exposed merely to a vitiated atmosphere, and he believes that thus the existence of a vitiated atmosphere may be discovered in a barrack room by examining the eyes of soldiers, before there is any other evidence from disease of its presence.

The progress and consequences of vesicular granulation are described with great care; indeed, the whole chapter forms a complete monograph on this disease.*

In a subsequent page we observe Dr. Frank refers to an undoubted case of blindness after the use of large doses of quinine, and he refers to similar instances related to him by Professor Maclean, of the Army Medical School, and by Dr. Mouat, of Calcutta, and to some cases given by Von Graefe and Briquet. He points out that quinine blindness must not be confounded with the loss of vision caused by pigmental obstruction as a co-effect of malarious poisoning.

Two of the plates refer to beautiful instances of chorio-retinitis pigmentosa (Von Graefe), both of which commenced with hemerolopia. The deposit of pigment is enormous.

The other plates give very perfect drawings of a case of staphyloma with choroïditis, and of a capital example of retinal detachment in a man who was struck by the hock of a mare over the root of the nose.

Dr. Frank gives the following statistical statement drawn from 656 cases of eye-disease observed at Fort Pitt in 1860 and 1861:—

Ophthalmia contributed	428	or 65·3	per cent.
Iritis and sequelæ	56	8·5	„
Defects of accommodation	24	3·8	„
Disease of retina and choroïd	108	16·5	„
Cataract	6	0·9	„
Strabismus	3	0·45	„
Traumatic affections	30	3	„
Neuroparalytic corneitis	1		„

We are really sorry that our space will not permit us to extend our extracts from Dr. Frank's most admirable paper.

3. Notice of a form of ulcer prevalent at Delhi, by Dr. Fraser, gives an account of the so-called Delhi ulcer, which Dr. Fraser thinks arises from the drinking water being impregnated with nitrates. It seems to be different from the "Bouton d'Alep," or the Damascus ulcer, and perhaps also from the Algerian ulcer, and has "a strong tendency to return." It is probably connected with some of the in-

* See Article No. xiii. for a description of this disease.

gesta, but possibly it is the organic rather than the inorganic matter in the water which is to blame.

4 and 5 are records of a case of ligature of the iliac artery, by Dr. Le Lisle, and of a case of lithotrity by Mr. Park, R.A.

6. Dr. Skipton describes a new form of splint for compound fracture of the extremities; it is illustrated by figures.

7. Professor Longmore, of the Army Medical School, contributes a curious paper on the mode of testing the power of vision of recruits, in reference to their power of learning to shoot properly. Sets of dots of a certain size, placed at a particular distance, represent the bull's-eye of a target at 600, 800, or 1000 yards. If the recruit can tell easily the number of the dots, he can see the bull's-eye at the distance corresponding to the size of the dots.

Will the great range of vision now required much limit the number of recruits, and are there many stout, healthy boys who will be rejected on this ground? If so, our new armament may have serious consequences, and we should not wonder to find this subject turn out to be one of national importance.

These various papers are followed by an account of the sessions of the Army Medical School, and of the questions put at the various examinations. We are glad to see that the Professors speak very highly of the diligence and intelligence of the gentlemen entering the Medical Department of the Army.

In noticing this Bluebook, we have preferred to give an analytic review of the whole volume rather than to discuss minutely any of the papers contained in it. At the end of our work we repeat what we said at the beginning, that this Report is most creditable to the Army Medical Service; it proves that the department is administered with equal activity and sagacity, and that the medical officers are entering on a career of usefulness and influence greater and wider even than heretofore.

This being the case, we cannot avoid pausing for a moment to ask how it is that we have lately heard so much of the discontent of the medical officers; a discontent so great and so urgent that we are informed nothing like it has ever been known in the service. The feeling has now commenced to operate beyond the department, and in letters and articles in the medical journals and addresses from medical teachers, young medical men are dissuaded from entering this renowned service. This is a matter so important that we shall offer no apology for making a few observations on it.

As far as we can understand it, the present discontent of the medical officers is in several respects a just one. But to make it clear, we must, for the sake of our civil readers, make a few preliminary observations.

Of late years, and of late years only, a custom has crept in of terming some of the sections of the army "Civil Departments." This is an unfortunate word, which has arisen in a confusion of ideas. The army is an unit, composed, it is true, of many sections, having special

duties, separate and uninterchangeable, but all bearing on one end—viz., to make the army an agent of force, and to keep it so. None of these sections, either combatant, or engineering, or commissariat, or medical, should be termed civil; these are all necessary portions of the army, and without any one of them the army would not exist. The commissariat or the medical officers in our view are as much *soldiers* as any other officer whose duties are in another direction. And therefore there should be nothing like a feeling of superiority or inferiority on the part of any section of the army. The duties of the medical officer are perfectly well-defined, consisting in the treatment of the sick and wounded, and in the preservation of the health of the sound men. The medical officer can alone perform these duties, and he can perform no others; he cannot command men, or draw the lines of batteries, or buy and distribute food; he has nothing to do with these things any more than other officers can take his special duties. His relations with those combatant officers who necessarily command bodies of men are quite fixed, and no difficulty ought to arise on this head.

Although the duties and relations to each other of the various sections of the army are thus usually quite clear, there are some cases in which the various officers meet on a sort of neutral ground: when their immediate duties are not being performed; when the surgeon is neither treating his sick, nor the combatant officer is parading or inspecting his men. In such cases as these, it is absolutely necessary that the relative rank of the different classes of officers should be understood and acknowledged; this is not a question of pride or vanity; it is essential to order, comfort, and regularity. Such cases are, for example, when officers meet on committees, when they choose quarters, when they assemble in those social meetings in which the question of rank must necessarily be raised; when prize-money has to be distributed, &c. &c. In all cases the relative standing of officers of the different sections of the army must be fixed.

The State estimates highly, but not more highly than it ought, the importance, nay, the vital and imperative necessity, of having its medical department composed of the best class of surgeons; and it also justly appreciates the way in which the medical department performs its duty. Partly as a reward for these services, partly as an attraction for the best young civil practitioners, partly, or perhaps we should say chiefly, to secure a proper degree of influence to this important section of the army, the Government lately raised the relative rank of the medical officers, and granted them certain privileges. In the often quoted Warrant of 1858, we believe we can trace the views we have now given, and we see that the exact position of the medical department was fixed with a full knowledge of how far the warrant ought to go, and where it should be limited. There is certainly here no intimation of the view which has lately been started, and which we look upon as the origin of all this confusion—viz., that the army surgeons are merely so many civil practitioners, forming a class separate from the regular army.

Now it is undoubted, that in some respects this royal warrant has remained a dead letter, especially in India, where it seems to have been set at nought in a way which shows little reverence either for royal orders or for military discipline. In this country the warrant has, in some respects, been violated or altered, and this in the face of the strongest remonstrances from the medical department. The result is, that the army surgeons have lost faith in the honesty of their rulers. This may seem a hard saying, but it is true. It is argued, that if plighted words issued with all the authority of a Queen's command can be rescinded, or disregarded even in the slightest degree, what security is there that the dearest privileges may not be taken away?

Moreover, it is stated that, owing to the peculiar position in which medical officers are thus placed, they seem to be in a condition of inferiority to the other departments of the army; an inferiority which is in no way warranted by any relative deficiency in education, birth, or importance of duties, and which is opposed to the very principle of army organization, which looks only to the rank fixed by regulation as indicating superiority or inferiority. Some of the weaker-minded of these officers are, it appears, so influenced by this as to be ashamed of their noble and useful calling, and instead of the position of a medical officer being looked upon by them as an honourable one, it is dropped as much as possible. We hope, and indeed believe, that this is rare, and that the members of our profession have too much good sense not to feel proud of belonging to what is really the most liberal and scientific of professions—a profession which in all parts of the civilized world holds an independent and honourable rank.

Without entering more fully into this question, we will make only two remarks—

1st. It is a most important thing for every officer and private soldier that his surgeons should be capable men. If the combatant officers think the Warrant of 1858, and the advantages it gives, are too dear a price for this, they are much mistaken. Their lives, their happiness, and the happiness of those related to them may be, nay, *must* be, influenced by the character of the surgeon who has to preserve their health or to restore it. No price is too dear for this; and if the combatant officers are wise, they will do all in their power to make the position of the medical officers honourable and pleasant, and to attract the best of the rising medical men into their service.

2nd. We would earnestly urge upon the authorities this point:

The warrant was granted by the best War Minister we have ever had; by the man who knew better than any one what were the services and what should be the position of the army surgeon, to enable him to perform those services in the best way.

Now, in every position in life, but especially in the army, a regulation once issued should be literally adhered to. If it is found inconvenient and must be altered, the alteration should be made on grounds publicly stated, so that those concerned may be satisfied or may be able to appeal. But alterations on secret grounds, constructions which are

opposed to the spirit and even the letter of the regulation, evasions when the case is too clear to be disputed, ought not to be tolerated for a moment. How could any organization, any society, be carried on under such mal-administration?

Some action is certainly now necessary; either the warrant must be put into full action in every particular, or it must be remodelled, and the grounds of alteration must be publicly stated before a final decision is come to. This is the only plan to restore peace to this vexed department, and to encourage young men of promise to enter its ranks.

This is, we are certain, a matter of great moment. After doing so much for the medical department, after raising its pay, defining and increasing its privileges, and augmenting in an increased ratio its duties and its responsibilities, the whole object of all three measures is now being sacrificed. That is, indeed, to scatter the seed, and then to trample it under foot.

REVIEW VII.

The Climate of the South of Devon, and its Influence upon Health. By THOMAS SHAPTER, M.D., Fellow of the Royal College of Physicians, Physician to the Devon and Exeter Hospital, &c. Second Edition.—*London*, 1862. pp. 282.

THE period of twenty years which have passed since the first edition of Dr. Shapter's work appeared has been marked by more than one revolution in the numerous branches of human knowledge which, although ostensibly of only local purport, it embraces. Geology, botany, economic and statistical science, epidemiology, medicine, and (may we not say also) meteorology, have assumed a development during that interval which must render it necessary for any author who desires to rehabilitate (the current term, we believe, at the present moment for the process) a production of so respectable an antiquity, so thoroughly to revise it as practically to re-write it altogether. And such, the author tells us, has been the case with the present edition. Nor is the claim which he puts forward for it as representing fairly the general physical conditions of the district an unreasonable one. As a handbook to the natural history of South Devon, and more especially as an epitome of the leading geological features by which it is characterized, the earlier chapters exhibit a fulness of description for which we should scarcely have looked, and which enhances greatly the utility of the work.

In the meteorological department, also, the statistics which Dr. Shapter adduces are unusually copious, embracing a period of thirty years, and are carefully tabulated so as to exhibit both the mean records of the various phenomena observed, and the extreme fluctuations by which they were attended. It is true that nothing in particular is evolved as the result of all this praiseworthy labour, Dr. Shapter being himself compelled to make the humiliating confession, that, despite the protracted attention he has given to this subject, he is no better able

to forecast the weather on any particular day than are his neighbours. However, there are the facts, and perhaps some future investigator may find the clue to their meaning, which Dr. Shapter has failed to discover.

The descriptive notices of the principal towns in the district, though not sufficiently detailed to be of much practical value to the intending visitor who may wish to obtain precise information as to conveniences of residence, social attractions, or special advantages of any particular resort, are yet ample enough to give him a bird's-eye view of its general relations. The non-medical portion of the work is creditably put together; and we can recommend it as containing a good account of the natural and social characteristics of that portion of Devonshire to which Dr. Shapter has more especially limited his survey.

We regret that we cannot speak quite so favourably of those chapters which are devoted to matters of an exclusively medical nature. Of these, by far the longest—occupying, indeed, more than one-third of the book—is occupied by a review of the "Diseases of South Devon;" and if by that title the reader should be led to its perusal under the expectation of finding in it any description of pathological conditions that are otherwise than common to the whole of England, he will certainly be disappointed. For, like the well-known chapter of the old Danish geographer, "On the Snakes in Iceland," after discoursing somewhat lengthily on almost every known disease, including necusia (!), dysentery (which, however, we are told is "not a disease proper to this district"), bedsores, alcoholism, and numerous other affections to which, so far as we are aware, Devonshire can lay no special claim, Dr. Shapter *naïvely* winds up with the remark, that "South Devon has no characteristic disease." In default, therefore, of material more appropriate to his text, our author presents his readers with his recollections of disease in general during the last thirty years in the neighbourhood of Exeter, accompanying them by a commentary on its varying phases, and on the results of the treatment which he has adopted. Now, although the impressions which are derived from so lengthened a practice cannot but contain much that is both interesting and instructive, we cannot help thinking that in their present position they are, to say the least, considerably out of place. Even if the memoranda upon which Dr. Shapter's deductions are based were given with much greater fulness and exactitude than is the case, we can hardly see what most of them have to do with "the influence of the climate of South Devon." It is very true that the cases to which they refer occurred *in* the climate of South Devon, and that, if that portion of the globe had happened to have been endowed with no climate at all, there would have been no disease to make a note of; but even on this hypothesis, the connexion is scarcely less remote than that between Monmouth and Macedon. At present Dr. Shapter's experience has sadly the appearance of having been dragged in bodily to give a medical aspect to a work which, however useful it may be as a guide to the physical features of the district, has little claim to rank

as a contribution to sanitary science. In the pages of one of the medical periodicals, or even as an independent *brochure*, Dr. Shapter's recollections would have come before his medical brethren in an appropriate costume, and would doubtless have commanded the attention they deserve.

But we regret to say that this is not the principal objection which we have to make to them. Irrespective of phraseological intricacies, which make some of his sentences absolutely unintelligible, there is a general looseness of expression and an incompleteness of detail about the greater part of his notes which make them almost worthless for purposes of scientific comparison. Thus, we have a case of recovery from "air in the pericardium" characterized by "slow and heavy pulse, pain and anxiety over the heart, and depressed feelings;" the only physical sign that is recorded being "well-defined resonance over the region of the heart." A diagnosis of so rare and questionable an affection as pneumo-pericardium, founded upon such data as these, can scarcely be considered satisfactory. Then we have a case of *colloïd* cancer of the breast, which presented "the appearance usual on an aggravated and protracted *scirrhous* (!) breast;" and which, for all that we can see to the contrary in the symptoms described, *was* a case of scirrhus. Another, of so-called "melanosis of the lung," which, for aught that is said in reference to it, may have been due exclusively to carbonaceous inhalations, but which is grouped with another case of pigmentary deposit of a totally different kind. A form of œsophageal affection, which is described as "occurring more often than is supposed," is "the occasional vomiting of a clear neutral fluid," which is asserted, on the scantiest possible grounds, to be secreted exclusively in the œsophagus, and to exhibit itself chiefly in females of a "hysterico-strumous constitution." In the article on "Dropsy," there is no attempt to establish any differentiation between the car iac, renal, or hepatic sources of that affection; but its asserted prevalence in the district is vaguely attributed to "the general deprivation so constant amongst the poor, and to the want of sufficient clothing and care on exposure after sickness."

Speaking of gout, he states that this affection is not so frequent in the district as it used to be. He observes,—

> "In old times he [the cyder-drinker] was probably more liable to it than now, but this was mainly due to the admixture of lead. It is now rare to see a journeyman painter of advanced age without some signs of this disease, and more often with distorted joints and chalk-stone deposits. Doubtless," he adds, "the absorption of lead into the system greatly predisposes to this affection."

What gout has got to do with lead poisoning, how the latter predisposes to the former, is not very obvious at first sight. But the connexion between the two has been remarked both by Dr. Burrows and Dr. Garrod, the latter of whom supposes that the presence of lead in the system prevents the due excretion of uric acid by the kidneys.

We will only add, in conclusion, that the adverse comments which

we have made on the medical portion of Dr. Shapter's work have been made in no captious spirit, and without any desire to give an unfair specimen of its contents. They disfigure, and, as we think, needlessly, a book that in other respects has considerable merit; but however uncongenial it may be to us to refer to them, we should be wanting in our duty to our readers if we allowed them to pass unnoticed, or to become invested with an authority from Dr. Shapter's name and position which they do not intrinsically deserve.

Review VIII.

1. *Observations on the Diseases of the Rectum.* With Wood Engravings. By T. B. Curling, F.R.S., &c. Third Edition.—1863. pp. 232.
2. *Inquiry into the Treatment of Congenital Imperfections of the Rectum by Operation, founded on an Analysis of One Hundred Cases, Nine of which occurred in the Practice of the Author.* By T. B. Curling, F.R.S., &c. ('Med.-Chir. Trans.,' vol. xliii. p. 271.)

Mr. Curling has obtained a deserved and well-established reputation as one of the standard English writers on surgery of our day. Any praise, therefore, which we should be inclined to bestow on the re-publication of one of his well-known treatises would be superfluous; nor is it necessary to bring the present work under the notice of our readers, since it was reviewed at length with the commendation which it deserved on its original appearance,* and the second edition was also noticed.† The present edition, however, is a great improvement on its predecessors. It has swelled from 129 to 232 pages, and those who know Mr. Curling's writings will easily believe that the increase in bulk must be caused by additions of valuable and necessary matter. We will enumerate the principal subjects added in the present edition. These are, 1. An interesting, but rather too superficial chapter (Chapter IV.) on nervous affections of the rectum. 2. Some useful observations (pp. 54–63) on recent improvements introduced into practice in the operative treatment of hæmorrhoïds, and on the use of the écraseur, which Mr. Curling deprecates. 3. Many very useful additions to Chapters VI. and VII., on prolapsus and on polypus of the rectum. 4. A short chapter (VIII.) on the villous tumour of the rectum, which, however, might with advantage have been made longer. 5. Numerous additions (which our space will not permit us to particularize) to the chapters on fistula, ulceration, stricture, and atony. 6. Two whole chapters on epithelial and melanotic cancer, substituted for a single page of the previous edition. 7. A most interesting chapter (XV.) on obstructions of the rectum, and on the operations required for their relief, of which Mr. Curling's practice has furnished an unusual number, as he has either performed or witnessed the operation of colotomy in the loins seven times.

The chief addition, however, to the present edition of Mr. Curling's

* See vol. viii. p. 372. 1851. † See vol. xvi. p. 461. 1855.

work, is the incorporation with it of the substance of that excellent paper on congenital imperfections of the anus and rectum which was originally contributed by Mr. Curling to the Medico-Chirurgical Transactions, and which is indisputably the best account of that malformation to be found in the English language. This paper is founded on the experience of nine cases, all of which occurred in the author's own practice, and of the notes of one hundred cases (including the above) which he has collected from various sources.

Excluding a few very rare cases, Mr. Curling divides the congenital deformities of these parts into seven classes*—viz., 1. Imperforate anus without deficiency of the rectum. 2. Imperforate anus, the rectum being partially or wholly deficient. 3. Anus opening into a cul-de-sac, the rectum being partially or wholly deficient. 4. Imperforate anus in the male, the rectum being partially or wholly deficient, and communicating† with the urethra, or neck of the bladder. 5. Imperforate anus in the female, the rectum being partially deficient, and communicating with the vagina. 6. Imperforate anus, the rectum being partially deficient, and opening externally in an abnormal situation by a narrow outlet. 7. Narrowness of the anus. This classification, though not perhaps the clearest or most easy which could be suggested, is at any rate sufficient for practical purposes, and Mr. Curling's paper, or the last two chapters of his third edition, may safely be consulted by any one desirous of knowing the present state of our knowledge as to the treatment of each of these kinds of the malformation. It is well known that many of these forms admit of a restoration to perfect health in most instances, and in all to a condition of tolerable ease. Thus all cases of Mr. Curling's first class are curable by very simple measures; in many of the second class, the gut may be found, drawn down, and attached to the skin in the natural situation of the anus with perfect success. Many cases of the third class are curable, the separation between the anal and the rectal cul-de-sac being only membranous, or at any rate of no great thickness. In the fifth class, most of the patients survive, and a cure may be obtained by an operation, or a series of operations, to restore the natural passage for the fæces, and to destroy the unnatural one. Mr. Curling has well shown the importance of following Amussat's practice in such cases—viz., to endeavour in the first operation to isolate the rectum from the vagina, and draw it down to the skin in the anal region. In the sixth class, where external fistula exists, the rectum, as Mr. Curling has

* This arrangement differs slightly from that in the 'Medico-Chirurgical Transactions,' but the difference is quite unimportant. In what follows we are referring to the two last chapters of Mr. Curling's book, which for all practical purposes may be considered identical with his paper.

† *Sic* in original. But if the rectum were "wholly deficient," it could not communicate with anything, and the text should have run "the gut communicating." In ordinary cases the rectum is only partially deficient, and does communicate with the urinary tract, but in some rare instances it has been wholly deficient, and then the communicating intestine has been some higher part of the tube, probably the colon. The distinction is an important one, since if the rectum be only partly deficient it will most likely be possible to reach it from the perinæum, which in the other case would be impracticable.

shown by the cases recorded, is seldom at any great distance from the natural position of the anus, and can usually be attached there; or in some cases the unnatural opening may be dilated, and made to serve the purpose of a natural anus, since it will usually obtain sphincter power as the child grows. The seventh class is even more readily curable than the first. Thus, for the great majority of cases of imperforate anus, well-devised operative measures hold out good prospects of cure. There remain the cases of the second class, in which the rectum is wholly deficient; those of the third, in which no traces of the upper part of the bowel can be found from the anal cul-de-sac; and those very perplexing cases, forming the fourth class, in which the rectum communicates either with the bladder or the urethra near the neck of the bladder. In all these cases, Mr. Curling holds that the use of the trocar, which is the instrument generally employed, is to be avoided, and that a free incision towards the coccyx, with careful dissection of the parts in the pelvis, is the proper course. (p. 218.) In this conclusion our experience (which, though not quite so extensive as Mr. Curling's, has been rather considerable) leads us heartily to concur. Very little good and very much harm may be done by thrusting a trocar deeply into the pelvis in these cases of malformation, in which the size and position of the viscera, and of the peritoneal pouches, vary considerably from the natural arrangement. Mr. Curling gives a case (on p. 225 of this work) where the trocar entered the peritoneal cavity, an accident which we have also ourselves witnessed. When the gut is discovered, Mr. Curling dwells on the importance of drawing it down to the skin if possible (which, however, can hardly be expected in those cases where the rectum terminates in the male bladder or urethra), and describes a case in which he succeeded in drawing down the bowel from a depth of nearly an inch, and attaching it to the skin. The cure was permanent. (p. 202.) Amussat and other operators have managed to draw down the gut from depths even considerably greater than this. (p. 203.) When this operation, however, does not succeed—i.e., when the pelvis has been explored as far as is prudent, and no gut is found—the question of making an artificial anus in a higher part of the intestine presents itself. To this question, Mr. Curling unhesitatingly returns an answer in the affirmative, and we most gladly accept his opinion. In the face of the evidence to be found in this and other works as to the comfort, health, and perfect functional activity enjoyed by men and women who have grown to maturity after having had the colon opened in the groin (Littre's operation), on account of imperforate rectum, we hope that the stupid prejudice which would condemn such infants to speedy death unrelieved will gradually vanish. If any person wishes to see the evidence on this point, we would recommend him to study the last chapter of Mr. Curling's work, together with that most important paper on this subject by M. Rochard, in the Mémoires de l'Académie Impériale de Médecine for 1859, to which Mr. Curling makes rather too slight an allusion. The question of the situation in which an artificial anus may be most successfully established, both as to the ease of finding the large intestine, and the future

comfort of the patient if he survives, is very fully and very intelligibly treated by Mr. Curling, who inclines to give the preference to Littre's plan over that of Amussat, in which he is supported, we believe, by most surgeons who have considered the question, unless those of Paris be an exception, with whom the consideration of the injury necessarily inflicted on the peritoneal cavity in Littre's operation has great weight.* But this discussion is, after all, of very subordinate importance compared to the original question, whether such operations are justifiable at all. We believe that Mr. Curling's book, and the facts which he has collected, will settle the question in the affirmative for English surgeons, and that thus some lives will be saved, which an ignorance of the possibility of maintaining a comfortable existence after such operations would have sacrificed. Such lives will not, we fear, be many, for the fact (which has not been sufficiently brought forward by Mr. Curling) is, that such operations are only successful in exceptional cases in saving the life of the infant. Out of eleven cases of inguinal and one of lumbar colotomy, performed by M. Guersant on account of imperforate anus, not one proved successful,† nor has a successful case yet been published in England. It is only as an alternative against otherwise inevitable death that so fatal an operation could be recommended. Yet the causes of this fatality may be rather the exhaustion of the infant from delay in discovering and in treating the malformation, and injury from poking trocars about in the pelvis, than the dangers of the operation itself, and may therefore be to some extent obviated by the more accurate knowledge of the subject which Mr. Curling has disseminated. At any rate, the profession are indebted to him for a very valuable work on a deformity of which the slighter forms, at least, are easily relievable, and which is too often allowed needlessly to prove fatal.

Review IX.

Norsk Magazin for Laegevidenskaben. Udgivet af det Medicïniske Selskab i Christiania. Redigeret af W. Boeck, Lund, A. W. Munster, Voss, Faye. Hefte 1—9, Bind XVI.—*Christiania*, 1862.

Norwegian Magazine for Medical Sciences. Published by the Medical Society of Christiania. Edited by W. Boeck, Lund, A. W. Munster, Voss, Faye. Parts 1—9, Vol. XVI.—*Christiania*, 1862.

Although the recent progress and present condition of medical knowledge in the four northern nations of Europe—viz., Russia, Sweden, Denmark, and Norway—are but imperfectly understood among professional men dwelling in more western regions, still, residents throughout these districts have become of late much better acquainted

* See a discussion at the Acad. de Méd. at Paris, on a successful case of Littré's operation for this deformity, reported in the Journal f. Kinderkrankheiten, Band xxix. p. 412.

† Debout: Bull. de Thér., tome xlix. p. 116.

with the labours of their foreign compeers towards advancing medical science than was the case only a few years previously. Even in Russia, where modern civilization was much longer in commencing or being developed, contrasted with any other European country, medicine and surgery now possess accomplished practitioners in both these departments, not only in the capital, but also in other large cities; and the celebrated University of Dorpat, which is chiefly frequented by students from the Russo-Germanic provinces,—as also the ancient University of Moscow, have both a medical faculty and numerous able professors, attended by many alumni, who afterwards obtain medical honours and licences to practise, as from various analogous institutions elsewhere.

Again, Stockholm, with its Carolinish Institute and large hospital of St. Seraphim, in addition to other appliances for obtaining practical knowledge, may well vie with some institutions in more southern regions of the Continent, whose reputation, although often lauded by English writers, are frequently not so worthy of commendation as the existing Swedish medical school, which can justly boast of authors distinguished both for science and literature. Copenhagen, likewise, has excellent hospitals and extensive museums, and possesses an university which may be ranked among the most reputed on the Continent; not forgetting other important aids which this metropolis affords for diffusing knowledge, whether scientific or professional. In short, did space permit, or were such an extension of our inquiry compatible with the task now proposed for consideration, much valuable information could be here added, respecting the several countries just named, which might, perhaps, prove even interesting to some British professional readers who may not have visited these regions.

But our principal object being to bring under notice some of the leading features which have characterized the progress of medicine in Norway during the past year, we have selected the periodical whose title heads this article, since by giving extracts from a few of the papers contained in nine numbers published during 1862, an idea may be thereby conveyed to those in England who feel interest regarding the labours of their professional brethren throughout that rather remote portion of Europe, but are probably not familiar with the dialect in which these communications are written.

Analogous to most medical journals of other countries, the periodical above mentioned, and upon which we propose making one or two brief commentaries, comprises—1. Original communications. 2. Reviews, and extracts from foreign publications. 3. Reports on the progress of medical science, as also its condition in Norway. And, lastly, additional notices on various subjects, besides corrections. Several matters in the divisions now named are of considerable interest, and therefore well merit special mention, however briefly; while others, from the facts detailed, really deserve notice by foreigners, who will thus procure some general notion regarding questions which have occupied medical writers in Norway during the past year.

Among the papers deserving perusal, Professor Faye's instructive communication respecting the diseases treated throughout four years, from 1858 to 1862, at the Clinical Hospital for Sick Children in Christiania may be enumerated. During that period, 223 patients were admitted into the institution, of which about one-third were males; and it is remarkable that exactly a fourth of the above inmates died, whereas 18 deaths, or scarcely one-seventh, occurred among the female children so situated. Many suffered from affections of the eyes, while skin diseases and ulcers were common. Laryngitis was met with in 10 cases, whereof 5 terminated fatally; but what appears rather singular, only 3 instances of bronchitis were reported, 2 being fatal, notwithstanding it was then the cold season of a northern climate. Upon scrofula, tuberculosis, and rickets some pertinent remarks are appended which seem worthy of the author; but to these we cannot now more fully allude.

The article entitled "Medical Polity in Sweden," contained in the February number, is likewise deserving of mention. It especially refers to the universities of Upsala and Lund, besides the medical school at Stockholm; the former being frequented by students from the northern provinces, while Lund is chiefly attended by youths belonging to the south-western districts of Sweden. In this article several questions bearing upon reforms at these institutions are discussed, which demonstrate that improvements in respect of medical education, as also subjects therewith connected, have here, as elsewhere, lately occupied attention as well of the public as the profession.

Subsequently an account of a tour made throughout Denmark, Germany, Belgium, and Holland, during 1861, appears in the journal under notice. Here the writer brings prominently before his Norwegian professional brethren many interesting facts respecting some of the chief establishments in these countries, whereby native readers may become informed regarding passing occurrences therein, better than in any other way, unless from personal observation. Papers on poisoning by strychnine, from Drs. Hansen and Hvoslef, as also some remarks on purulent puerperal infection, might be further named as worthy of perusal.

Among the different contributions, the Report of diseases prevalent in Christiania and adjacent districts, during the first five months of last year, may be quoted to illustrate the general character of complaints there common. Thus, in the month of January, according to the twenty-four official physicians appointed for such duty, 451 cases of catarrh were met with, of whom 2 died. Fever also supplied 116 cases, 61 being typhoïd; but not one proved fatal. Measles amounted to 85 examples, giving 5 deaths; whilst 51 individuals suffered from diarrhœa, but only 1 died from that malady. The above diseases proved the most prevalent, whereas those which caused the greatest mortality, in reference to the number of attacks, were membranous angina, 4 deaths having occurred in 9 cases treated; and, lastly, pneumonia, which carried off 4 persons among 29 affected by that inflam-

matory disease. During February, 802 cases of catarrh were reported, giving 3 deaths. Measles supplied 29 instances, 3 of these being fatal; diarrhœa, 40 cases, showing 2 deaths; while out of 86 examples of fever none terminated fatally, notwithstanding 41 were designated as typhoïd. On the other hand, among 48 cases of pneumonia 6 deaths took place, at the same time that the only case of membranous angina which came under notice ended fatally. The Report for March was somewhat analogous to the two previous months; 373 cases of catarrh having then occurred, followed by 3 deaths. In 60 cases of diarrhœa only 1 ended fatally, and out of 8 classed as measles 2 died; whereas among 53 instances of fever also reported, all recovered. During April, catarrh still continued rife, 215 instances being treated, of whom 6 died. Diarrhœa and measles also were common at this season, although no fatal result followed from the first-named malady, and only 1 death through the latter affection; while 59 cases of fever likewise came under treatment, but none died; and, finally, pneumonia attacked 67 individuals, whereof 6 patients did not recover. The month of May proved more salubrious than any of the previously named periods; 143 cases of catarrh having been then met with, but no death. Fever had also diminished to 41 examples, 16 being typhoïd, of which only 1 was followed by death; while diarrhœa supplied 57 examples, and measles 21; but by neither malady did any fatal results supervene. Pneumonia proved, as in the former month, rather common, although less severe in its symptoms, seeing one death only occurred in 42 attacks. These details consequently demonstrate that, during the early months of last year, diarrhœa, catarrh, pneumonia, and fever were the chief maladies affecting the population of Christiania; pneumonia being, however, as might be expected, the most fatal in its results, considered with reference to the ratio of attacks.

Besides such salient facts as illustrate the sanitary condition of this northern district of Europe, we find that, according to the same authority, venereal complaints were by no means infrequent among the population, since 93 cases of gonorrhœa and 46 of syphilis were met with during the five months thus brought under review; that is, making upwards of 320 examples of these complaints annually.

In order to demonstrate further how frequently syphilitic diseases have here prevailed, we may mention that, according to an able Report recently presented to Government by Dr. Broeck, 3560 cases of syphilis were actually treated in the hospitals of Christiania during thirty years ending 1856, whereof 1640 were male and 1920 female patients, which hence gives 16 per cent. more of the latter than the former sex; while 2335, or nearly two-thirds of the whole number, were persons varying from fifteen to thirty-five years of age. These authentic facts, when taken in conjunction with the examples of gonorrhœa and syphilis previously quoted, would seem to indicate that venereal maladies are of more frequent occurrence in the Norwegian metropolis than foreigners might perhaps otherwise believe, considering its limited

population of about 35,000 inhabitants; more especially since the instances thus enumerated were all inmates of hospitals, and did not include any patients treated at their domicile or belonging to other classes of society.

In addition to the several prominent points we have now briefly noticed, the periodical alluded to discusses numerous questions which have occupied the attention of medical writers in other countries. Notwithstanding, however, that such references would be highly interesting, as well as instructive to practitioners residing in a district like Christiania, and thus far removed from the more south-western seats of learning, yet believing that to British medical practitioners, any notices of important observations lately recorded by English, French, or German medical authorities would appear wholly superfluous in connexion with our cursory notices of the 'Norsk Magazin,' we will conclude the present brief allusion to its contents by observing that this journal is creditable both to its editors and various contributors.

REVIEW X.

China from a Medical Point of View in 1860 *and* 1861; *to which is added, a Chapter on Nagasaki as a Sanitarium.* By CHARLES ALEXANDER GORDON, M.D., C.B., Deputy Inspector-General of Hospitals, Army Medical Department.—*London,* 1863. pp. 464.

WITH laudable industry Dr. Gordon has laid before the medical world what the late expedition to China, as he expresses it, has afforded him by "opportunities not heretofore available to Englishmen of making observations upon a tolerably extensive scale, in regard to the climate of several portions of that great but disorganized empire, of inquiring into the various productions of its soil, and of investigating the phenomena of disease, as well as its ravages among our troops employed there." The author points out the probabilities of further military operations in China; alludes to the excellence of the outfit and organization of its departments, and the success of the late expedition, and hopes the present work will be a guide to the medical men and the authorities in future operations there.

The reader will peruse with interest Dr. Gordon's researches into the origin of the word China, its apparent connexion with Sacred Writ, and the extreme antiquity claimed—and with every evidence of truth—by the Chinese for their nation. Allusion is made also to the affinity between ancient Egypt and China, and between the writing, if we may so apply the word to the characters of China, Egypt, Assyria, and of the Hebrew language.

A short outline of the history of the several dynasties which have ruled China, of its more important articles of manufacture and trade—as silk, tea, printing so called—its religion, and some of the peculiarities of the customs of the people, is given in the introduction. The

science of medicine, as far as seems known, though of very ancient date in China, still continues very much in its primitive state.

Records of epidemics exist in China, though very meagre in their details. Plague is said to have existed in the south of the country in the sixteenth century, but not more recently. From 1820 to 1861, cholera prevailed at times in parts of China. That small-pox is a terrible scourge in China is not to be wondered at, as vaccination is almost unpractised there, and the dreadful modes of practising inoculation in general use among the Chinese but render the propagation of this loathsome disease in an aggravated form more certain. The manner of "disposal of the dead and of the veneration shown to ancestors" by the Chinese, and the similarity between these customs and those of some African nations and others, is alluded to. The introduction to the work gives a rapid review of the ancient commerce between China and Egypt, Assyria, &c., and the gradual growth of trade between England and China in more recent times, and the "misunderstandings and wars" which attended the same. Of Hong Kong Dr. Gordon says:

"A very few days' residence at Hong Kong convinced me that early rising is not practised here. In this respect the habits of the residents resemble those of the few white men who vegetate for a few years on the coast of Guinea in Western Africa, and probably from the operation of similar causes, to wit, the well-known fact that the morning air, before the sun has dispelled the noxious vapours that hang about, is extremely unhealthy, producing fevers in those who expose themselves to them. Among many other important facts of late years brought to light during the investigations that have taken place into the probable causes of yellow fever, is one which appears to be applicable to Hong Kong, and whose operation forces the residents, without they themselves being aware of it, to accommodate their habits accordingly.

"It has been ascertained that a temperature of 80° Fahr. destroys the power for evil of that morbific influence to which the name of malaria has been given, and hence the explanation of what at first sight appears paradoxical, that exposure to the heat of a tropical sun in a 'malarious' and unhealthy district, is far less dangerous than exposure to the heavy mist and emanations that from sunset to sunrise envelope these places as with a cloud.

"There is, therefore, good reason why the residents of Hong Kong do not during the hot season get out of bed, and away scampering on horseback in the early morning, as is the custom in India. Unhealthy as I fear the island is at all times of the day, it is to be suspected that it is most so of all during the hours the sun is below the horizon." (p. 31.)

We have ourselves resided in Hong Kong in summer and in the early winter, and can endorse the foregoing observations. One additional point which we personally experienced in that part of the world, and one worthy of the consideration of regimental officers and others, is the doubly sickening effect of the early morning sun in those regions.

A quaint test of the salubrity of a locality we saw practised by the late Pacha of Egypt, when seeking a healthy site for a palace—namely, the suspension of a leg of mutton from a pole, the test of healthiness being in favour of that place where the mutton kept sound the longest; in

other words, it showed the difference between dry heat and that much more serious enemy to human health, moist heat. It is not in the unhealthy island under our consideration or in other hot climates alone that the night is most noxious; we need not go further from home than some of the comparatively undrained districts of our own British isles to satisfy ourselves of the truth of the principle that night-fogs are so dangerous to health. Dr. Gordon mentions the praiseworthy arrangements of Government as regards hospital accommodation, coupling the name of the late lamented Lord Herbert with some of them; he dwells strongly, too, upon the invaluable aid in the recovery of the military and naval invalids, which would arise if a regular steamship communication was available for their rapid transport to their native land. He suggests having a service of large steamships specially fitted up for the sick, to run as required from India and China. We think that that enterprising and efficient company named in this work, the P. and O., very generally known by that abbreviation of its proper title (the Peninsular and Oriental Steam Navigation Company), could, at a far less cost to the country, employ its spare, or, in some instances, its reserve ships in the conveyance of any large number of invalids, while small drafts could very often get passages in their regular "liners" in the slack months of their main traffic, as has been the case frequently in the Mediterranean for years past. We published a similar suggestion to Dr. Gordon's in one of the London daily journals during the Indian mutiny, pointing out, as he does in his present work, the advantages of receiving-ships for the invalids in Egypt, a plan which has been, according to him, actually adopted by France.

An account of the wet and sickly season follows, with its effects on the health, and tables of the sickness and meteorology are given, showing the climate, though still very unhealthy, to have improved of late years.

In 1843, the average strength of European troops at Hong Kong was 937, and the total deaths 368! justifying the name, "Valley of the Shadow of Death," which a rather picturesque glen, a little way out of Victoria, was called when we visited Hong Kong some years ago. However, many causes then concurred in the infancy of the colony to render it unhealthy, which do not exist, or at least not to at all the same extent, at present.

It is consoling, after reading such sad accounts of Hong Kong long ago, to observe that in 1860–1 (official year), the mortality of the British troops in Hong Kong and Canton was only 3·68 per cent., while among our native (Indian) troops it was but 2·34. "The year is reported to have been a remarkably healthy one." February is stated to be the most healthy month, and July the least so. Fevers and bowel complaints are the most fatal diseases at Hong Kong. As in India, remittent fever and coup-de-soleil often seem closely allied. We can vouch for the accuracy of the graphic description of the Chinese, their customs, and their country, and quite agree in his remark that the light of Christianity is still wanting to them, as seen no way more

strongly than in the treatment of their prisoners. But we will not omit to mention the contrast he draws between the well-clad and happy-looking tea-pickers of Honam and the poor needlewomen of our own land.

A somewhat prolonged residence in the important commercial city of Tien-Tsin afforded opportunities for obtaining a very interesting insight into the manners and customs of the people; their dinner-parties, new year's festivities, public baths, foundling hospital, physicians, street shows, beggars, are all described in an agreeable style.

Repetition occurs in some parts of the work, but this is in a great measure explained in the preface by Dr. Gordon having had to leave home again on service, without correcting the proofs. Attention is paid to minutiæ of climatology, and its "bearings," so to speak, on the daily admissions to the hospital are given at length; though presenting a formidable array of tables, they are at once interesting to the scientific reader, and likely to prove highly useful in case of a future occupation of the country by our troops.

After giving a table showing the amount of ozone in the different months and the relative mortality for the same periods, Dr. Gordon says—"It is evident from these particulars, if they prove anything at all—and it is not clear to me that they do—that they prove the very opposite of what, according to theory, would be expected from them."

An interesting chart of climate is given, contrasting that of Greenwich, Canton, and Hong Kong with Tien-Tsin, from which it will be seen how applicable to the latter is the appellation of an "extreme climate." In winter it (the temperature) "descends far below what we are accustomed to see in England; while in summer it rises further above the English mean than it had previously sunk below it." The author, referring to the strong contrasts which are shown by the chart in question between Tien-Tsin and Canton and Hong Kong, points out the marked difference as to sickness, attributable, as he considers, to the greater moisture of the two southern localities and other local causes. The latitude of Tien-Tsin is about the same as that of Lisbon, and yet the mean cold of the three winter months of the former is respectively 10°, 15°, and 14° below that of Greenwich.

The requirements of a military hospital are described so comprehensively, and particulars of detail of the highest importance so fully, that we have only space to mention the fact; while we must sum up our references to the chapter on the mortality of Tien-Tsin by stating that the annual loss by death and invaliding was about 10 per cent. for the year 1860–1 (beginning November, 1860), "a loss by no means severe when contrasted with that at many other foreign stations" where our troops serve, as will be seen by the following comparison from published returns—

At Tien-Tsin, deaths of British	for the one year,	per cent.	.	5·68
Jamaica,	„ annually	„	.	6 to 13
Peshawar,	„ „	„	.	5 to 12
Dinapore,	„ „	„	.	2 to 11
Chinsurah,	„ „	„	.	2 to 14
Burhampore,	„ „	„	.	6 to 9
Fort William,	„ „	„	.	3 to 8
Dum Dum,	„ „	„	.	3 to 20
Crimea, from disease	„	„	.	18
„ wounds	„	„	.	3

Dr. Gordon considers that his chapter on the "Pathology of Diseases at Tien-Tsin" needs the observation, "that he is not personally responsible for" parts at least of it; and we must concur with him in thinking that the chapter shows that the spirit of research was not active in the members of the profession who prepared the reports on the pathology of Tien-Tsin hospitals; we are willing to make every allowance, however, for the trying nature of the duty in an unhealthy climate, where for a great part of the year the intense cold or great heat must have rendered the investigations doubly injurious to the health of those pursuing them, and the difficulty of the task greater than under more favoured circumstances. However, this addition to our knowledge is not devoid of value. A sketch of the successful working of an hospital for Chinese at Tien-Tsin, carried on by the medical officers of the British force, will be read with interest, reflecting as it does much credit on all who promoted its establishment and carried it out.

Chloroform excited the attention and admiration of the Chinese to so great a degree "as to out-do, if that were in their opinion possible, the power of the dragon itself." Many who had no chloroform given them bore the pain of operations with great firmness. Dr. Gordon observes—

"From their earliest youth the Chinese are taught indifference to bodily suffering or to life itself. Personal cruelty is instilled into their nature from their infancy, and so effectually that I have seen bystanders and relations of a subject of operation smiling and joking as its details were being proceeded with, and I have seen a person just removed from the operating table, and placed for the time being upon a bed in the immediate vicinity, smile at and appear to enjoy the agonies of his successor as the knife was cutting its way through, and the blood trickling from, his quivering flesh.

"And yet, notwithstanding these characteristics, the Chinese are far from devoid of gratitude. Some have expressed themselves as deeply indebted to the foreign surgeons for having restored them in health to those dependent upon them for support; neither are they wanting in kindness and attention to each other during sickness. Brothers have been seen performing offices to one another, when prostrated by sickness, such as, I must say, I have never seen in what are called civilized countries. If, therefore, there are very many objectionable points in the character of the Chinaman, even he has his redeeming ones.

"Shortly after this hospital had been established, the fact became very apparent that the male patients had for some time been behaving with great rudeness towards the inmates of the opposite sex, and this to so great a degree that a great number of the latter had left, while some who remained were in tears, and busily engaged in preparations to make their exit also. The fact

now transpired that the men were at a loss to comprehend the motives which induce us to apportion to the women the best room in the hospital as a ward. They did not scruple to inform us that they wanted the room in which the former were accommodated, and quietly intimated that 'any place was good enough for them'—i.e., the women, adding, as if in derision, 'they're only women.' We had before met with much to convince us that the female sex hold among the Chinese a most degraded position. Here was an additional confirmation of the discreditable fact." (p. 431.)

The peculiar ideas of administrative government in China is shown by the return it made us for kindness and valuable medical treatment to some Tartar soldiers who had serious gun-shot wounds, but who were sent to the hospital at Tien-Tsin by Sir Hope Grant, and when recovered were sent, with some little ceremony, back to the Chinese, in the hopes that the "celestials" might understand the different treatment we gave prisoners, unlike that which our unfortunates received at their savage hands.

"As regards the Tartar soldiers, however, it speedily became apparent that the Chinese authorities thought very differently from what those of England would have done under similar circumstances. They refused to receive the men, or to have anything to do with them; the men had fallen in battle, they said, and therefore had by them been considered to be dead; officially dead, therefore, they were considered to be, and the Chinese system of 'red tape' had probably no precedent for dead men coming to life again, and being re-taken upon their 'returns.'" (p. 435.)

Then follow the shocking details of the treatment which the British and French prisoners underwent at the hands of the Chinese.

A trip in the *Vulcan* (H.M.S.) for coal, to Nagasaki, in Japan, gave the opportunity of the notice of that very interesting town and its beautiful vicinage. Dr. Gordon went about with pencil and paper in hand.

"I am reluctant," he says, "to take leave of this most exquisitely beautiful and interesting place without alluding once more to the greater civilization of its people than what was to be met with among the Chinese, at least those in the north and near the capital. It may, indeed, be well said that one of the best tests of the degree of civilization attained by either a single person or a community is shown in their manner of treating a woman. The more barbarous the people, the less do they associate with their women.

"Now, in Japan—at least if we can judge from what I observed at Nagasaki—families seem to have about as much intercourse among each other as is the case with ourselves. Wives, instead of being secluded, or kept separate from the males of the family, mix with them, and take upon them the duties of the household much after the manner of our own women in England; and I am inclined to believe that, notwithstanding the freedom, and perhaps frivolity, often shown by even matrons in Japan, there is among them less actual harm than might be found in some societies where more outward decorum is observed. The civility of the people has already been remarked on; indeed, I have never seen so great a degree of civility displayed towards strangers and foreigners as that shown by the more respectable classes of Nagasaki towards us. From various sources we learned that they and the inhabitants generally of Kin Sin are well disposed towards the British, and entertaining, as they do, the belief that before long one or other of the Great Powers will assume possession of the island, they go so far as to express their hope that this power may be Britain.

"In the course of my notes on China, I had occasion more than once to

remark how very desirable would be a sanitarium somewhere in Japan, to which invalids from our stations in the former might be sent. My cursory examination of Nagasaki convinced me that here is really the best possible situation for such an establishment. The place itself possesses in an eminent degree all the ordinary indications of being a healthy one. Building materials are abundant, and cheap labour is procurable to any extent." (p. 463.)

We would gladly give a fuller quotation on this extremely important subject did our space permit, as we can, from personal experience in Southern China, vouch for the truth of the unwholesomeness of our stations there, and the want which exists of such a sanatarium as Nagasaki seems fitted to afford.

We must now take leave of 'China from a Medical Point of View;' though containing much that will interest the general reader, it is not devoid of merit as a medical work, though we should have preferred to have found more detail as to medical treatment, &c. Dr. Gordon states that he intended the work especially for those who may again be in medical charge of troops in China, and to such we think it cannot but prove on the whole useful.

Review XI.

A Manual of Military Surgery, for the Use of Surgeons in the Confederate States Army; with an Appendix of the Rules and Regulations of the Medical Department of the Confederate States Army. By J. Julian Chisholm, M.D., Professor of Surgery in the Medical College of South Carolina, Surgeon in the Confederate States Army, &c. Second Edition, revised and improved.—*Richmond, Va.*, 1862. pp. 514.

The dreadful slaughter which has been lately going on in America has not as yet produced that slight compensation which such horrors usually bring with them, in any useful systematic contribution to the healing art. The Peninsular war, if it did not deserve all the encomiums in this respect which Mr. Guthrie used to lavish on it, yet no doubt was most valuable in its effect on the treatment of all injuries, and especially gun-shot wounds. The Crimean war was illustrated by a medical history which will long be referred to as one of the most valuable medical works of the age; nor have the Indian and Italian campaigns been barren of useful experience; but as yet the war in America seems destined to be as useless for instruction to the surgeon as to the soldier, and for the same reason—viz., that a mass of duty which would have taxed severely the powers of the most efficient staff of well instructed and experienced officers, has been suddenly thrown upon a heterogeneous collection of persons without any special training, and often without any aptitude for the business. This has not proved so disastrous in the medical as in the fighting department, since the officers of the former were, at any rate, surgeons at the outset, while those of the latter in most cases had not been soldiers at all; still, it has not been without its effect. Every reader of the book which we have placed at the head of these remarks will see, that to be a good

military surgeon at all, even so far as to do the best for life and limb in the various emergencies of war, an officer must have received some special training which an ordinary general practitioner neither has nor should have; but he will also learn that this constitutes only a small portion of the ordinary army surgeon's duties, since gun-shot wounds and the casualties of actual warfare occasion less than a tenth part of the loss of an army; so that questions of camp-hygiene and discipline, utterly foreign to medical education as such, ought to occupy the greater part of the thoughts of any surgeon serving with the army.* But to be a good and efficient head of a medical department, such a chief as shall really be likely to advance the science of military surgery, either by practical improvements or by extended observations, requires a combination of knowledge, experience, and natural capacity which can only in ordinary cases be expected from army surgeons who have passed through the rough ordeals and sad experience of years of camp life and actual warfare. Wars such as these in America, managed by civilian soldiers and civilian doctors, with the dreadful losses which a want of special training in both classes has involved, will do much to prevent a repetition of the error by which in the Crimean war civil surgeons were put in positions of greater dignity and emolument over the heads of the far better qualified military surgeons; and a number of expensive civil hospitals were founded, the principal use of which was to allay popular clamour, at the expense of engendering well-founded discontent among our more hardly worked and less generously paid army doctors. In America, however, there was no choice; as no army surgeons existed, the armies were necessarily handed over to ordinary general practitioners, with the results which Dr. Chisholm hints at in his preface—

"As our entire army is made up of volunteers from every walk of life, so we find the surgical staff of the army composed of physicians without surgical experience. Most of those who now compose the surgical staff were general practitioners, whose country circuit gave them but little surgery, and very seldom presented a gun-shot wound. As our country had been enjoying an uninterrupted state of peace, the collecting of large bodies of men, and retaining them in health, or the hygiene of armies, had been a study without an object, and therefore without interest. When the war suddenly broke upon us, followed immediately by the blockading of our ports, all communication was cut off with Europe, which was the expected source of our surgical information. As there had been no previous demand for works on military surgery, there were none to be had in the stores, and our physicians were compelled to follow the army to battle without instruction. No work on military surgery could be purchased in the Confederate States. As military surgery, which is one of expediency, differs so much from civil practice, the want of proper information has already made itself seriously felt." (Preface, p. i.)

Dr. Chisholm's work is intended, then, not as a complete treatise on the art of military surgery, but as a manual for the use of the surgeons in the army to which he belongs. We must say that the work is a most excellent one for this purpose, and that as far as this specimen goes (the only one we have seen from the Southern States),

* See the excellent remarks of our author in Chapter IV.

the Confederates appear to have as great an advantage over their Northern invaders in the surgical as they have in the other branches of the art of war. We have already noticed some of the works printed for distribution among the surgeons of the United States army.* In those written by native authors, the want of practical knowledge has been only too conspicuous, and perceiving this, we suppose, the Government has resorted to the peculiarly American expedient, of printing some of the best known English works on military surgery (as the essays of M'Leod and Longmore), for the use of the surgeons of their army. This piece of authorized piracy is a plain confession of the inadequacy of the works of their own surgeons. No such necessity is laid upon the Confederate authorities. This work of Dr. Chisholm is amply sufficient for the needs of those for whom it is intended. The author does not inform us what experience he has had, nor how much of the work is original; nor is it possible to judge on this head, since he adopts the reprehensible practice of transferring passages from other authors into his pages without acknowledgment (beyond the general acknowledgment contained in the Preface, p. iv.); but from some expressions on p. 63, we infer that Dr. Chisholm was at any rate in the neighbourhood of the French army during the Italian campaign, and has therefore had some opportunities of seeing the medical arrangements of large European armies. But whatever may be the sources from which it is derived, the work before us gives an excellent and tolerably full account of all the matters which it is necessary for an army surgeon to know—hygiene, recruiting, clothing, feeding, and amusing the soldiers; the arrangements, sanitary and others, of camps and hospitals; the transport of sick and wounded; the duties of surgeons in military hospitals, in charge of bodies of troops, and in battle; the general and special surgery of gun-shot and other wounds; short directions for such operations as are most commonly necessary; the administration of chloroform, and the management and detection of malingerers, make up a goodly array of subjects; and as all these are treated usefully, well, and intelligibly in four hundred and forty-six small pages, it is plain that the author must be a man of clear head and good powers of expression, as well as familiar with his subjects. In the Appendix are contained—1. The official regulations for the Confederate States army surgeons. 2. The Memorandum published for the information of surgeons in the English army on taking the field. And 3. Some plain directions for cooking.

There is not, of course, very much in the strictly surgical portion of this work that would be new to our readers; but a few extracts on subjects which are either new to us, or on which opinions in Europe are still divided, may serve to show what the teaching of the best American authorities is.

The following passage is encouraging to those who have maintained

* A work by Prof. Hamilton on Military Surgery was noticed in vol. xxix. p. 171, and one by Dr. Stephen Smith, in vol. xxx. p. 458. Both works, but especially the latter, were below the reputation of their authors.

the efficiency of volunteer troops if called upon to sustain the hardships of actual war:

"When the call to arms was made, the militia—composed in a large measure of clerks, merchants, and professional men, most of whom were much more familiar with the duties of the desk than manual labour—with one common impulse rushed to meet the enemy. Many of them, of delicate frames and frail constitutions, exposed themselves upon sandy islands, directly upon the sea-beach, with little or no protection. They were badly housed, irregularly fed, and miserably watered. Their daily duties were, with pick and shovel, to throw up redoubts, establish batteries, and mount heavy ordnance during the day; whilst their nights, when not spent in anxiously watching an expected invasion, or performing tedious guard duty during a spell of continuous stormy weather, were forgotten in sweet oblivion upon the wet sand, at times without the shelter of a tent. Notwithstanding, the sanitary condition of the troops was excellent, and many, of delicate frame, returned to their homes, at the expiration of two months, sturdy robust men, with an addition in some cases of twenty-five pounds weight. All, without exception, were improved by the change of life, under the exhilarating influence of sea air and active exercise." (p. 6.)

The following hint as to dressing may be useful, though the material is much less plentiful with us than in Dr. Chisholm's experience:

"Carded cotton has been extensively used in military surgery, and was found in the Crimea to be a good substitute for lint by the French surgeons, with whom an abundance of lint is a *sine quâ non* in the treatment of wounds. As it can be so easily obtained in any part of the Confederate States, and at so trifling a cost, it promises speedily to usurp the place of the officinal preparation. Now that tents and meshes are scarcely used, and receptacles for collecting pus are denounced in modern surgical practice, we see no reason why carded cotton, with its very soft elastic fibre, would not make a more soothing dressing than lint, which is often formed of coarse, hard threads, which would leave their marks upon a sensitive inflamed surface, and therefore must be the unrecognised cause of pain.

"Mayor, in his work, 'Bandages et appareil à pansement,' after mentioning that the use of raw cotton had been proscribed without cause in the treatment of wounds, reiterates what would be evident to every serious investigator, that, far from being hurtful, this substance, so light, so soft, so clean, so simple, so abundant, and so easily obtained, is the very best article that can be used." (Note, p. 132.)

The subject of gun-shot wounds of the extremities seems to us especially well treated by Dr. Chisholm. We select two topics for extract. On the question of amputations in the thigh, Dr. Chisholm's experience appears to coincide with that derived from the recent campaigns of European armies, in leading him to dissuade amputations at or near the hip, while warmly urging the importance of amputating, as a general rule, in the lower part of the femur.

"Baudens succeeded in saving both limb and life in cases in which compound fractures of the upper half of the thigh were treated without operation. Consolidated and useful limbs, with but little deformity, are reported as having been saved. By the use of the fracture-box and inclined plane he succeeded in curing a compound fracture on a level with the trochanter, saving a useful limb, although he had extracted two inches of the shaft of the femur. His experience proves that compound comminuted fractures of the upper

half of the thigh are not so fatal when attempts are made to save the limb, as when the thigh is amputated. The experience of surgeons derived from the wounded of the army of the Potomac, would establish a similar course of treatment, as excellent limbs were saved where fractures had occurred in the upper third of the femur, whilst amputations in the neighbourhood of the trochanters met with the usual fatality." (p. 401.)

" As a rule, amputations are less hazardous the greater distance we operate from the trunk; and the reason why amputations are urged for compound fracture of the lower and not upper portions of the femur is, that the chances being similar without it, amputations are much less fatal in the lower than in the upper half of the thigh. Attempts at saving limbs, after the battles on the Potomac, confirm the above experience. Too few primary amputations were performed upon the lower portion of the thigh, and the result was a heavy mortality among this class of wounded." (p. 408.)

Dr. Chisholm speaks in very favourable terms of the operation of resection generally. His words are :

" In gun-shot wounds of joints, very rarely does the patient escape with life in military hospitals. In private practice he sometimes recovers; but even under the most advantageous circumstances a successful case is rarely seen, and then usually with a destroyed and anchylosed joint. As the results in injured joints are so fatal, surgeons had at an early day adopted amputations as giving the only chance for recovery. In recent years, conservative surgery has introduced the operation of resection as affording not only the means of preserving life, but also of saving a useful limb." (p. 386.)

We infer from these and other expressions of Dr. Chisholm that not only the elbow and shoulder, but also the other large joints, have been frequently the subjects of resection in American military experience. If this be really so, we look with much interest for a publication of the results, since hitherto the very slight experience obtained of excisions of the knee and hip in actual warfare has been highly discouraging.

Many other interesting topics might be illustrated from Dr. Chisholm's work, but we must forbear. We commend it to the notice of our readers as one of the best compendiums of the present state of army surgery which we have met with. The want of references prevents us from judging accurately what praise it deserves in respect of originality.

Review XII.

1. *Elementos de Hygiene Militar.* Por J. A. Marques, Cirurgião-Medico pela Escola Medico-Cirurgica de Lisboa, Cirurgião de Brigada-graduado, &c., Redactor do 'Escoliaste Medico,' &c. &c. —1854. pp. 396.

Elements of Military Hygiene. By J. A. Marques, Surgeon of Brigade, Knight of the Order of Christ, &c. &c., Editor of the 'Escoliaste Medico.'

2. *Resultas d'uma Commissão Medico-Militar em Inglaterra, França, Belgica, e Paizes-Baixos; Londres Medica; &c.*—Idem. pp. 448.

Results of a Medico-Military Commission in England, France, Belgium, and the Netherlands; followed by various Chapters under the Title of 'Medicine in London.'

3. *Estudos Estatisticos, Hygienicos, &c., Sobre as Doenças e a Mortalidade do Exercito Portuguez de Junho de* 1851 *a Julho de* 1861.—Idem. pp. 270.

Statistical, Hygienic, and Administrative Considerations on the Diseases and Mortality of the Portuguese Army, during the Decennium from June, 1851, *to July,* 1861; *followed by Numerous Comparative Data, &c.*

A man who writes a good book may be said to have done a good thing; but it does not follow that he has done a useful thing. Unless the conjunctures are favourable, truths may be sown broadcast from term to term, and no practical issue occur.

We may draw this experience even from the most civilized and extended communities.

The happiest circumstances, according to us, have their event when the influential persons in a state look for character in the support they are ready to afford to enlightened suggestions and unusual exertions for the advancement of the people. And generally speaking, the favourable attention of persons of consequence is a *sine quâ non.* It is with pleasure, therefore, that we can write of modern Portugal as a country in which science appears to have received such encouragement as, if in a rising community it is most necessary, is somewhat indispensable in all. To study with perseverance, to borrow with discrimination, to criticize without prejudice or spleen, to suggest construction and change on a scale sufficient to establish national improvement, these are qualities of no common occurrence, and the Portuguese Government have done themselves honour in the enlightened manner in which they have given support to the investigations which lie before us under the name of Senhor Marques. The "act of courage" which led him to publish a scientific treatise in Portugal in the year 1854, has since borne good fruit, and his Government has only to avail themselves of such efforts to escape the imputation of indifference so condemnatory of the ruling power. To calculate on the nobler and not on the more perverse instincts of our nature should characterize a new era in legislation.

Until lately, the medical profession was content to base its opinions on the general views which resulted from the aggregate experience of its members, or which were the fruit of individual sagacity and research, and these have proved trustworthy guides in the main. It is scarcely necessary to remark on the assistance which has been more recently derived from statistical data; sometimes by the confirmation of truths not before resting on sufficient evidence, they have, by removing doubt, afforded a ready answer to scepticism; or again, by penetrating beneath the surface, they have broken up dogmas and revealed fallacies previously unsuspected; so that statistics, carefully collected, and in sufficient number, constitute a considerable resource in the formation of individual judgment. It is to the Portuguese army that we shall presently have to apply them.

But before doing so we shall say a few words upon Portugal.

The climate of Portugal, as is well known, is excellent and salubrious. The character for moisture which in some degree attaches to it, is due to fogs from the rivers and to the neighbourhood of the sea, the aqueous evaporations from which serve agreeably to temper the dry land breezes. The feeling of heat in these parts is in consequence little oppressive. The dews also are heavy, and the soil retinent of moisture. With a medium temperature of 15° Centigrade, its maximum may be quoted at 20°, and its minimum at 11° respectively. The interior, from continued neglect of planting, is deficient in humidity, and by the paucity of springs, the growth and comfort of the population are seriously interfered with. The mountains are bare of trees. The hilly character of the country is apparent even in the cities, and the highest summits, for the greater part of the year at least, are covered with snow, the winds from them being often piercing cold.

In the neighbourhood of the rivers there is marsh land. Elsewhere the soil is generally light and fertile; in parts it is marvellously endowed. The mass of the population are exceedingly poor, and they are abstemious to a fault, but they do not perish with hunger. The bread of the country is principally of maize, and rarely good of its kind. In all parts of the peninsula the bilious temperament is the prevailing type.

The Portuguese army, as we shall have to consider it, may be said to consist of 20,000 men, of whom 16,392 are effective; the larger number is completed by 2781 pensioners (*veteranos*) and other supernumeraries entitled to hospital relief. Of this aggregate, as many as 5000 are in garrison at Lisbon, and a third of that number at Oporto; the next largest stations are Elras and Chaves; about twenty others absorb the remainder of the troops, and there are some scattered posts. The islands of Madeira and Azores are included in our calculation. With the more remote colonies we are not concerned, as they have no returns that can be made available for our consideration.

The casualties from disease, as given in the 'Hygiene Militar' of Senhor Marques, published in 1854, have the following proportions for

the period from Midsummer, 1850, to Midsummer, 1853, inclusive—viz.: Of 58,821 entries into hospital, 3399 bronchitis, 359 broncho-pneumonia, 779 pulmonitis, 212 pleuro-pneumonia, 538 pleuritis, 1142 angina (cynanche), 1756 rheumatism, 599 erysipelas, 310 pulmonary phthisis, 630 typhoïd fever, 238 dysentery, 5700 ophthalmia and its complications, 5580 simple and complicated intermittents, 2878 inflammations of the alimentary tubes, 9040 syphilis in its several forms. The post-mortem tables give, within the period, from among 948 dead: 177 from phthisis, 110 from pneumonia, 40 from bronchitis, 20 from broncho-pneumonia, 27 from pleuro-pneumonia, 32 from pleurisy, and 84 from typhoïd fever.

We have not failed to enumerate these calculations as corroborative of and complementary to such other observations as will fall under our notice. Senhor Marques, at a more recent date, has published a volume containing a summary of statistical results obtained during the decennium 1851–1861, with scientific deductions for the benefit of the service. It is, for the most part, to this work that we are indebted for the statements that follow.

The number who come yearly under treatment in the Portuguese army averages 757·9 per thousand. The yearly death-rate is estimated at 16·5 per 1000; the number daily under treatment 39·4 per 1000; the average duration of treatment nineteen days. Of the whole 16·392 effective, 12,582 pass under treatment in the year. The cures are calculated at 42·6 to one casualty from death. The dismissed yearly for inspection 48 per 1000 sick.

During the decennium there have occurred two visitations of cholera morbus and one of yellow fever, with serious epidemics of pneumonia, influenza, &c.

We shall now consider in detail some of the more considerable affections of the Portuguese soldier. The term of stay in hospital is certainly short, but the diseases are both grave and numerous.

The mortality from diseases of the lungs is extraordinarily great; in round numbers it constitutes half the mortality. We may say, indeed, that it constitutes the greater number of deaths, both absolutely and relatively. Bronchitis prevails chiefly in the more mountainous districts—Traz-os-Montes and Beira Baixa, where also the military quarters are the least advantageous to health. The islands of Madeira and Azores, and in lesser degree the provinces of Minho and Algarve, are much more free from this complaint. Its proportion for the year 1860–61 is 1205 cases, with 16 deaths, in the whole army. In the year previous there were 847 cases in excess of these numbers.

Pneumonia is prevalent in the same regions as bronchitis. There is this observable with regard to it—viz., that in a mortality varying from one in two cases attacked, to one in nineteen cases, neither the treatment, which is usually of a mixed character, nor the locality, afford a datum to account for this, the relative number of deaths being greatest in Traz-os-Montes,* and smallest in the more rigorous

* The country up the Douro (Alto Douro), between Traz-os-Montes and Beira Alta, is very cold in winter and very hot in summer. The cloud-capped Serra do Marão is

climate of Beira Baixa. The average mortality from pneumonia is one death for 6·8 cured. Until the last year of the returns, 1860–61, it was predominant in Beira Baixa, but subsequently assumed larger proportions in Estremadura, Beira Alta, and Traz-os-Montes. It is strikingly rare in Minho and Algarve; also in the southern province of Alemtejo and the islands.

We shall now pass to the statistics of phthisis, and in considering them we notice this fact—that in 1860–61 the garrison of Lisbon being, as before stated, but one-fourth of the army, this garrison furnishes 78 out of the 147 cases occurring in the whole service—more, indeed, than half of the entire returns in respect of the disease. A fact so analogous to what is occurring with our Foot Guards, cannot escape attention; and, without losing ourselves in the category of causes, we will simply remark that this army is in a rare degree sober, and the hospital at Lisbon is superior in its ventilation and general condition. The proportion of the disease for the garrison at Lisbon is 14·7 per 1000; that of the troops at Oporto 11·9 per 1000. Of the soldiers elsewhere employed, the proportion is as low as 3·1 per 1000.

Lamego, Castello-Branco, Santarem, Leiria, Evora, Tavira, Lagos, Funchal, are stations where phthisis is of rare occurrence.

Lisbon seems thus to keep pace with cities further in the north in maintaining a high death-rate from consumption. Its civil returns (communicated by special favour by the ministry) appear in no way to differ from the calculations obtained by Lombard of Geneva on the workpeople of Paris, Hamburg, Vienna, and his native town—the proportion, viz., of 12 in 100 deaths from all causes; and this appears to be the proportion in the civil population of Lisbon. In the entire Portuguese army, calculated on the last few years, the result has been 22 in 100 deaths (in the Belgian it is 14·5), and 3·6 deaths to each 1000 of effective.

This is a very high proportion, and we are ourselves inclined to attribute it in great part to a defective commissariat.

We now come to the consideration of a class of diseases connected, by an acknowledged community of cause, with those of which we have last treated—viz., typhoïd fever. Indeed, these two diseases cause the heaviest losses in European armies, and we find that both in the civil and military returns it is the city of Lisbon which affords the greater number of cases, the fever being extremely rare in the country districts. The estimated occurrence of this fever is 5·4 cases in 1000 effective, with a proportion of 3·9 out of 100 deaths.* This average is not much above that of its occurrence in civil life in Lisbon.

The infraction of the laws of hygiene which occasions the maladies

observable in this mountainous country. The higher range of Estrella is in the Lower Beira. Algarve, in the south, is a plain in the greater part of its surface.

* The last year's returns, 1860–61, give 67 cases of typhoïd fever, with 18 deaths; 18 cases of remittent fever, 13 of inflammatory fever, and 77 of ephemeral fever, each form of disease without casualty. There are also 381 cases under the head of suppressed perspiration.

last discussed, makes itself equally manifest in the development of ophthalmia in military hospitals, and notably of that affection of the lids termed granular ophthalmia. The proportion of diseases of the eye to all diseases in 1860–61 was 1 in 13·5, having been as considerable as 1 in 7 in the year 1850–51. They seem in great part an inheritance from the severer conditions of the year 1849, having declined with unvarying steadiness from 1850 to 1858 to reach so low a proportion as 1 in 24. It has not subsequently maintained itself at that favourable point. The capital still continues to supply the greater number of ophthalmias, notwithstanding the circumstance of the 11th Infantry, in Estremadura, having a recurrence of 146 cases in the year 1861. The proportion of ophthalmias to other diseases of the eye is 82·6 to 100.

Hemeralopia, which had attracted no attention before 1855, has subsequently been the subject of much interest, both in observation and discussion. It has been the occasion of a particular mention by Senhor Marques at the late Ophthalmic Congress at Paris. In the year 1858 there occurred in the Portuguese army as many as 116 cases. The disease displayed itself almost exclusively in the first division of the army, quartered at Lisbon, the bare exception being the 15th Infantry at Lagos, Algarve. The causes lie hid in some special constitution of the soldier which subjects him to defective atmospherical conditions not yet defined. Our author does not omit to point out the increased frequency of the disorder as coincident with the spread of intermittent fevers from submersion of large districts; this occurred more especially in the neighbourhood of the capital, in the year previously mentioned, so much so, that agues were not uncommon in the heart of the city, whence he connects the disease with miasm as its special cause, to which others are secondary or general.

A circumstance not so easy of explanation is the occurrence, in the previous year, of 71 cases of hemeralopia among the soldiers at Lisbon, with merely the usual average of ague there; in the provinces, agues were very much on the increase in that year, but they were unaccompanied by this ocular affection. To meet such an exception, Senhor Marques is obliged to suppose an immunity as a result of acclimatization in the country districts, which does not, however, extend to the worse forms of intermittents.

His enlightened colleague, Senhor J. C. Mendes, in his careful treatise on the subject, seems to have attributed greater importance to the incidence of light, direct or reflected, as a special cause, than to miasm.

The scanty and monotonous diet of the soldier,* the difficult country, hot summer, and miasmata, with the familiar instances of Montpelier and Ehrenbreitstein in our memories, suggest to us a community of cause more than sufficient, and only unsatisfactory from

* "C'est surtout du côte de l'estomac et des intestins qu'on observe des phénomènes qui se lient à cette maladie. Aussi peut on la considérer comme symptomatique d'une affection des voies digestives, affection appelée *embarras gastrique saburral* ou autrement."—Vidal: Pathologie Externe.

a want of definiteness. But is this amblyopia, as described in medical works, a pathological entity? such opposite causes would seem to indicate difference in morbid seat and condition. Are there two affections? Can science severalize them?

The frequency of intermittent fevers in the ranks of the army was in an ascending scale from 1853 to 1858, having increased from 1037 to 3386 in the latter year. It has since considerably declined, either as a result of atmospheric change, or from want of fresh constitutions to work upon. The recruits have always suffered by far the most.

Traz-os-Montes, Estremadura, Alemtejo,* are the provinces where intermittents are most common. The year 1858, when agues were at their height, was also the year of the yellow fever. In the two preceding years the cholera morbus reigned. It is observable, that from 1855 to 1858 was the period of increased development of rice cultivation in the country, and Senhor Marques insists on this cause in relation to all three diseases. It is incredible, indeed, to those who have not witnessed it, how malignantly the cultivation of the rice-plant reacts upon the human frame, and how deteriorating it is on the general aspect of the inhabitants.† The facility of its production in marshy soil, its enormous profits to both landlord and peasant, cause the loss of human life to be disregarded.‡

While human lives are sacrificed, it has been said, at the rate of twenty-five to thirty per cent. per annum, the wages rise from 100 to 400 reïs (7*d.* to 2*s.* 4*d.*) daily, and the rent is six times multiplied. The Government does not forbid its production; but in particular instances the civil governors of provinces have interfered, as in 1849, in Alemtejo, where "a malignant fever devastated the province, and carried off a third of the inhabitants,"§ the rice-ponds were ordered to be ploughed up. The same local interference occurred at Leyria. According to intelligent cultivators, it is the leaves about the roots of the plant, which in decaying exhale a pestiferous miasm, such as does not occur in the decay of the ordinary grasses. It is by changing the seed and doing away with the *tanques* (rice-pond) system, that they hope to modify these results. The immediate mortality from ague among the troops does not seem excessive, having been 14 in the year 1858, with 74 cases discharged from hospital to undergo inspection.

We shall now turn our attention to a class of disorders occurring in the years 1860-61, which Senhor Marques considers to have merited a particular notice—cephalo-rachidean meningitis, and on which he has bestowed a chapter of his work.

Of 25 cases included in the returns as meningo-cephalitis, at the least 13, with 5 deaths, fall under the denomination of epidemic

* From neglect, the rivers in Portugal have been allowed at various times to overflow their banks and to change their course, so as to leave much marsh in their neighbourhood.

† See Dr. Peacock's paper on Pellagra in our last number.

‡ A further cause of ague and fever in Portugal is the want of shelter from trees in due proportion, which have beneficial effects in purifying the air and attracting humidity.

§ Forester: Essay on Portugal.

cerebro-spinal meningitis. Ten of these cases happened in the 8th regiment of cavalry at Castello-Branco, soon after the first appearance of the disorder at Monforte; 1 case occurred at Oporto, 1 at Guarda, and 1 at Evora. It had been previously unspecified, or classed with typhoïd fever. It was not limited to the military, as in the Strasburg epidemic of a similar disorder; but, taking its rise near Castello-Branco, it subsequently affected the surrounding population, as well as the city inhabitants, giving a total of 105 deaths out of 348 cases happening in the district, nearly all from the ranks of civil life. At a more recent date, 4 cases occurred at Evora in the 5th Regiment of Cavalry, all on one day, and all fatal; while at Castello-Branco, at the time of publication, the disease had not declined.

Diseases of the heart and great vessels are rather large in amount—47·1 yearly for the whole army, with a mortality of 38 in 100 affected. The hilly country and the national habit, which is inveterate, of carrying burdens in transport, will account for this.

Rheumatism is a frequent complaint in the army, a common proportion being 3·8 in a hundred sick.

Venereal diseases, during the first nine years of the decennium, decreased with unvarying steadiness, year by year, from the proportion of 120 per 1000 to 75 per 1000. A slight increase for the provinces in the last yearly return is attributable to the want of generalization in the moderate sanitary regulations which had previously led to their decline. It is greatly to the credit of our author, that he has contributed largely by his writings to the establishment of such precautionary interference. He speaks of them as moderate, but certainly the numbers stand in favourable contrast with those of the British army.*

In considering the returns of the year 1860–61, we notice but 7 cases of blennorrhagia; there are, however, 23 cases of acute cystitis, and 8 of chronic cystitis with complications, the latter form presenting four casualties by death. There are also 5 cases of openings in the urethra. We cannot but connect such cases with blennorrhagia. In the same year there are 1228 cases of primitive syphilis and venereal symptoms (*sic*), 91 with secondary syphilis, and there are besides 5 cases under the head of rupia. There are, moreover, 181 cases of tertiary syphilis, one in which it was fatal to the patient. These proportions are interesting, but are accompanied by no information as to treatment. There is also one case of elephantiasis, and one of ephelide. There were 10 cases of glanders, all fatal, during the decennium.

A feature which greatly strikes us in these returns, is the prominent figure attained by what is termed gastric embarrassment, about 1 case in 30·5 of the whole army. In the year 1860–61 there were 417 of these cases, exclusive of graver abdominal affections, for we have of

* Our last army returns indicate not less than one-third of our troops in home service, and in Portsmouth one-half, affected by these complaints, being 8·69 days' loss of service to the state in every year; or, as we have heard it otherwise stated, two regiments and a half in permanent disability.

gastritis 137 cases, with two deaths; of gastralgia, 34 cases; of gastro-enterite, 19 cases, with four deaths; of indigestion, 32 cases, with two deaths; of dyspepsia, 7 cases; of obstructions of the abdominal viscera, 10 cases, with two deaths; all these independent of the *embaraços gastricos e intestinães*. We have also of peritonitis 4 cases, all fatal; of enteritis 34 cases, with one death; of colitis, 81 cases, with one death; of hepatitis, 15 cases, with one death; of splenitis, 17 cases, with no casualty; 24 cases of dysentery, idem; 131 cases of diarrhœa, with eight deaths; 1 case of cholerine; 2 of enteralgia; 289 cases of stomatitis; 1 of bulimia; and three deaths from cirrhosis of the liver.

As regards head affections, &c., for the year 1860–61, we find, of apoplexy, 4 cases, with three deaths; of paralysis, 30 cases, with four deaths; of epilepsy, 43 cases; of affections of the cerebral mass, 4 cases, with three deaths; of cerebral commotion, 2 cases; of vertigo, 4 cases; of mental affections, 32 cases; of cephalalgia, 26 cases. Besides these there occurred, of epistaxis, 7 cases; of affections of the middle ear, 19 cases; of otitis, 60 cases; of otalgia, 3 cases; and of amaurosis, 6 cases.

Of variola there occurred 542 cases in the decennium, with a mortality of 93 individuals, being 17 deaths for 100 cases of the disease. Secondary vaccination, as it appears, is not employed; in the last year there were six deaths from variola out of 51 affected. Of skin affections we shall only note a few, such as erysipelas, 84 cases, with two deaths; erythema, 12 cases; ecthyma, 10 cases; herpes, 30 cases; zona, 7; all occurring in the year 1860–61, as aforesaid. The prevalence of psora is considerably diminished, especially in the Lisbon garrison, which has fewer cases than three regiments well known in the service.

There is an affection of the glands of the neck which, under the head of adenitis, makes a considerable appearance in the returns. In the last year there were 61 such cases in hospital. Glandular affection of the neck is the subject of strong remark in connexion with the leather stock. Senhor Marques informs us that in recruits of four or five months' standing, small groups of indolent swollen glands are of the commonest frequency, and that in autopsies of the soldiers the cervical glandules are often found altered in colour and structure, without presenting an unusual appearance in the exterior. This is irrespective of the impediment the stock offers to respiration and circulation. This article of dress claims the merit of great simplicity, neatness, and convenience, and these are advantages of the highest class in the equipment of the soldier; but the condemnation of it in these pages is so marked, we should not feel justified in passing it over. The leather stock is especially remarked upon as a cause of ophthalmia. "Meanwhile," says our author, "it is so rooted in the existence of the soldier, that going without it for a very short time gives him sore throat." He inculcates, notwithstanding, that it should be invariably taken off when the soldier lies down in the guard-room. Every soldier not under the bedclothes in hospital should have a loose handkerchief for his neck. In continuation of our subject, we may say the returns show 48 cases yearly, of anæmia,

with one death, and 18·05 of scrofula. The last year's returns give 17 cases of cachexia, with ten deaths; 134 abscesses, with one death; 39 cases of asthenia; 19 cases of congestion; and 194 cases of phlegmon, whatever that may include. Senhor Marques has exercised, doubtless, a wise discretion in withholding details of the more serious epidemics, but still it is very disappointing to us. All we learn of the cholera is that in 1854 it started from the Lazaretto in Vigo, and spread into Galicia; in the year 1832, on the other hand, it seems to have broken out among the Belgian contingent, who brought the germs of the disorder with them. The influenza, in 1852, was most severe and general in the southern provinces, Alemtejo and Algarve, though it prevailed extensively in Lisbon. We see no notice of diphtheria, which has been prevalent in Portugal lately, nor of that other virulent and fatal affection of the throat which has lately been heard of there. We presume such cases would have fallen under the heading of angina, of which, in the year 1860–61, there are no less than 343 cases. Of laryngitis, with other complications of the voice, there are 21 cases, with two deaths; and lastly, to the honour of Portugal be it written, there is in this exemplary army no case of delirium tremens or chronic alcoholism; but rather the absence of such cases is recorded with excusable complacency.

We should have been more instructed, considering the restricted basis of calculation, had the whole decennium been brought to bear on each head of disease; but the calculations of the later years, as most reliable, have been sometimes given instead, and sometimes we have relied on the last year only.

The inspections are made by a committee of officers, termed "Juntas de Saude." The following is the form of inspection for the year 1860–61:

Diathetical or general affections (syphilis, scrofula, asthenias, cachexias, anæmias)	80
Affections of the nervous system (lesions of the nervous centres, neuralgias, neuroses, mental affections, &c.)	47
Affections of the circulatory system (lesions of the heart, great vessels, aneurisms, varices, &c.)	35
Affections of the respiratory organs (chronic pneumonia, &c.)	188
„ organs of digestion, including those of the mouth, stomatitis	39
Affections of the genito-urinary system	18
„ organs of motion (muscular, fibrous, and osseous system)	68
Affections of the lymphatic system	10
„ organs of vision	147
„ „ hearing	21
„ dermoïd and cellular system	33
Cachexias from miasms and other consequences of intermittent fever	19
Deformities and imperfect balance of parts (faults of relation), loss of limbs in whole or part, defects of symmetry, hernias, &c.	61
Affections not classified above	2
	768

A few other details of service may prove not uninteresting; for instance, of 8607 recruits received between 1850 and 1852 ('Hygiene Militar'), 1007 could read and write, 235 could only read, and 6715 could neither read nor write. The schools presided over by regimental chaplains had at that time only a qualified success.

The Portuguese, in their medical service as in their army, have many points of resemblance to the English service, on the model of which it was founded; moreover, by their ordinances of 1837 and 1851 they have brought themselves to a level with more recent improvements in our system. The regimental hospital is almost a necessity with them from the great dissemination of their troops. The regimental surgeon, probably from economical considerations, is the controller or administrator of the hospital affairs; but, differently from us, he draws food and everything he requires from a single department; their method of verification is also different from the English. In time of war casual hospitals, called *ad interim* and *di sangue*, are constituted, conformably to time and circumstance. The permanent hospitals are at Lisbon and Oporto. That of Lisbon is lighted by gas, and well ventilated on a plan of insensible ventilation, modified from Uytterhoeven, so well known and generally practised. A few soldiers, mostly *veteranos*, find their way into civil hospitals.

The medical officers of Portugal do not undergo an examination on joining, they bring their diploma of doctor, and are made of rank equal to assistant-surgeon; seniority makes them battalion officer; their single examination occurs before they can be regimental chief officer; after these there come the surgeons of division and brigade. Some time since there were three examinations, one for each of the earlier ranks. The appointments and promotions are made by government. By a decree of 1851, the ambulance was directed in time of war to be established in direct conformity with the French. The cacolets and litières are the means of transport most in favour, as suited to the rugged nature of the country. The English stretcher is only approved of in these pages when constructed with less pliable material, and with the improvements introduced into the Spanish army by Señor Anel, and subsequently into Portugal. There is an organized hospital corps of orderlies in the Portuguese service, whom Senhor Marques considers indispensable to good service, and of whom he speaks with pride.

Our author entertains all those advanced views of hygiene which latterly have seemed to have pierced the thick shell of indifference which previously encircled all such questions in our country, and notably with respect to agglomeration and atmospheric impurity. The views of Cormac with regard to the exclusive agency of foul air in the production of phthisis, and the corroborative evidence of other authors, are laid down by him at great length and to their fullest extent. He vindicates the soldier's claim to a "ration of air" in fair terms. Senhor Marques recommends hospitals of light and inexpensive construction, and extensive ground plan, with a single story, as best suited to the present circumstances of his country. Preferably

he advocates isolated dwellings for twenty-four men each, as allowing the simplest kind of ventilation. These ideas, we think, are subject to modification, according to the nature of the soil, building material, and prevailing maladies. In some circumstances elevation is an advantage, perhaps a hygienic necessity. With this slight warning, we are ready to approve him in the justness of his reasoning as to the chief cause of illness among the troops. Phthisis, he points out, is not an affair of latitude or temperature. The northern parts of Portugal do not display it, but the cities do. Is it, as Boudin has asserted, antagonistic to ague? At first sight it might appear so. The most aguish points, such as Chaves (where ague is endemic), Bragança in Traz-os-Montes, Elvas, Estremoz, and Evora in Alemtejo, Tavira and Lagos in Algarve, &c., are those where there is least phthisis; but in Vienna da Castello and Valença in the north both complaints are rare; in the Abrantes hospital both are rather frequent; in Terceira and Madeira neither prevails. Nor can it be traced to depend on littoral conditions of river or coast. Our author closes with the opinion of Baudelocque and Papavoine, that bad food is far less liable to generate phthisis than vitiated air. It was this identical defect which produced an outbreak of pneumonia in Guarda in 1853, the much more considerable epidemic in 1859 and 1860 in the depôt of recruits at Mafra, which equalled the devastations of the yellow fever; so also in 1860-61, in the 7th Cavalry at Bragança; in the 14th Infantry at Vizeu; and in the 4th Cavalry at Santarem. Add to this, that granular ophthalmia is endemic in the Grenadier quarters in Lisbon; general ophthalmia in the barracks of the 10th Infantry, also in Lisbon, and pourriture d'hôpital at Oporto. New constructions are in contemplation to obviate these objections of locality.

We now approach a division of our subject not less interesting with respect to disease than illustrative of the enlightened endeavour of Senhor Marques to break the trammels of routine and bring about a reform in the service. This regards diet, a part of the regimen of the Portuguese soldiers which seems extremely faulty. In fact, the Portuguese and the Spanish armies (the latter only in part) are the only remaining ones in the present day in Europe in whose dietary fresh meat is not included. It is only in time of war that the Portuguese soldier has a miserably insufficient quantity of beef,* alternating with salt fish, and then he has also a little wine. In time of peace he has a better bellyful of daily bacon, with a small portion of lard or oil, maccaroni, rice, nearly always peas and beans, and occasionally potatoes. He has neither tea nor coffee (except the sergeants), nor has he wine. Two meals daily, the first at from seven to eight in the morning, the other from three to four in the afternoon, leave a long intermediate blank of sixteen hours' interval. Economy† alone could dictate such terms of

* There is little pasture near the Tagus. The beef is overdriven and scarce in the capital. The pigs are fed on acorns and chesnuts, and though of a poor breed, the bacon is tolerable. In the larger towns beef is killed twice a week. French beans, in the everlasting lard broth, is the common diet of the country.

† The cost of an infantry regiment in Portugal is about 10,000*l.*; that of an English regiment on home service we reckon at 30,000*l.* In no other European country is the soldier in hospital on such an economical footing as in Portugal.

subsistence, and only false conclusions maintain them unaltered; already commissions have noticed the defect: but it still remains, at the expense of the soldiers' health and efficiency. The diet is faulty to the extent that the town garrisons are less well fed than those in the country, the latter getting more abundant rye bread or that of the oily Indian corn; while from the scantiness of azotized material, the ration in war time is on the whole less nutritious than that in the time of peace.

We shall extract a few of these diets, reduced to their simplest forms of expression, to compare them with those of the English soldier in campaign, according to Baudens, recording our conviction, which has no pretensions to originality, that the English soldier is underfed, as he is poorly clad (*see* Table).

	Quantity in kilogrammes.	Nitrogen in grammes.	Carbon in grammes.	Fat in grammes.
British soldier in the Crimea; daily ration according to Baudens	1·326	30·74	367·84	27·62
Portuguese war ration, with meat and wine	1·266	12·88	423·40	42·64
Idem in country quarters in peace, Indian corn bread	1·787	22·09	517· 6	131·12
Cavalry in the country, two kilogrammes of potatoes daily . .	4·087	19·53	466· 2	32·19
Infantry in Lisbon	1·206	19·56	386· 8	23·12

In the esteemed work of M. Squillier,* of the Belgian army, it is concluded that for each soldier in quarters a daily minimum of 20 grammes of nitrogen, with 310 of carbon, should be allotted; to be increased to 25 of nitrogen when on service or in marshy localities. The diet should not in any case weigh more than two kilogrammes. This is calculated for the Belgian infantry soldier of the average weight of 60 kilogrammes; but the cuirassier should have 26 grammes of azote, and 331 to 413 of carbon, with 13 to 16 of salt. The proportion of fat, though not less important, is less subject to rigid calculation; we think it should vary according to exposure. Now the possibly smaller stature of the Portuguese soldier — the minimum is 57 pollegadas for infantry, and 62 for grenadiers—and his climate, as warmer, may necessitate less food; nevertheless, the monotony of the dietary, its marked leguminous character,† its bulk compared with the poverty of plastic material, render it not difficult to perceive how the overloaded digestive organs must suffer, and general anæmia, gastric and scrofulous affections, and finally phthisis, frequently ensue. However calculated on the simple habits of the peasantry, this dietary seems

* Des substances alimentaires; de leurs qualités, de leur falsification, de leur manutention, de leur conservation, &c. 1858.

† The Grão di bico, which appears in all the diets, is a pea with a sort of beak or spur, not known in this country, but much used in Portugal, and still more so in Spain; it may indeed be called the potato of the Spaniard. Potatoes, though exported to England from Oporto, are little appreciated by the Portuguese themselves, not often grown inland, or in the south. It is a singular circumstance that beans are never, as with us, given to the cattle as food.

condemned by the experience that the recruits (who join at eighteen years of age) furnish the bulk of the hospital entries, and really require a larger share of nourishment than the made soldier. It is further condemned by the fact of the proportion of disease in the rank of sergeants being little more than half that of their command.*

The tobacco, always a snare to the soldier, is described as very bad indeed. A Portuguese cigar, even to a smoker, is detestable. The commissariat wheaten bread is far from good, but in Lisbon has lately been under somewhat better regulation. It has been the subject of much difficulty from faulty speculators. Its proportion in each ration is low, six hundred and eighty-eight grammes. Wine has not as yet been used as a defence against miasmata.

We shall not have failed in our intention if we have given a current view of the relations of Portugal to the evolution of hygienic science in our day. The action and reaction of one country on another in this respect is so undeniable, that it partakes of the nature of compulsion. To Senhor Marques it is due to say, that a spirit of patriotism seems the secret of his perseverance, which has rendered him one of the most competent authorities on these subjects.

From a perception, no doubt, of these estimable qualities, he was selected by the valiant Viscount de Sà da Bandiera,† to attend, in the first place, the Ophthalmic Congress at Brussels to gather information on the management of ophthalmia in armies, and thence he had a roving commission to study the organization of the Dutch, English, and Belgian medical services, in reference to the efficiency of the Portuguese. He was directed to pay attention especially to the school of Utrecht, and to the functions of the Sisters of Charity in the French hospitals. A handsome octavo volume has resulted from the elaboration of his experience, being a *résumé* of all that can be said on each subject.

The presence of our author at the Ophthalmic Congress at Brussels, was that part of his mission to which he attached the greatest importance. He shared in the debates on that occasion, and read two papers, which in the *compte rendu* of the congress received the very first place in the commendations bestowed. This signal compliment to Portuguese surgery seems fully justified by the laborious and logical character of these *mémoires*, in which Senhor Marques appears to have missed no reflection which could throw a light on the interesting subject of which he treats, at the same time that he strives to do justice to the earnest and intelligent minds which in his country have been led by the importance and urgency of the malady to engage themselves in the study of it. If there is any part of Europe in which it would be possible to trace the disease *ab ovo*, it is in Portugal, from which country it would seem to have been so long absent, and we shall not, we are persuaded, go beyond our duty in drawing attention to a complaint which, though the interest we have in it is equal, and its antecedents here

* "The disproportion of food and sleep to work," says M. Levy, "is the cause of four-fifths of the disease of the lower classes. An insufficient alimentation realizes the effects of inanition, which to become complete only requires a little time."

† Minister of War and *ultramar*.

sufficiently memorable, has not until lately in England been the subject of so much remark as on the Continent. It is to be understood, however, that it is mainly from Portugal that we shall endeavour to derive that experience by which we hope to elucidate the character, and perhaps improve the treatment, of this affection.

But before proceeding to analyse the truths displayed by Senhor Marques, it will perhaps not be amiss to say what we mean by granular ophthalmia—

"In the complaint called 'granular lids' (trachoma of Plenk, asperitas in palpebrarum superficie), out of a great variety of forms, the granulations may be classed according to their anatomical structure under four heads—1st, papillary; 2nd, vegetating; 3rd, nodular; 4th, vesicular. The three first are more or less products of inflammation. Those under the fourth head, as we shall consider them, seem constituted by a special virus *sui generis*, of recent introduction, and they are remarkable for insidiousness in their origin and progress, and for their resistance to treatment. Vesicular* granulations (trachoma herpeticum of Plenk) are small cysts developed in the substance of the conjunctiva; the parietes of the cyst are formed of an intricate tissue, and of a kind of aggregation and even stratification of cells; they contain a hyaline transparent liquid, in which simple cells float. These cysts measure from 0·003 mm. or 0·004 mm. to 1 or 2 millimetres. Subsequently this liquid, in the process of transformation into cells, assumes a caseous consistence. When the conjunctiva tends to inflame, its vessels become prolonged over the cysts, spreading out on their superficies, or penetrating into their substance; the plastic exudations which result becoming organized, give rise to small masses of moist fleshy tissue, composed of fibro-plastic material, which take the place of the vesicular granulations. Considered under the practical view of resistance to treatment and termination, we may divide vesicular granulations into three periods—viz., transparent, vascular, and vegetating, or fleshy.

"I. The transparent vesicular granulations are minute, discrete, diaphanous, disseminated over a smooth, fixed conjunctiva, of a normal degree of transparency. The mucous secretion, scarcely or not at all increased, retains its transparency, and appears to have undergone no change.

"II. The vascular granulations are larger and generally more numerous; the conjunctiva, which serves for their substratum, is inflamed, of a more or less lively red colour, but it is thick and contracted. The secretion is more or less abundant, and consists of a thick cohesive mucus, and of a puriform matter.

"III. The vegetating granulations give to the conjunctiva a red, fleshy, or sarcomatous aspect; but as the production of the fibro-plastic tissue does not extend to every part of the vascular granulations, it results that in this advanced period of the disease the conjunctiva does not present everywhere a uniform appearance. In those points in which the vesicular are supplanted by fibro-plastic granulations, the conjunctiva is of a red, fleshy, and vegetating aspect, the other parts are covered by vesicular granulations. It sometimes happens also that you perceive masses or *plaques* of nodular tissue. The secreted matter, generally abundant, is thick and purulent. In this period of the disease papillary granulations (trachoma sabulosum) often appear very distinct, especially in the part of the conjunctiva near the margins of lids."

There have not been wanting those who have considered this affection

* The terms sycosis, scabies palpebrarum, quoted from Rhazes by Dr. Vetch, seem to point to this disorder.

as a pathological entity distinct from the results of inflammation; but experience altogether shows it to be an inheritance from severe outbreaks of ophthalmia occurring in barracks: such epidemics usually begin with an alarming suddenness, and pursue a devastating course for a time, to be subsequently prolonged under the form of relapses, with the appearances above described. The contagious character of the muco-purulent secretion from such granulations when undergoing morbid change is no longer doubted, nor the fact of their introduction into particular countries through contagion (as occurred in Denmark from the hostile troops of Schleswig and Holstein). Their consequences in implicating the cornea and other structures of the eye are very considerable. Like other epidemics, they increase under defective hygienic conditions; and what is most singular about them is their persistent character and the large figure they make in the soldiers' returns. It is this complaint which bids fair to be the "schoolmaster" which will lead governments to that minute attention to hygiene and study of the comforts of the soldier which he did not before acquire, either from his own merits or from an earlier conviction of their necessity towards his efficiency. If these granulations are, to use an expression before us, sometimes *interminable;* if it is an acknowledged fact that of themselves they very rarely get well; and if, looking to their irritable character under treatment, and their complications, they are often best let alone, then, as foci of contagious disease, they have a wide signification and interest attached to them, both in regard to European populations, and, considering our system of workhouses, especially to us. There is no doubt that cases of this disease now exist in a sparse state in the civil populations. Soldiers returning from furlough, and recruits on joining, sometimes display them; but whether the disease dates earlier in Europe than the return of the French and English armies from Egypt, is still a moot point, though long considered, and argued with great plausibility on either side. It is probably correct that they have appeared after epidemic ophthalmia in schools and unhealthy places; but it is the disease of the soldier, κατ' ἐξοχήν, and the standing subject of solicitude to his medical officer. Agglomeration of individuals feeds its growth, but there are other points not so well ascertained about it. For instance, a certain quarter may happen to have a bad name for ophthalmia, and successive relays of troops suffer there; but one corps will enjoy immunity, while others are afflicted, and the next that arrives will be free from attack.* This is what happened at Hythe in 1805, when, in the 52nd Regiment, 636 out of 700 men (mostly Irish recruits) were affected, while the 43rd Regiment and Lincolnshire Militia, in the same quarters, escaped. Such facts would seem to show that not only local and climatic causes were involved, but something which undetermined acts of discipline are capable of correcting.

There is no country in which the introduction and course of the disease apparently offered more favourable opportunities for study than

* Of the same order of facts is the circumstance of the French soldiers in 1832 residing in the Belgian barracks without infection.

Portugal; men of science, however, have been far from agreeing as to the origin of the malady in that country. Senhor Marques informs us that many have come over to his views of its catarrhal origin, based upon the expressed opinion of Mackenzie, that a catarrhal ophthalmia can not only become contagious, but communicate by method of contact an intensity not existing in the primary affection; and these views are strengthened by that of Desmarres of Paris, as to the rapidity with which epidemic granular ophthalmias may become contagious. To arrive at the verification of the cause which he suggests, he treats the other arguments by the process of exclusion; in the first place, he notes that the French and English regiments employed in the Egyptian campaign improved on their return to Europe, and that the English regiments, so notoriously affected by so-called Egyptian ophthalmia two years subsequently, had never served in that campaign; in the next place, tradition, he affirms, says nothing of those Portuguese troops who fought side by side with the English in the Peninsular war having been affected by ophthalmia, nor indeed was there a single case of granular ophthalmia ever remarked in the Portuguese hospitals till forty years subsequent to their separation. In the Portuguese African possessions there is no epidemic ophthalmia; in Brazil, the ophthalmia which is generated in the slave ships does not, as he is informed, assume the granular form; he therefore excludes these sources from consideration. From the association with Belgian troops in the Pedro-Miguelite war, no such cases, he is assured, occurred either in Oporto or elsewhere. There remains a Spanish emigration, twenty-eight among whom were affected with ophthalmia of the ordinary type, two only had small granulations, and all got completely well. There have been a few other noticeable ophthalmias in Portugal in the course of the present generation: one, of soldiers in the edifice of Desterro, in Lisbon, without great intensity; one in Graça, also in Lisbon, where all the soldiers of one company were affected from the proximity and bad construction of a latrine, but it had no extension. The public mind has chiefly rested on the single instance of the community of Casa Pia, which corresponds to the occurrence communicated by Sir P. Macgregor,* of an ophthalmic epidemic which prevailed in Chelsea Hospital which circumstance obtained full publicity in this country. Similar facts of a milder

* This ophthalmia was considered by Sir Patrick Macgregor to be of the same nature as the Egyptian ophthalmia, but in children it was not so fatal to vision. It seems to us to partake somewhat of an erysipelatous character, notwithstanding that the febrile disturbance, except in severe cases, was hardly discernible. "The vessels of the tunica conjunctiva," says Sir P. Macgregor, "were distended with red blood, and the tunica conjunctiva was generally so thickened as to form an elevated border round the transparent cornea. This state was often accompanied with redness of the skin round the eye, which sometimes extended to a considerable distance, and resembled in colour and form very much what takes place in the *cow-pox pustule* between the ninth and twelfth days after vaccination." There is at the present time (January, 1863) prevalent in the Austrian capital an epidemic ophthalmia, which Prof. Arlt characterizes as a "catarrhal erysipelatous ophthalmia." It is not of a severe type; the lids are swollen, and the ocular conjunctiva very red. Prof. Arlt points out that Beer described a catarrhal ophthalmia in these terms, and the coincident pre-

character occurred in the College of Thildonch, near Louvain; and they appear as phenomena in the normal history of these institutions. The community of Casa Pia, consisting of some hundreds of boys and girls, inhabited the damp and sombre edifice of Desterro at Lisbon; there was a graveyard and much dirt and filth in its vicinity, but no prevailing eye-complaints among the neighbours. In this institution a serious outbreak of ophthalmia occurred among the pupils in 1834, they consequently removed to the Castello St. Jorge, and thence to Belem; but the ophthalmia still clings to the community with repeated exacerbations. These attacks, called purulent ophthalmia, sometimes catarrhal ophthalmia, have continued occasionally for the space of twenty-three years, but have been much milder and less frequent of late.

Senhor Marques was at pains to examine the eyes of the entire community of Casa Pia at a recent date; out of about 900 boys and girls, he found in 35 to 40 (chiefly boys) a sandy condition of the palpebral surfaces, principally in the external angle of the superior palpebra; in a few cases *he considers that he found* some vesicles, in others, fleshy granulations on a turgid and slobbering (*babôsa*) conjunctiva, when boys had been long affected. The precursive ophthalmia did not appear to have differed from that of the soldiers; but still, he remarked that the fleshy granulations did not cover the whole of the palpebral surface, as occurred in them. The quarter of Desterro was afterwards, in a milder degree, disastrous to soldiers quartered there, who became affected with ophthalmia some time previous to 1849; it so happened, however, that in the year the present publication went to press—subsequently, that is, to the prevalence of ophthalmia in the army—there were extremely few granular cases in the quarter of Desterro.

The advent of granular ophthalmia in the army of Portugal was well marked, and could not escape observation under the monthly returns. The year 1849 was ushered in by a spring season favourable to diseases of a catarrhal biliary type—such as bronchitis, angina, small-pox, and measles—generally followed by dysentery and diarrhœa in the autumnal season. With the premature rains of autumn, the biliary type gave way to the catarrhal, which seemed to complicate all disorders, and there were cases of catarrhal ophthalmia among the civil population. The climate of Lisbon, soft and mild and free from fog, is not often subject to this constitution of atmosphere. It was at this period—namely, June or May at the earliest—that a noticeable deviation occurred from previous statistics, and a new experience of ophthalmic surgery ensued; from this time forward counting eight years, there were 10,000 ophthalmic cases in hospital; whereas, counting backwards eight years, there had been 2187 only. In Lisbon nearly all the regiments became affected, but the Grenadiers principally; hence it was called among the people the ophthalmia of the Grenadiers.

valence of erysipelas fully justified the present employment of the epithet. (See Medical Times, Jan. 24th, 1863.) We may remark, that the one thing which was considered to characterize Egyptian ophthalmia was the first appearance of the inflammation in the lining of the lower eyelid.

The features of the disease were not different from catarrhal ophthalmia—viz., redness and tumefaction of the mucous lining of the lids, especially at the external angle, and where it adheres to the margins; more or less injection of the vessels of the ocular conjunctiva, and minute flocculi floating in a few drops of lachrymal secretion at the bottom of the conjunctival sac; adhering lids during the night; villosities in greater or less quantity in the tarsal conjunctiva; in some cases small, scarcely visible granulations, and there was little pain or photophobia. Soon after the ophthalmia had declared itself in Lisbon, that is, in the month of August of the same year, when the ophthalmia ran high in that city, a similar affection appeared in the 3rd Regiment at Vianna da Castello, sixty-three leagues from the capital, without any interchange of soldiers,* favoured, as it seems, by winds from the north, and much rain. In this regiment it assumed a graver form; of 71 patients who entered the hospital at this period, 32 lost one or both eyes from various complications. Unfortunately, through different movements of troops resolved on for 1850, the disease very soon spread though the army. A commission subsequently appointed to report on the disease, found—

"Considerable injection, or rather stain, of the tarsal mucous membrane, near its adherent edge, co-existing with granulations which were *sometimes vesicular*. In the greater number of cases there had been no great amount of inflammation or of subjective symptoms; but in many others, instead of being limited in seat, it spread to the sclerotic conjunctiva, producing epiphora and some photophobia, or even chemosis, great redness and swelling of the lids, secretion of pus, strong pain in the orbit and forehead—in fine, all that constitutes purulent ophthalmia. On subsidence of the inflammation the conjunctival surface was discernible, and the eye presented granulations, nearly always fleshy, occupying all the palpebral mucous membrane. After the phlogosis had terminated, and nothing remained but these morbid productions, relapses of inflammation occurred, and the same thing happened during the treatment of the granulations. Chronic inflammatory action, often of long continuance, was not unfrequent, during which the granulations became established, so that in fact their production was favoured by both acute and chronic inflammation."

The treatment of the disease at this period was in exact correspondence with the existing state of ophthalmic science in Europe; it was mostly mixed or varied, according as the ingenuity or experience

* "The north wind," says Senhor Marques, "that blew with violence during the months of July and August, was followed by very abundant rains till the middle of November, occasioning great moisture in the atmosphere, and causing a great tendency to inflammations of the eye even among the civil population. The conclusion we have to draw from these facts is evident: it is true that as regards the 3rd Regiment it was considered to derive its affection from a soldier who had been treated for a blennorrhagic ophthalmia in the hospital of the Villa d'Arcos; but this soldier had arrived blind at Vianna da Castello in December, 1848, in order to enter directly the hospital of the regiment, whence he received his dismissal from the service. It is, moreover, worthy of note, that this private belonged to the 4th company, and the affection commenced in the 2nd company. The ophthalmia in this case was considered to be syphilitic because he had been treated for bubo some time previous, and when he came to Vianna da Castello he had on him a cutaneous eruption with every character of secondary syphilis. It is for the reasons we have stated that we are far from attaching to the present fact the importance it has attained."

of the surgeon might dictate. As may be surmised, a corrective power was thus brought to bear on the mass of the disease. Hygienic measures were not neglected, and there were commissions of civil and military surgeons appointed to report on the subject. The Grenadiers were exchanged to other quarters, general and daily inspections were put in force in the capital for the immediate isolation of any recent cases; a special ophthalmic hospital was established, great attention to cleanliness recommended, special wards were set apart for granular convalescents, and subsequently a separate hospital was arranged for them distinct from other cases of disease.

In 1850, the second year of the ophthalmia, there were 2825 cases, and the sanitary regulations became more minute and stringent; every soldier had his towel; great attention was given to food; drill and parade were regulated in accordance with special hygiene, with exemption from drill of cases in the least degree implicated; in fine, nothing was omitted that scruple could dictate, but still the disease did not yield. Among therapeutic means, the nitrate of silver held the first place, but many vaunted methods of treatment failed in the trial. In this year occurred those dispositions of troops which disseminated the complaint. The regiments from Lisbon took it with them to Guarda, and the 2nd Battalion of Caçadores, who exchanged from thence to Lisbon, became the most affected of all the garrison in the capital (four hundred and forty-five entries during that year). Some of the Grenadiers carried it to Elvas.

In the year 1851, nearly all the army and the military prisons had experience of the disease, but somewhat of its intensity had abated. It seemed to spare the regiments first attacked, and this improvement continued during the year. Notwithstanding some exacerbations, we may say that there was a perceptible diminution of cases in the year 1852.

Much benefit had been anticipated from sea-bathing about this time, and it was accordingly tried to a full extent at Belem, where there was an ophthalmic hospital, under the direction of the distinguished ophthalmic surgeon, Senhor Sa da Mendes; we shall reproduce his final experience—

"That sea-baths do not always produce salutary effects in patients with the military ophthalmia; that sometimes to obtain the required result it was necessary to assist the treatment with the nitrate of silver; that, in some cases, baths were more prejudicial than useful, because they accelerated the development of the granulations; that, on the other hand, their efficacy was well marked in cases in which the conjunctiva showed chiefly some vestiges of ophthalmia. However, the action of baths was various, according to constitution and the several stages of the complaint; it was very necessary to exercise a watchful attention to appreciate conditions and occasions tending to a good result.

"The state in which some of the patients continue," he says, "is deplorable (speaking of cases that have been long in Belem); this condition is an occasion of despair to them, and of disquietude to the faculty. Some are affected by fleshy cartilaginous granulations of such an obstinate character as to remain stationary after months of treatment, and never improving without relapse. In other patients you see the eyelids thickened and indurated, with slobbering (babôsa) conjunctiva presenting irregularities in the superficies,

the result of ulcers and cauterizations practised with a view to cure, and all elsewhere covered with these morbid products in the parts which are not ulcerated or cicatrized. In some instances these conditions are accompanied by photophobia and epiphora, and in all the treatment is more or less unsatisfactory.

"Finally, in other cases, what we have described is complicated with pannus, ulcers, cicatrices, opacities from keratitis, hernias of the iris, synechia, symblepharons and blindness of one or both eyes. To these various forms of disease is superadded a scorbutic condition partly due to an alimentation sufficient in quantity and material, but too little exciting and varied, partly also to the moral depression experienced by the patients under pressure of a complaint which admits of little relief."

Things were at this pass when the Minister of War, under the advice of the consulting surgeon-in-chief of the army, J. A. S. Terxeira, resolved on a minute inspection of every regiment as regards the ophthalmic patients, in order to classify them as follows:—

I. All subject to ophthalmia who have been long and frequently in hospital, or who have been kept long in the convalescent wards without complete cure, if they can be returned to their districts without fear of blindness or prejudice to their complaint, shall receive a present discharge.

II. All those who, for reasons above-mentioned, give no prospect of cure, but have their eyes more or less injured by the complaint, shall be received into the class of pensioners.

III. All who have affections of the eye susceptible of cure shall enter the hospital until a definite result shall ensue.

This was the first efficient blow dealt to the ophthalmia in Portugal; its success has been most marked, as shown in the present returns; but the dismissal of so many diseased persons to their homes seems a grave action, to which the Sardinian Government, under similar circumstances, refused to resort. In the course of his arguments, Senhor Marques attributes much of the immunity of armies in the previous centuries to the habit of quartering soldiers by billets in the towns as well as in barracks.*

It was not until a later date that the Portuguese surgeons, among whom the name of Senhor Sa Mendes prominently appears, arrived at a method of treatment which Senhor Marques considers superior to any other in the management of this disease: though derived from this country, the application of it is so far due to Portuguese surgery as to justify the fullest claim on their part. This treatment consists in the method of scarification as practised by Mr. France, of Guy's Hospital. In the 'Londres Medica,' Senhor Marques points out that when he visited Fort Pitt, he found the military surgeons unaware of its application to these disorders, and far from coinciding with his recommendation of it. This plan of treatment does not suit recent cases with existing inflammation, but only serves to irritate them; it

* Senhor Sa Mendes has seen many become granularly affected (*granulosos*) in a few days. In some, these bodies come first in the upper, in others in the lower lid, and *vice versâ*, sometimes in one, sometimes in the other eye, from no other apparent cause than stay in hospital. In Belgium it was stated that twenty-four hours were sufficient for the development of vesicular granulations.

is the older cases of fleshy granulations, more or less advanced, complicated with pannus, keratitic ulcers, &c., that it suits; with these it fairly produces wonders; under this method, also, the vesicular granulations improve and fade away; the fleshy, if recent and newly-treated, last longer, but eventually get well. The exact procedure of Senhor Sa Mendes is as follows:—

"With the scarificator of Desmarres he makes on the palpebral surface a great number of small incisions, parallel to the free border of the lid, very superficial, and not extending far. Their number should vary according to the surface affected and to the quantity of the granulations; but in the worst cases, they should be forty or fifty of one or two millimetres each. If deeper or more extensive, they might involve the ducts of the Meibomian glands, and even the tarsal cartilages, producing considerable cicatrices, which it is best to avoid. In general, the granulations alone are divided. The incisions having been made, the blood is allowed to flow, and the evacuation is facilitated by the application of lukewarm water; meanwhile, a degree of liberty should be afforded to the lid, which is turned back to its normal position. When the blood ceases to flow, the sulphate of copper is applied more or less lightly, according to the individual.

"Sometimes from the beginning, and nearly always towards the end of the treatment, the blood flows scantily, which is an advantage, as it allows the application of the bluestone. When there is no further need of scarifications, the sulphate of copper and the ointment of red precipitate should be used to finish the cure."

There is no rule for repeating the scarifications, but generally, in the chronic and old cases, they must be used more frequently than in cases which are recent and acute: so that the first may require it every day, the second every two days. The treatment may occupy a month, and even some months. This method leads to a cure without complications, and generally complete. As subsidiary to treatment, the Portuguese surgeons employ section of the external angle of the eye to prevent friction from granulations, which is the cause of the greater number of keratitic complications. The lapis of nitrate of silver is used with great reserve, with a very light touch, and at rare intervals, except in very exceptional obstinate cases. The proto-chloruret of iron, 30°, is occasionally used. The treatment of M. Buys by neutral acetate of lead had no success. Cyanogen is mentioned as their remedy against photophobia.

It will not be expected of us that we should enter minutely into hygiene. If a quarter is very bad, it should be broken up; by abandoning their barracks, the Danish troops got the better of the disease; every object in an unwholesome dwelling is a source of infection; the soldier should have his towel; he should wash, Mussulman-like, in running water; every private coming from an infected spot should undergo ablution with soap, and his garments be purified. Some precautions seem overdone, such as the prescription of linen sheets by the congress, not so strange in that flax-growing country; so also the admixture of vinegar to water in washing the face; one may hesitate also as to the admission of night-air into dormitories. M. Decaisne, of the Belgian service, attributes granulations entirely to an irritation derived from drill and

the specialties of a soldier's duty; it is not wonderful, therefore, that a minute attention has been shown to points of convenience in dress; the fit of the stock was in Belgium the subject of a circular by the Minister of War during the prevalence of the so-called army ophthalmia there; all that in dress constricts the neck, or chest, or head, should be relieved; the width of the collar of the coat, its fastening, that of the vest underneath, if worn, should be objects of care. The subject has been amply discussed in the 'Revue Militaire Belge,' 1823. The soldier should never go out to drill without a peak to his cap, and it is better for him to have his back to the sun.

The ophthalmias now met with (1859) in the military hospital of Lisbon are, for the most part, old cases, undergoing treatment for complications, chiefly of the cornea; most of them have fleshy granulations; there are also fresh cases occasionally. Their description may be instructive as regards the present state of ophthalmia in Portugal.

"In the garrison of Lisbon one meets with some soldiers displaying small conjunctival granulations, in the form of the finest sand, accumulated in the conjunctivo-palpebral angles, especially in the external; in some of these one even meets with various vesicles, sometimes dispersed, sometimes disposed in series on the adhering margins of the tarsal cartilages. In this state, Senhor Sa Mendes considered it better not to subject the patients to treatment in hospital, because he had noticed, whenever he sought to combat these vesicles, either by energetic or mild applications, the disease only gained ground, and a serious complication occurred out of a benign affection. Senhor Sa Mendes observed some of these cases for a long time, and never could find that they underwent development, nor that such granulations affected the efficiency of the soldier."

In closing our review of Senhor Marques' Mémoires, we abstain from giving a decided opinion of our own in favour of the exclusive catarrhal origin of this malady. The period is not very far distant when it was as "out of date" to declare oneself a contagionist, as it would be in the present day to say anything that might militate against free trade; there has been a sort of revulsion since. Certainly the very striking facts displayed in the outbreak of ophthalmia in this country at a short interval after the Egyptian campaign; the general opinion entertained of the non-existence of this form of ophthalmia in Belgium prior to Waterloo; its persistence in the English army of occupation cantoned in France, with many exacerbations; and also its well ascertained existence in French hospitals of that period; add to which, the firm persuasion of the Russian commanders that it was brought with them from Paris in 1814; all these facts have left the impression on the mind of some quite especial virus being concerned in its transmission. We do not contend for the expression "granular virus," nor will be tempted to class it with blennorrhagia—a disease almost as limited in its seat, but with a wider range of sympathies in the frame; nor shall we commit ourselves to a dogmatic assertion the other way.

We are conscious that we go very far in saying that it is not absolutely impossible that, after a period of obscurity (or incubation) of forty years, a contagious disease may be suddenly manifested in the

way we have described. The history of contagious diseases, however, is too incomplete for us to pronounce with certainty. Quite recently facts have occurred in Italy connected with the syphilitic poison which have taken the world by surprise. It occurred to us to know, at no remote period, a member of the profession who suffered from ophthalmia in Egypt, and whose eyes were a subject of anxiety to him during a long life ever after. There must have been numerous similar foci of disease in Europe capable of taking effect in a limited degree upon the neighbouring population.*

We intend to pass in review, in a manner necessarily incomplete and sketchy, the hospital systems which Senhor Marques held a commission to observe, referring to the pages of our author, or rather to the systems themselves, those who are inclined to make themselves critically master of the subject.

What most excites our favourable attention in the Dutch service, is the definite purpose and unity of design it displays, impaired, however, in its results by some defects, of which the greatest is the maintenance of an *intendance* similar to the French.

The school of Utrecht forms the most marked feature of the service. We cannot pretend to do justice to these subjects, but shall indicate some of the prominent points of each.

The hospitals are all of the garrison class; in each of them the head of the *intendance* takes the name of director. He has the control of the hospital orderlies, who are not formed in time of peace into a distinct corps. The same official also undertakes the hospital accounts, which, according to our author, are not regulated with that superior skill which might have been expected from the genius of the nation; on the contrary,

"A standing mistrust and extraordinary precautions against every possible abuse subsist as a rule in every division of the Dutch military service, leading infallibly to an intricacy of detail in accounts, and with it to such an endless amount of bookkeeping and rectifications as render a little simplicity very desirable."

Hygiene, practically unknown in the French military hospitals, is at the same low ebb here. Those of Holland are noted down as worse

* "We repeat," says Senhor Marques (p. 110), "there was existing ophthalmia under the circumstances to which we allude, but not in the army, before 1849. In seeking for the origin of military ophthalmia in the granular affection which sometimes occurs in the civil population, and which flourished for twenty-three years among the pupils of Casa Pia, it would be necessary to indicate as a basis the primitive case, the starting point, in the old granulations of certain patients. But the only ophthalmic case which in the commencement of the epidemic in Lisbon displayed well-marked granulations, appeared in the Lisbon Hospital after the epidemic disease had entered on its initial stage. It was in a Grenadier who had suffered from blennorrhagic ophthalmia when on detachment in Santarem, for which he had to go into a cavalry hospital—that is, into the hospital of a regiment which never had granular ophthalmia. All the patients who since June, 1849, were received into the hospital at Lisbon displayed the ophthalmic affection in its initial stage, except a soldier of the 7th Infantry, who had an inflammation of a rather more noticeable character than the rest, but even in this case we were informed by the patient that the complaint dated from three days previous."

than the Portuguese. The Dutch are not known to advantage in this class of institutions. Even the bread is coarse and inferior. The mere alimentation of the soldier in hospital, however, is estimated at half a florin daily; meanwhile his pay ceases, except one halfpenny per diem. We may remark, *en passant*, the extraordinary proportions of tinea in hospital, and its prevalence in the country, and with it the fact that granular ophthalmia has not lately prevailed.

The cadre of the service may be seen from the accompanying plan:

Table of Qualifications, Army Rank, Number, and Personnel of the Department of Health in the Netherlands in time of Peace.

Qualification.		Rank.	No.	Pay, florins.	Pension, florins.
Inspector		Colonel	1	4400	1800
Chief officer of health	1st class	Lieut.-Col.	2	3000	1500
	2nd class	Major	4	2600	1300
Officers of health	1st class	Captain	8	2200	900
			8	1900	900
			8	1500	900
	2nd class	Lieutenant	50	1000	600
	3rd class	Sergeants	50	800	500
Pharmaceutists	1st class	Captain	3	1600	900
	2nd class	Lieutenant	10	900	600
	3rd class	Sergeants.	13	800	500
Pupils	1st class		6	300	—
	2nd class		16	200	—
	3rd class		2	—	—
	for the Marine		24	400	—
	for the East Indies		66	400	—
	for the West Indies		9	500	—

The inspector-general is in immediate relation to the Minister of War, and he resides at the Hague, where are located the medical secretariat and the pharmaceutical depôt. This officer regulates the army medical service and that of the civil prisons; he is also head of the navy service, with some difference of charge. The inspector-general gives a monthly account to the War Minister of his disposition of the personnel; and the minister, on the other hand, informs him of the movements of troops. The medical officers of the highest rank are required to perform clinical duty, and this is felt to prejudice the service and to be an imperfection. All, except the highest rank, are under the obligation to be seen in uniform, with the military hat and sword. With slight variation, the pharmaceutists wear the same. There are examinations for all but the highest grades.

"In the garrisons where the officers of health are employed on duty, the highest in rank, or the elder in the service where there are two of the same rank, assumes the charge of directing the labours of the others; the pharmaceutists also fall under his direction. It is the head of the sanitary service of each garrison who, according to the orders and instruction received from the inspector-general, designates the official, or officer of health, who is to perform the duty in any regiment or fraction of a regiment; and he forthwith communicates to the commander of the force the name of the particular officer he has to depend upon for the performance of the sanitary service. When

a battalion, or other corps, changes its garrison, as the inspector-general has received notice of it beforehand, it is he who designates the officers of health who are to accompany the force; but as soon as the regiment or battalion has arrived at its destination, the officer of health who has accompanied it delivers over the service to the chief health official of the garrison, and returns to his post. When it is a division or brigade that goes into camp or under canvas, the inspector-general designates for this occasion the precise number of officers of health, and these are not only for such regiments as constitute the division and brigade, but for the ambulances of the same division and brigade."

In Holland, the medical staff have the duty imposed upon them of treating at their domiciles the officers, with their wives, children, and also their *domestics*, as well as the wives and children of the soldiers. There is not, as in Belgium, an officer detailed for this duty, but any one officer is liable to be called on, as preference may dictate; civil practice, however, is otherwise forbidden to them; thus it may be seen how very dearly a good officer will have to pay for his superior reputation. Such extraneous services commonly double the ordinary routine. The organized class of pharmaceutists is considerable in number—viz., twenty-six. Each hospital has two of them, the central depôt has five. This large establishment, worthy of note in many respects, furnishes the army, navy, colonies, and prisons. Its large extent, its economical operations, organization, and service are worthy of admiration. Here also are preserved the surgical appliances and ambulance. The mode in which the sanitary service is conducted in Holland gives rise to more reflections than we are able to condense—

"These and other observations gave me reason to reflect on many an inconvenience from the side of lay directors in hospitals. The eyes of science are subject to behold, with no power to correct them, the most defective arrangements possible; the duty of the most competent officers is restricted to the exercise of medical and surgical skill, without comprising therein such exigencies of treatment as are extraneous to the pharmacy, the operating box, and the kitchen. Under such limited directions, the condition of a room prepared to receive patients consists entirely in a comfortable bed and cleanliness.

"Ventilation, airing, light, space, &c., are not attended to, or if so, only as secondary things. The Netherlands, as well as France, will one day have to diverge from the extreme they now occupy in this respect, towards that happy medium which exists in Belgium, while England and Portugal, from an opposite extreme, also fertile in inconvenience though not of equal magnitude, will doubtless concur sooner or later towards a class of views justified every day by an increasing experience."

The medical school of Utrecht is intended to secure a class of servants for the army, navy, and colonies, on a sure and economical scale, for ten years' engagement certain; after twenty years' service, they enjoy the privilege of civil practice, from which they have been previously excluded. The professors, ten in number, with two subalterns, are all members drawn from the ranks of the medical service. The examination on entrance is by no means high. Sixteen to twenty pupils are admitted yearly. Great efforts are made for their instruction, though not the very best the country can afford. The system of education is a very tight one. Scanty holidays, with drill for sole

recreation. It has a strong military bent. The pupils board and sleep in the town, which, as regards living, is about the cheapest in Holland. They have a four years' course of instruction. On entering, each pupil receives his destination for army, navy, India, or the colonies, and is educated *ad hoc*. They start as commissioned officers of the third class.

It is in Belgium that those happy arrangements meet, which, according to Senhor Marques, give the best promise of efficiency in medical service—viz., liberality on the part of the Government, a sufficient degree of independence in the administration, with opportunities and provisions which stimulate zeal, and guard against remissness. We invite the study of our readers to this service, which is at once an honour to the king and the nation.

In Belgium, all the hospitals, about eleven in number, are garrison hospitals of the first or second class, situated in the several districts whence the troops are summoned for manœuvres on a large scale generally once a year.

The Inspector-General (immediate to the War Minister) includes in his functions the medical, pharmaceutical, and veterinary services, the civil prisons, and some other duties. From July to September he inspects the hospitals as chief officer of health and hygiene, with well-defined instructions and extensive discretionary powers. It is the duty of the local engineer and commissariat officers to accompany him in his inspections. The rank and number of his subordinates are as follows: One chief officer of health, with rank of colonel, for sub-inspections, and to accompany the army in campaign. Three principal officers (lieutenant-colonels) for hospitals of the first class. Those of the second class fall to the garrison surgeons of the rank of major. Next come the regimental medical officers, and then the first and second battalion officers, and, finally, the assistant, with rank of captain, lieutenant, and sergeant respectively. The assistant serves two years to become battalion officer. There are, in addition, pupils who serve with defined duties; they emanate from the universities of Brussels, Ghent, Liege, and Louvain; eight or ten for each university, these are, at the same time, engaged in their medical curriculum. At first the pupils only count service, but advance to the receipt of three hundred to eight hundred francs yearly. They take day duty at the garrison hospital to relieve the assistant-surgeon, act as dressers, clinical clerk, perform autopsies, &c., and on one day in the week they compound medicines. They reside in the town. On admission they must be bachelors in sciences at the least, but are mostly chosen from students somewhat advanced. They wear uniform without embroidery. When they take the degree of doctor they are received as assistant-medical officer, with pay of two thousand five hundred francs per annum, and in military gradation they have counted four years' service.

Besides examinations, which form a guide and basis for promotion, a regimental surgeon must serve as such four years before he can be garrison surgeon, in which post he must be three years in order to be-

come principal officer, again the same term to be sub-inspector, and two years more to become inspector-general.

In Belgium, a certain connexion which they claim with the army causes a large class to use the privileges of attendance from the medical officers of the service, and some of these receive batta for such duty. The civil practitioners are infringed upon in more ways than one by the army officers entering into civil practice, obtaining professorships, &c., which occasions many of the latter to shirk their examinations and avoid promotion.

There are seven or eight battalion officers thus employed at Brussels, some of them of twenty years' fixed residence in the city. We remember something of this kind in England, when votes for parliament, always much desired in small constituencies, were especially valued by half-pay officers with a good ledger of patients. In Belgium, this is allowed; the officer is rarely struck off the list, but the service suffers and jealousies ensue.

In the routine of the hospitals, the garrison medical officer sees the patient twice a-day: the first visit early in the morning. The diets are arranged over-night. Senhor Marques considers these hospitals the best in the world. Let him speak for himself:

"The Belgian military hospital is primarily dependent on the military chief or local military commander in all that concerns discipline. For its medical direction, there is the principal or garrison medical officer. For administration and accounts, there is the so-called *surveillant* or his *adjoint*, chosen from retired officers of the army. Under this arrangement, all flows smoothly enough. The medical director attends to the medical requirements and hygiene, he disposes of everything in this respect, even as to the food and drink. He examines and superintends the pharmaceutical service; in short, he holds in hand all that he can require to further his proper sense of obligation. On the other hand, the administrative employés not being interfered with by the medical officer, keep themselves in their proper places. They are responsible for the hospital property, for the proportion and distribution of the diets, and also for the execution of the hygienic arrangements determined on; but they cannot change a nurse (orderly) from one ward to the other without permission from the medical officer. It is easy to see the difference there is between these administrative appointments and the *intendants* of the military hospitals in France; and this view establishes what I have already expressed in my notice on the medical service in the Netherlands—viz., that the system before us is of all the most advantageous, holding as it does the middle place between the French and English system, which last is also that of the Portuguese.

"For my part, I believe that the essential condition of increased utility in military hospitals consists in a concentration of authority in the medical officer as regards every branch and thing in which his especial information is a requisite, and in setting apart accounts, bookkeeping, and administrative work for some person who is expressly forbidden to interfere with the medical officer—nay, more, who is bound to see him satisfied in every act of hygiene according as he may direct.

"For guarantee and security of the administrator, I prefer the bail and bonds that are required in Belgium to the kind of responsibility which is in use with us.

"In the way I have stated the service in military hospitals in Belgium works exceedingly well, but to these elements of service there are others conjoined—viz., the regimental and battalion medical officers, each with their appointed duty,

the assistant-surgeons, the medico-military pupils; the sisters of charity, the hospital orderlies and sergeants, members of an administrative corps established in 1853."

The hospital at Brussels has between 200 and 300 beds for patients. In its medical and pharmaceutical service it comprises one chief physician (sub-inspector), 2 assistants, 10 pupils, 1 chief pharmaceutist, 2 of second and third class, 3 pharmaceutical pupils, 6 head orderlies, 15 orderlies, and 11 sisters of charity; in all, 51 employés, besides the administrative department.

"The hospital at Brussels (says our author) has a system of warming and ventilation extended to all the chief dependencies of the establishment (two caloriferes of Joises, of Liège, for each ward, with chimneys d'Arcet in the upper flights), and everywhere a degree of cleanliness that is unsurpassable. The floors are well waxed, the furniture and patients' clothes superior to what I have witnessed in any other hospital, and also the utensils of a better appearance and in better condition than I have ever met with in similar institutions. Each patient has an *elegant* iron bed, with a paillasse twenty centimetres high, a mattress, linen sheets, counterpanes, white blankets, and large pillows. At the head of the bed is a shelf, forming one with the bed, for convenient use, and in the middle a frame for the card. In connexion with the frame, there is an arrangement for the name of the disease, written grey on a black ground. In the intervals between the beds there are arm-chairs for those who can get up. Each ward has in a species of framework two barrels raised high up, with taps at their lower part; one serves for water, one for tisane, according to direction.

"Among the articles which a patient receives are a loose coat and a neck-handkerchief. All patients out of bed or sitting up are directed to wear such a necktie. Among the constant appliances of the wards one remarks a curtain supported by three columns, used as a screen," &c.

Our author does not omit to notice the central pharmacy at Brussels, a grander establishment than that at the Hague, founded apparently with a view rather to perfection of service than to economical considerations. The considerable number of persons who claim privileges in connexion with the army necessitate a large staff. The civil prisons, the marine, and the railroads are furnished with medicine through the operation of the War Minister; these last better and cheaper than they could do it themselves, with a slightly favourable balance to the State.

The pharmacy is supplied by tender; the chemicals are accurately analysed; even of the water of crystallization of the sulphate of quinine (ten to fifteen per cent.), an exact estimate is made for calculation of discount; every care is taken to ensure preservation and rotation of drugs, economy, &c. The War Minister settles and approves the accounts, and regulates everything, even to minute particulars.

The surgical instruments and ambulances are collected there. A plan of one of these last accompanies the work under review, and is recommended by our author for its unparalleled simplicity. The smallest caisse of the French army comprises more, he says, and is of equal excellence in its way.

As regards the pharmaceutical staff in Belgium, it is very complete. It consists of a principal pharmaceutist, bearing the rank of major, 6 officers of the first class, with the grade of captain, 10 of the second class (lieutenants), and 14 of the third class (sergeants).

The inspections of the sick and disabled are of great simplicity. They are arranged on the following plan:—

1. Illnesses and deformities exempting by the sole fact of their existence.

2. The same exempting temporarily or definitively, according to their degree.

3. Those requiring exemption for a year or more, or that the inspected should be referred to the district commander to be under observation in the hospitals. The degree of illness is often marked by the terms "considerable," "grave," "habitual," "extensive." The incurable alone are marked as "incapable." Other maladies, as myopia, are the subject of special investigations.* Besides these tables, intended for early years of service, there is another for pensioners, with the history of accidents, &c. This comprehends all we shall say of the Belgian army.

The subject of Sisters of Charity is too interesting to be passed over, and keeping in view the public events which have occurred in respect to them at a more recent date in Portugal,† we shall be careful that Senhor Marques does not incur a greater responsibility with regard to them than his expressed opinions warrant, so far as these may have tended to form a public opinion. It is incontestable that the result of his observations is adverse to the employment in the service of military hospitals of ladies who are "religious" devotees, yet not wholly so, nor without reservation. Admitted, that in civil hospitals their employment is a success, sanctioned in some countries by long use and experience, this success is attributed to the laborious and comprehensive nature of the duties performed, necessitating an earnestness of character devoid of frivolity and calculation. On the score of economy, it seems justified by the very low rate of pay afforded to the ordinary assistance, which would seem to render indispensable the gratuitous ministrations of a more highly educated class. Nevertheless, even in civil hospitals a want of promptitude, a turning aside to religious duties at inconvenient hours, and occasionally a resistance to the orders of the faculty,‡ have sometimes given occasion for regret. Senhor Marques has,

* The faulty accommodation for eye patients in the Brussels hospitals is a subject of reproach considering what they have suffered from ophthalmia in Belgium. It is an inconsistency. Their latrines are also detestable, on a level with the French. *Apropos* of this subject, we may mention the *latrinas inodoras* of Sr. Oliveira Pimentel; by a process resembling that of D'Arcet, this famous chemist disinfects the solid matter by carbonized turf from the banks of the Tagus in equal quantity to the matter infected. For disinfection of the urine he uses small portions of the mother waters from the salt-pans of the Tagus and Sado, or small quantities of hydrochloric acid.

† The *Sœurs de Charité* located in Portugal were a French community, of no considerable numbers, but sufficiently so as to be noticeable. More than a year since they were dismissed from Portugal under a ministry of the same shade of opinion as had introduced them under Pedro V. This occurrence seems to have happened from no firm conviction of opinion, but under the view of an election cry, foreigners not being in favour with the masses. They were never employed in the military hospitals, but in schools and elsewhere. Their departure was the occasion of the "old parties" (Miguelite) withdrawing their subscriptions; but this will probably be only temporary.

‡ Without excusing such occasional resistance, we can quite understand that it is not wholly surprising, as we have in some of the Continental hospitals seen the sisters treated by the medical officers with the greatest rudeness and harshness.

we may say, formed a different estimate of the services of the Sisters of Charity in France and in Belgium. In the latter country, their functions in the military hospitals date from more than twenty years; in the former, it is only since the Crimean war that it has been determined, under the patronage of the Empress Eugénie, to continue their attendance in the time of peace at the Parisian military hospitals of Val de Grace and Gros Caillou, with nine hundred and two hundred and fifty beds respectively. To introduce twenty of these ladies into the Gros Caillou, we are, to our surprise, told that it was necessary to disutilize space for beds of one hundred patients. Each Sister of Charity (*première mise*) has two hundred francs on joining, he states, four hundred yearly for alimentation, two hundred francs yearly for clothing.*

He takes a modified view of their utility in Belgium, in which country he admires the neat completeness of the hospital arrangements. But here his objections on the score of economy fall with equal, if not greater, force. Their subsistence is not less than one thousand francs per annum. At Brussels there are eleven Sisters to two hundred and fifty patients; not one attendant the less is required on their account. For instance, in the military hospital of Antwerp, he remarks, they had eighteen orderlies: they discharged ten and took on ten Sisters of Charity; by the end of the first year the men had been wanted back again by twos and threes till the staff of eighteen was complete, *plus* the ten Sisters of Charity. His objections evidently arise in great measure from utilitarian prejudices.

Senhor Marques concludes somewhat favourably of sisters of charity in a fixed circle of duties, in a restricted number, seven or eight for 300 or 400 patients. To secure efficiency, they should be the subject of exact, not to say severe, personal choice. He assigns to them fever wards, bad surgical cases, and the ophthalmic wards. He excludes them from the convalescent wards, and very properly from the chambers of loathsomeness and impurity.

From circumstances of similarity, Senhor Marques finds less to remark upon in the English medical service. He praises the wide discretion allowed to the director-general in his field of duty, and considers it to impart a certain *élan* to its operations; but by no means does he approve of the dependence of that functionary on the corroborative assistance of other departments (inspector-general of fortifications, barrack department, purveyor, &c.). The general freedom from inspection of the regimental surgeon he thinks suited to our circumstances of territory. As regards the hospitals, he feels himself compelled to extenuate any error his sources of information may have led him into, "seeing that, from the regulation in force, only a very incomplete idea can be formed of what kind of hospitals exist for the treatment of the soldiery." "I shall have occasion to refer," he says, "to this regulation,

* The wages of a head-nurse at a first-class London hospital is increased from 20*l.* a year for three years, to 30*l.* after, by additions of 1*l.* yearly. The assistant-nurses begin with 16*l.* yearly, and increase by half-a-guinea a year to 20*l.* yearly. The board wages are 1*s.* 1*d.* daily, or 7*s.* 7½*d.* weekly, for all servants alike. Each servant has also weekly rations of candle, soap, &c., equal to 4*s.*

which, from its unparalleled simplicity in some things, and its extreme prolixity in others, is very far from resembling those of other countries."

In the administration of the regimental hospital by the surgeon-major, he disapproves of the dependence for the food on the deputy-purveyor, and for other things, "except in extraordinary cases," on the barrack department. In the Portuguese service everything for the use of the regimental hospital, food, utensils, &c., is issued from a special department, and with great benefit, as he deems, to the service. The report in duplicate which the regimental surgeon is called on to make to the commanding officer and to the director-general when any improvement is required in the quarters, is not different from the Portuguese service, but seems to work with less obstruction there. He is inclined to consider that the convalescents in hospital are not sufficiently under discipline. With regard to the hospital corps, from which such wholesome results have been obtained on the Continent, he regards it as having been "hastily organized" in England, "and therefore defective, and too hastily laid aside on exaggerated statements of the necessary expenditure." As to this point he is too firm for us not to believe it to be the result of strong conviction. It is a deficiency which causes him some surprise in so liberal a nation as ours;* so also with regard to the restricted list of medicaments; there is no limitation of the kind in Portugal; to be sure, in England there is the liberty which the medical officer possesses of travelling out of the record to the extent of twenty shillings a quarter for articles not in the list: but for all exceptional cases there are a deluge of declarations, requisitions in duplicate, and correspondence, which altogether do not encourage efficiency. The same and worse with each application of leeches, which it is well known the soldier would never have the benefit of, but for the liberality of his officer. In Belgium they are freely allowed, and there is a Government regulation that every leech should be divided after its application, to ensure its destruction, showing the "difference of their spirit."

In Portugal there are not similar restrictions as to large operations on the part of the regimental surgeons; this appears a very wholesome regulation to Senhor Marques, considering the excessive readiness the English surgeons display in this field—the Portuguese surgeon being

* Senhor Marques seems barely to have apprehended the conditions of our hospital service through the "Army Hospital Corps" founded by warrant, 1857, which now continues. It seems to offer more perfect elements of discipline than the very liberal system it superseded. The soldiers engaged in it have the privilege of "free rations" in excess of regimental pay. This is the principle of remuneration adopted. For inefficiency they are subject to be sent back to the ranks. The compounder (surgery man) has a shilling a day extra; he now undergoes, we believe, some kind of examination for pharmacy.

The medical staff corps, established in 1855, and superseded in 1857, was more extensive in its plan. It had nine companies, each suited to an hospital of 500 patients, and contained 702 individuals in all. The steward over the purveyor's department had 5s. daily pay. The wardmaster, 4s.; the assistant wardmasters, 2s. 6d.; the orderlies, 2s. They had besides free rations and quarters, with army rank of serjeant-major, serjeant, corporal, and private. Both of the corps supplemented the Field Ambulance.

of a much more conservative turn of mind. He remarks on the perplexity created by the instructions for inspection in minute particularization of diseases (even mental), when the degree of ailment and incapacity of the individual are the one thing necessary to be specified. He considers this duty over-laboured and refined into unnecessary minuteness. In signing the monthly nosological map in Portugal, the surgeon-major is not required to refer to the absence or presence of the other medical officers on the occasion, nor whence the "leave" emanated.

We should be fortunate if it were foreign to our duty to mention the dispassionate observations of Senhor Marques on the central hospital of Fort Pitt, that unwholesome and disheartening receptacle, where the "child of glory" returns from heathen lands to fulfil his dream of "home and beauty." We would rather banish it from view, as a thing of the past, though as a scandal that is yet recent. May the young soldier find nothing corresponding to it in his experience. We can detect no maliciousness in the remark, that the superior authorities had "convenient and even elegant apartments," notwithstanding the ugly look of the interior of the hospital.

Senhor Marques writes warmly in favour of the regimental hospital, particularly as to the family character which characterizes it. How much must depend on the personal character of the surgeon in these posts can hardly, we think, be exaggerated. These are the hospitals he would retain for Portugal, engrafting on them an element borrowed from the Belgian hospitals.

"The difference, however, is considerable in a line of comparison with the French system, in which there is no regimental hospital, properly so called, although towards the end of the Crimean war there were organized some regimental wards.

"The ambulance hospitals occupy the lowest place in their organization. Each *corps d'armée* in time of war has its separate service, and is accompanied by the ambulance hospital in its movements. The sick and wounded are passed on from them to the general hospitals. Hence the surgeons restrict themselves to the simplest dressings that may be necessary, and the sick and wounded escape very quickly from their care and observation. And in making this comparison, I hold in view that if the regiments are unembarrassed by the inconvenience of a hospital, the patients do not, according to the testimony of the military men who observed both systems in the Crimea, obtain the same favourable conditions of treatment as they do in regimental hospitals. These observers gave the palm to the English system, greatly to the astonishment of those who had before quoted its inferiority as compared with the French.

"To be brief, I will state that, in relation to the French system, the manner of organizing the English service has every advantage which can result from unity and completeness in the medical, dietetic, or to explain myself better, hygienic service. The English system has no sous-intendant, or even a mere *officier comptable*, who can forbid at his *bon plaisir* the requisitions the clinical officer makes for the use of the hospital, nor does it concede the inexcusably barbarous privilege to mulct the surgeon in the value of a diet which is not comprehended in the respective tables. There is no license for the pharmaceutist to refuse the preparation of a remedy, the name and composition of which are not included in a limited formulary; finally, there is not that unjust prohibition as to recommendations in the interest of science from the superior

medical officer to his subalterns; in France he cannot address himself to them in such a sense 'without the consent of the military sous-intendant charged with the administrative police of the establishment.' All this takes place in the French system, and more than this, for the medical officer has no claim to be heard, and can only be consulted in whatever is not included in the hospital direction. He may represent the desirability of improved hospital accommodation and conveniency, the separation of certain patients, the renewal of bed furniture, the purification and renovation of a ward, the change of an orderly or anything else included in hygiene; but the chief of the hospital, the *employé de l'intendance* will sanction them or not, as seems good unto him. It is to hygienic errors that we must attribute the fact that in the Crimean war, at a time when the English hospitals held scarcely more or worse cases than in normal times, the French found themselves in presence of the most infectious and violent disorders. Thus it is proved that the French army was at its extremity as regards its sanitary condition, &c."

There only remains now that we should mention the latter part of our author's labours; shall we say of this part that it is a labour of love?—viz., what he saw during a short visit in the medical world of London ('Londres Medica'). Intended for the information of the foreigner, this work is calculated to convey pleasure on the score of its literary merits alone. Though but a slight essay, it is written with delightful ease and vivacity, with a vein of observant pleasantry, that give us a most favourable idea of our author's temper and talents.

He is evidently an admirer of our nation, and in travelling with him from point to point, we perceive his strictures are those of a friend. One thing only we shall offer in correction—viz., that in spite of the heavy sums spent in acquiring medical knowledge in and out of schools in our country, the medical profession is neither better nor worse remunerated with us than in the rest of Europe, and when he next hears the income of first-class surgeons quoted at anything like the figure in his pages, we would advise him to divide the sum by two and then again by two.

It may appear to some of our *confrères* that we have treated these matters of hygiene in too discursive and imperfect a manner to suit the pages of a scientific journal. Perhaps, however, it may not be amiss to relax somewhat in the severity of procedure in dealing with subjects that stand half-way between the physician and the soldier, or which, more strictly, are the common property of both. Of all the public, it is the soldier whom on such a topic we would seek to interest. It is now more than a century past since Marshal Saxe boasted he would teach the Duke of Cumberland that the health and comfort of the soldier should be the first thought of a commander.* Had his observation fertilized as it might have done in the brains of our generals, its value would have outbalanced the defeat of Fontenoy.

* Belsham's History, vol. ii. p. 280, second edition.

REVIEW XIII.

A System of Surgery, Theoretical and Practical; in Treatises by various Authors. Edited by T. HOLMES, M.A. Cantab., Assistant-Surgeon to St. George's Hospital, and to the Hospital for Sick Children. In Four Volumes. Vol. II.—*London*, 1861.

PUNCTUAL according to the editor's promise, the second volume, as well as the third, of Mr. Holmes's 'System of Surgery,' has been for some months before the profession. Reserving to ourselves the pleasure of considering the third volume at a future opportunity (probably in our next number), we propose to bring the second volume under the notice of our readers in the present number of our Review. This volume comprises essays on local injuries; the different regions of the body being treated by different contributors.

The first essay in the volume is upon *Gun-shot Wounds*, and is from the pen of Mr. Longmore, the Professor of Military Surgery in the Army Medical School lately established at Chatham. The special nature of injuries by fire-arms, though liable to arise, in common with other violence, in every region of the body, mark them out as a fit subject for a separate essay; and in treating of these, Mr. Longmore restricts himself to the consideration of gun-shot wounds as they are met with in the operations of actual warfare.

Although wounds possessing some of the leading characteristics of those inflicted by bodies projected by gunpowder, may result from objects driven by any sudden expansive force of sufficient power, there are distinctive features, plain and unmistakeable, in the wounds caused by the metallic projectiles used in war, which have been recognised from the time of the introduction of fire-arms, and which have marked out gun-shot wounds as a subject of special interest for the military surgeon. The increased educational requirements of modern times also point them out as an indispensable subject of additional study to the student who proposes to qualify himself for the military branch of the public service. Injuries from pieces of stone set free in the process of blasting rocks, or by the accidental flying asunder of a faulty mill-wheel, will not present features materially different from the contused and lacerated wounds caused by fragments struck from a parapet or an exploded mine. The fragments of metallic vessels burst asunder by the expansive power of steam, may cause wounds presenting some of the characteristics of those caused by the explosion of a shell. But the military bullet, as an instrument of direct violence, in its passage through the trunk or extremities, causes a wound presenting features of its own, widely different from the accidents of civil life, though equally destructive of life or limb. The bolts of the archer, where they did not destroy life, have not been recorded by cotemporary historians as leaving wounds of a very formidable character: the crushing on a railway, and the destructive effects of modern machinery, in the factory or on the farm, are essentially different in many of their chief features from the lesions

effected by the shot or shell of the military engineer. Mr. Longmore gives a short review of the history and literature of this branch of surgery; and he points with pride and satisfaction to the fact that, in leading the way to a more practical knowledge of the nature and proper treatment of these injuries, the older English military surgeons stand forth conspicuously, though they have written less voluminously than the Continental surgeons.

In considering the varieties of gun-shot wounds, as they come under the notice of the army surgeon, modified by the form and kind of missiles, the degree of force with which they are propelled, and by the seat of injury in the patient, the part of his body struck, and its position relative to the projectile at the time of injury, Mr. Longmore has instituted a comparison of the different effects caused by the bullet of the old smooth-bore musket, and those far more serious wounds inflicted by the modern more perfect arms of precision, the Enfield, Minié, and other rifles. In bullets of the same weight, the rate of velocity being similar, as from "Brown Bess" at 80 yards and the Enfield at 800, the injury from the conical rifle ball will be far greater than that from the round ball, on account of its shape alone.

"The shape of the bullet," Mr. Longmore says, "combined with its momentum, seem sufficient to explain the severity of its effects above those of the round bullet:" and from these in a great measure it happens that the lodgment of balls is now so rare in comparison with the experience of former wars. Grape and canister shot, and penetrating fragments of shells, are frequently found to lodge. These last are often difficult to detect and to extract. The appearance of the wound seldom indicates to the observer the true size of the body which caused the injury. Such fragments become firmly impacted among the fibres of the tissues in which they are lodged; the effused blood fills up the inequalities, and rounds off the edges which might otherwise show themselves prominently and indicate the presence of the foreign body.

With the old musket bullet, when it passed out, the opening of exit was usually easily distinguished from the wound of entrance; it was generally larger, its edges more torn and somewhat everted, and with some protrusion of subcutaneous tissues. At the time of its infliction, as well as in its cicatrix after healing, the different appearances of the two openings of the wound were in general easily recognised. With the modern rifle-bullet—the "elongated expanding cylindro-conoïdal projectile" of the Schools of Musketry—Mr. Longmore tells us it is often very difficult to distinguish between them. "In medico-legal investigations," he adds, "it must be often a matter of great importance to decide this point; but to the military surgeon, more especially from the circumstances connected with the new projectiles, it has become a subject of little practical interest." (p. 25.)

Drawing his experience from the ample field afforded by his service in the Crimea, Mr. Longmore gives very excellent directions for the immediate treatment of wounds, and for the conveyance of the wounded, often in a spot still exposed to danger, to the hospitals in the rear. He

urges the importance of establishing the diagnosis as early as possible; the examination of these, as of most other wounds, being made then more easily than at a later period. Of all instruments for conducting the examination, he gives a preference to the finger of the surgeon, long ago pronounced by John Hunter and John Bell the best of all probes.

An unusually large number of gun-shot wounds of the head were seen in the trenches during the long stay of the army before Sebastopol. From that ample field of observation Mr. Longmore brings matter of much importance, and well deserving the attention of the civil practitioner. The trephine has not received more favour at his hands than from other surgeons of the present day.

"Where irregular edges, points, or pieces of bone, are forced down and penetrate—not merely press upon—the cerebral substance, or where abscess manifestly exists in any known site, or a foreign substance has lodged near the surface, and relief cannot be afforded by the wound, trephining may be resorted to for the purpose; but the application of the operation, even in these cases, will be very much limited if certainty of diagnosis be insisted upon." (p. 51.)

In these and all other gun-shot wounds, the general treatment recommended by the author—constitutional as well as local—is judicious, as we believe his practice was successful.

The essay is specially intended to convey the experience of the military surgeon, and as an exposition only of those leading peculiarities which constantly demand his consideration, and which spring either from the nature of gun projectiles, or the circumstances in which this branch of military practice has for the most part to be pursued. The practitioner will find it a useful guide for reference in some of the more rare emergencies of civil life. In the gun-shot wounds of civil life, inflicted most frequently with small shot or pistol bullets, or even with blank cartridge, severe hæmorrhage, as an immediate attendant upon a wound, comes more frequently under notice than happens in military service. In the cases which have come under our own notice, the primary hæmorrhage has generally been severe: we have known fatal hæmorrhage arise from a trifling wound in a vein, professional help not having been called till too late. The contrast between civil and military experience is probably more apparent than real. Mr. Longmore observes, that we have no data to guide us in determining the proportionate frequency of fatal hæmorrhage; nor can we have them until proper examination and classification of the particular causes of death on the field of battle are instituted. We have heard it said, indeed, that hæmorrhage is one of the accidents feared by the officers when going into action more even than death or mutilation; and that they look with a pleasing confidence toward the medical officer behind them, as able to save them from what they look upon as a preventable accident. They must have had evidence, one would think, of the loss of blood upon the field.

The gun projectiles of civil life—if we may except the volunteer's bullet—are not meant to be sent so far, nor to inflict wounds at a very great distance; and the severity of them generally arises from

the proximity of the unlucky patient at the time of their discharge. The smooth bullet or the slug may traverse the body or lodge in it. Yet the tightly-fitting bullet of the modern "revolver" is, in its destructive effects, as much more powerful for mischief over the old pocket pistol as the Enfield rifle over Brown Bess; and as these weapons become more frequently handled by the careless or the idle, we must look for corresponding increase in frequency and severity of the gun-shot wounds of civil life, and the study of this branch of surgery becomes of corresponding importance to the civil practitioner.

Mr. Prescott Hewett, favourably known to the profession by the lectures delivered at the College of Surgeons upon *Injuries of the Head*, contributes an elaborate and comprehensive essay on that subject. Taking the simplest part of his subject into consideration first—wounds and bruises of the scalp, and the parts outside the skull—he describes in a masterly manner, as they have come under his notice, in the living subject and in the pathological theatre, the numerous complications met with in practice, the primary effects, and consecutive diseases of the bones or membranes, the fatal effects often resulting from them, and the modes of treatment which are most advisable to be adopted. Trifling as some injuries of the scalp may seem at first sight, they all demand watchful care on the part of the practitioner. "All injuries of the head," Mr. Hewett remarks, "of whatever kind, may lead to inflammation within the cranium." (p. 179.) In many instances—in most, we think we might say—the wounds of the scalp heal readily; the great vascularity of the integument commonly saves the lacerated and contused flaps from sloughing. Though supplied so freely with bloodvessels, it is seldom, Mr. Hewett observes, that the hæmorrhage in such wounds is troublesome. In the temporal fossa it has been found so, and the question of even tying the common carotid artery in such cases has been entertained. In the days of our pupilage, we remember a case of very troublesome hæmorrhage in another region of the head. A chimney-sweeper, half-drunk, in falling backwards received a deep wound behind the mastoïd process, dividing the occipital artery, and causing considerable loss of blood. In this state, rendered more excitable by the loss of blood, he was brought into the accident ward of a hospital. It was a very difficult matter at night, in such a subject, to secure the two branches of the divided artery; it was before the days of chloroform, and the lad could scarcely be kept still.

The numerous difficulties in forming a diagnosis of the full extent of the injury—often more obscure, though not less serious, when the scalp is unbroken, or where, as sometimes happens in the bone, the violence has not been *direct*—have occupied Mr. Hewett's attention, and the importance of the different classes of symptoms is fully estimated. In compound fractures the danger is not to be estimated by the extent, or apparent severity, of the wound. Large wounds of the scalp, with extensive comminution of bone, where all the violence is spent upon the part, will often present less unfavourable results than the fractures of the inner table, and may not improbably be attended with favourable recovery. In the *punctured* fracture, in which sharp

splinters of the inner table are driven inwards, inflammation within the cranium almost always arises sooner or later; and of all compound fractures, this is on that account the most dangerous, and the one which most imperatively calls for the use of the trephine and the elevator—to raise, or remove altogether, the fragments which are driven down.

The former teaching of some schools—or perhaps we should say more correctly, the opinion of some former writers—was that in death after injury of the head, in cases of simple concussion of the brain, there might be nothing found in the brain itself to prove that it had suffered any injury, the substance of the brain and its membranes appearing perfect, without any deviation from healthy structure. Mr. Hewett decisively points out that these conclusions have been drawn from insufficient premises; that in the few cases recorded—for there are not many—on which such an opinion has been made to rest for support, there has not been a sufficient examination made of other parts of the body, to show the real cause of death, and that modern investigation has cleared the way for more accurate conclusions in cases once doubtful or obscure. In all cases of sudden death from injury, he thinks the parts to be examined should be the upper portion of the spinal marrow and the heart—whether there is any indication or not of any injury having happened to the chest. In one case, at St. George's Hospital, a rupture of the heart might have escaped detection but for the excellent rule they have there of examining the various parts of the body in all the post-mortem examinations. The following case occurred in a large asylum for the insane at a time when we happened to be on a visit to the superintendent. One of the patients, a heavy fat man, sixty-eight years of age, formerly a blacksmith, in getting out of a window, fell on to the gravel walk below, a height of about twenty feet, striking the right side of his head, and tearing down a large piece of the scalp. He was immediately picked up insensible, and died in a very few minutes. A fracture of the bones of the skull extended through the right parietal and sphenoïd bones into the middle fossa. There was no hæmorrhage, no contusion, or laceration of the substance of the brain, or cerebral vessels. In the left pleura there were about two quarts of fluid blood, the source being the aorta, which was torn across in its whole circumference about half an inch beyond the origin of the left subclavian artery.

Mr. Shaw contributes an Essay on *Injuries of the Back.* He commences with a concise description of the structure and anatomical mechanism of the vertebral column, with a special view of the parts most subject to injury, under the varieties of exposure to violence, in which he points to the ample provision made for the safety of the spinal cord, and for its accommodation, under the different offices of stability or mobility. After a slight notice of the more ordinary and less dangerous injuries of this region, "sprains," not implicating the medulla, and not in general leading to serious or permanent ill consequences, Mr. Shaw proceeds to the consideration of the far more serious, and more frequently fatal injury, fracture, or dislocation of the

vertebræ, and the effects upon the spinal cord consequent on the displacement of the bones, for it is, in fact, the question of the condition of the cord which renders the injury of the back of the gravest interest to the surgeon. The cases which Mr. Shaw relates (and which are too long to be transferred to our pages)—some two or three being remarkable instances of recovery after fracture—are well worthy of perusal, as are also the comments he makes upon them, and the general directions he gives for the care of the unfortunate patients during their long-continued sufferings.

The question of surgical interference for removing the displaced pieces of bone, with the view to restore the lost functions of the cord, often mooted, and once thought to be decided in favour of the patient, and against the surgeon, has been of late revived again by a physician whose attention has been specially directed to the structure and functions of the spine and nervous system. The advantages to be hoped from the operation proposed are discussed by Mr. Shaw with care and attention. His opinion is not favourable. Indeed, he has expressed his disapprobation in terms more decided than will, we think, receive the assent of our readers.* He assures "the young surgeon that, in abstaining from performing it, his forbearance is not an omission, but a positive duty." (p. 238.)

What is "concussion" of the spinal cord? The term is recognised in systematic works of surgery, yet it is difficult to assign a definite signification to the word, excluding from consideration those cases where injury to the cord is combined with injury to the bony structures.

A lad, of strumous constitution, in good health, one summer's day, having stripped for bathing, jumped from a bridge headforemost into the stream below, a height of about twelve feet. Finding himself immediately disabled, he managed somehow to get to the bank, and recovered sufficiently to be able to walk home. The next day he was brought to a hospital, paralysed in his lower limbs. The usual symptoms of injury to the spine followed, and he sank, with "bed-sores," at the end of three months. The gentleman who examined the body in our unavoidable absence, reported that there was no injury to the bones of the spine, nor any discernible lesion of the medulla or its membranes. Looking back to this case with the experience of subsequent years, we think it an omission that the state of the chest was not made an object of special examination.

A short essay upon *Injuries of the Face* is contributed by Mr. Coote. The region is a limited one, when the head, and the eye and its appendages are excluded, as forming the subjects of essays by other writers of the present series. In wounds which heal so readily as those of the integument in this region do for the most part, a chief subject of the surgeon's care is to avoid the unsightly scars and the deformity which often attend the healing. In the treatment more than usual care is required to maintain the parts in their exact normal

* The reader may be referred to some observations on this subject which we made in No. 58 of the Review, p. 377–382.

relation, and for this purpose Mr. Coote's directions will be found judicious and practical. In considering the question of surgical interference, the reader may refer with advantage to his observations on the operations proposed for removal of the deformity caused by cicatrices after the healing of burns and sloughs.

An essay upon the *Injuries of the Neck* is the single contribution of the late Mr. Henry Gray, a legacy from one whose early career, giving a promise of much usefulness, has been so prematurely cut short, to the great regret of his professional brethren. Of the wounds in this region, the common "cut-throat" is the one most frequently brought to the notice of the surgeon. These wounds vary much in situation and extent, and the amount of danger varies in a corresponding degree. Wounds at the back of the neck are less frequently made with the intention of destroying life, and are generally far less dangerous than those at the "throat" and at the side. Yet now and then a suicide manages to accomplish his purpose from behind. Several years ago, a man in St. Bartholomew's Hospital, who had once tried to destroy himself by cutting his "throat," succeeded in destroying his life with a penknife at the back of his neck.

Mr. Gray has made a discriminating examination of the nature and anatomical peculiarities of the different injuries he has seen in practice. In doing so, he has pointed out the numerous sources of danger, and he shows how it is that the suicide is so often foiled in his immediate purpose of inflicting instant death, and sometimes also in his ultimate object of getting out of the world.

Other injuries in the neck from external violence, such as a blow or a violent squeeze upon the larynx or trachea, come in for a share of consideration. Some of these have been known to cause death. It is not every one who is so fortunate as to escape from such violence with permanent benefit to the same extent as was the case with the late Dr. Turner.

In the serious and embarrassing cases of children who have scalded the fauces and glottis in trying to drink boiling water from the spout of a kettle, it has long been the practice of surgeons to advise an artificial opening into the larynx or trachea upon the accession of well-marked symptoms of obstruction of the breathing, or upon urgent and increasing dyspnœa. We confess to have been much struck by some remarks published a very few years ago in one of the medical journals by Mr. Wright (of Nottingham, we think), in which he gives it as the result of his observation of many cases, that those in which tracheotomy was performed were almost always fatal, and that a different course of practice, leading generally to a favourable result, consisted in the early administration of an emetic, applying a small number of leeches according to circumstances, and blisters to the sternum, with calomel and very small doses of antimony, repeated at short intervals. In some of these, as in those far more embarrassing cases where foreign bodies have passed the rima glottidis, and have lodged in some part of the air-passages, an artificial opening will be imperatively required. When to operate and where to make the

opening, will often tax the surgeon's powers to the utmost. On an emergency, no doubt an opening is made most speedily in the larynx through the crico-thyroïdean membrane, the only membranous part through which an opening can be made below the chordæ vocales, and a penknife or a pair of scissors can serve for the occasion. But in the large majority of cases of dyspnœa, in the greater number of emergencies, the most eligible spot in the trachea, we have no doubt, is that pointed out by Mr. McWhinnie, *above* the thyroïd gland, rather than below it. If Mr. Gray could have had the opportunity of perusing Mr. McWhinnie's recently-published observations upon the subject, we think he would have modified some of the opinions he has expressed in the essay before us.

Mr. Poland contributes a short essay on *Injuries of the Chest.* Contusions of the parietes (the effects of different degrees of violence inflicted), if simple cases of contusion—i.e., without injury to the structures peculiar to this region—are seldom of a serious nature, requiring prolonged treatment. Complicated with fracture of the ribs, they are of very frequent occurrence, presenting themselves almost daily in the hospitals in London. From the reported statistics of Guy's Hospital, Mr. Poland tells us they form a ninth or a tenth part of all the fractures admitted. For the treatment of these cases, often cases of great suffering to the patient, as they disable him for the time from following an active life, we readily add the testimony of our own experience in favour of the plan which Mr. Poland terms "by far the most preferable," the application of long strips of adhesive plaster, extending from the spine to the sternum, applied to some distance both above and below the fracture—in fact, so as to embrace the greater part of the affected side. Strips of sticking plaster are retained more easily than any kind of bandage, and they have the advantage of restraining the motions of the injured side of the chest without interfering with the free action of the other side in breathing.

From the consideration of these, and the less frequent fractures of the cartilages or of the sternum, Mr. Poland passes to the far more serious injuries and wounds of the contents of the chest. Of the penetrating wounds—those involving the pleura and lungs, with their attending complications—it may be observed in general that, notwithstanding all the modern helps to aid the surgeon in his investigations, and with the increased knowledge acquired in modern times of the diseased conditions of the thoracic viscera, the diagnosis is often most obscure:

"There are no absolute signs," Mr. Poland remarks, "upon which we can decide; we must await the issue, and maintain a strict watch for any symptom or complication which may set in. Our prognosis must be guarded, and must always be considered unfavourable for at least four or five days before the patient can be pronounced to be out of danger; and in expressing any opinion, it must be recollected that the surgeon is not bound to state whether a wound has penetrated the chest or not." (p. 355.)

A foreign student, meaning to kill himself, took a long amputating

knife, and passed it slowly through the left side of his chest, with the intention of transfixing his heart. The blade was passed completely through the chest up to the handle, and made a considerable wound where it passed out below the point of the scapula. He withdrew the knife, and was greatly surprised to find himself still living and breathing. As he was feeling for the wound, in order to pass the knife again, and to transfix his heart effectually in a second attempt, he was disturbed by the servant coming into the room. The late Mr. Farish was summoned to his assistance. Under his care, in conjunction with Mr. Stanley, the student recovered, and returned to his own country. The chief treatment consisted in low diet and free bleeding. Was the lung transfixed? It was thought not. Probably the air entered the chest as the pleura was opened by the point of the knife, and the lung collapsed, and escaped, so as to avoid the direct passage of the blade through its substance.

Injuries of the Abdomen (excluding cases of hernia) are treated by Mr. G. Pollock in a full and comprehensive essay, in which he introduces them to the notice of the reader as "accidents generally of a grave character, with the effects of which the surgeon has frequently, but too often hopelessly, to combat." (p. 388.) Of the more severe injuries, complicated with rupture or protrusion of viscera, Mr. Pollock's extensive experience has furnished abundant examples, and his practical comments upon the cases he relates are sufficient to encourage us to persevere in the most active and assiduous attention, with a hope that our efforts may not be useless.

In treating of contusions, Mr. Pollock gives a caution that in examining a patient in case of a blow or any violence received on the walls of the abdomen, the *utmost* amount of mischief that may possibly result should not be overlooked; even a slight contusion must not be regarded too lightly. Many circumstances must be fully inquired into in the first instance before we can decide on the probability, as well as on the extent, of deep-seated mischief. "Contusions," he remarks, "are various in their primitive, as well as in their subsequent, conditions." (p. 389.)

Referring to the prevalent idea that *sudden*—i.e., instantaneous—death may result from a blow on the epigastrium, without leaving any trace of injury, any actual appreciable alteration or injury of the parts contained in the cavities of the abdomen or thorax, such as can be detected on examination after death, Mr. Pollock proceeds to inquire, at some length and with great care, into the evidence we possess to justify us in accepting the popular statement. Among the reported cases little certain can be deduced from the short notes recorded of the post-mortem examinations.

"We are well aware," he observes, "that in such examinations in past years, exact pathological conditions were not appreciated as they are now; and that many times deaths were apt to be attributed to accidents or insufficient causes, which in our days are known to depend on actual disease." (p. 394.)

In treating of the *Injuries of the Pelvis*, Mr. Birkett, somewhat

restricted in his subject (for the diseases of the urinary organs and of the female generative organs are reserved for future Essays), describes with pathological accuracy the immediate symptoms and ultimate effects of the different injuries commonly suffered by the soft parts and bones, as well as by the viscera contained in the pelvis, and the organs in relation with them; these injuries, generally speaking, becoming of importance in proportion as they affect the functions of the organs in relation with the pelvis. Mr. Birkett relates from his own experience many cases well illustrating the danger to life, and confirming the principles he lays down for the treatment of them.

Fractures and displacements of the bony parts are of frequent occurrence, and usually are severe in character: the danger from such injuries arising in great measure from the contents of the region being involved in the mischief; the diagnosis being often a matter of great difficulty.

A farmer's lad, aged eighteen years, was knocked down by a waggon, and one of the wheels passed over his pelvis as he lay on his belly. Abscesses formed about the hips and perineum. At the end of eighteen months he was able to follow his work, but stiff about the left hip. Nine years after the injury he came under our notice, to obtain relief for some obstruction, of recent origin, to the free passage of his urine. We removed a rough narrow piece of bone, about an inch and a half long, from the urethra. At that time the left hip was firmly anchylosed, and the cicatrices of the different abscesses were all firmly healed. Afterwards fresh abscesses formed about the hips and perineum, and he died exhausted, under the discharge, about two years after we saw him. No examination of the body was made.

The *Injuries of the Upper Extremity* are treated in a full and elaborate essay by Mr. Flower, in which he has given the results of examinations and enquiries made through a series of years during which he has been noting the frequency and the nature of the different injuries, more especially fractures and dislocations. Of the wounds received in this region, few, comparatively speaking, call for any especial remark on their nature and treatment; where bloodvessels of importance are opened, the treatment must be conducted in accordance with the general principles applicable to wounded vessels in other regions. The difficulty often experienced in finding the divided extremities of a deeply-seated artery in the hand, at the bottom of a small wound, which from its anatomical relations cannot be freely enlarged, makes such cases, Mr. Flower remarks, an exception to the rule, otherwise generally followed, of tying a wounded artery at the seat of injury, and compels us to seek other means of restraining the hæmorrhage. Mr. Syme has given it as the result of his experience, that bleeding at and below the wrist (and at and below the ankle), is always under the control of pressure, provided it is properly employed; and the general experience of surgeons, we think, will confirm this. In what way the requisite pressure is to be applied and maintained, still remains a question; and the solution of it is often a task of no small difficulty to the practitioner. The *circulation*, so to speak, must

be checked. The pressure must be uniform and continuous; the object is to lessen the impetus of the advancing stream of blood. A paper with some extremely useful and practical remarks upon this subject was published several years ago by Mr. C. D. Arnott, of Gorleston, who says truly, that there are no vessels in the body, of corresponding magnitude, more favourably situated for easy, accurate, and efficient compression than those of the fore-arm and arm.

The frequency with which the clavicle is broken, and the loss of power generally following immediately on receiving the injury, give a claim to the attention received from Mr. Flower. Prominent as the bone is, and thinly covered at the most usual seat of fracture, it is rather wonderful how many cases come under the notice of surgeons at various periods after the fracture, for which no treatment has been received, the injury not having been detected. In the description of the symptoms, the diagnosis and the treatment of fracture of the clavicle—as, indeed, of the other bones—Mr. Flower's remarks are generally accurate and practical, and the result of extensive observation and study. In children it often happens that the injury is overlooked. The child has had a fall or a blow, and will not move its arm from its side. Union takes place readily. After two or three weeks, perhaps, an odd-looking lump is observed upon the clavicle, and medical advice is sought by the parents for removal of this deformity. In the adult, it is not so often that the fracture is overlooked. Inability to move the limb, following immediately on the accident, or the pain that attends the attempt to use it, drives the patient at an early period to the surgeon. Though this may be generally the case, it is not universally that "the patient is unable to lift the arm to the head, or to move it extensively forwards or backwards, at least without much suffering." (p. 527.) A gentleman, who had been engaged in business in the country, where he had been thrown from a horse, applied to us on his return, complaining of the practitioner in the country, who told him he had broken his collar-bone, and put his arm in a bandage. Swinging his arm about freely—over his head, among other motions—he insisted on a condemnation of the opinion given. Upon examination, we found the fracture clear enough; there could be no mistake about it. Having readjusted the bandage we sent the patient home, promising to pay him a visit before bed-time. We then found the patient had stripped his clothes off—bandage, of course, included, which he thought of little use—and had given himself a shower-bath, as the best means of recovering from the fatigues of his journey. At one of the hospitals in London, a question arose in the committee of management about the real nature of an injury, in the case of a casual patient, who had applied for treatment of a recent injury of the shoulder; this had been reported by the house-surgeon to be a fracture of the clavicle—a diagnosis which had been since disputed by one of the numerous tribe of "bone-setters." The lecturer on anatomy, sitting at the board, gave it as his opinion that the house-surgeon's diagnosis must be erroneous, because the patient had been able to raise his hand above his head. The lecturer on surgery, when he heard of

this—jealous for the reputation of his former pupil, the house-surgeon —mentioned the circumstance to us, among others of his professional friends, adding his own opinion that the power to lift the hand above the head was not of itself convincing evidence that the clavicle was unbroken. In the cases which afterwards came under our observation we made the experiment; and it happened so rarely that the patient was unable to make the disputed movement, that we ceased to take any note.

The nature and the varieties of fractures involving the shoulder, the elbow, and the wrist joints, are well described; and Mr. Flower has not overlooked the difficulty in the way of forming an accurate diagnosis during life, while he points out the necessity of it, as conducive to a satisfactory mode of treatment of these complicated cases. In the elbow-joint, more complicated than either of the others in its osseous relations, such remarkable varieties have been found upon dissection, and the symptoms during life seem so various, that we incline to doubt whether it often happens that any two are exactly alike in anatomical particulars.

Common as dislocations of the humerus are, "their pathology," Mr. Flower remarks, "is still imperfectly understood, and great discrepancies exist in the classification and descriptions given by various writers who have directed their attention to them." (p. 564.) With the view to greater precision in describing the different varieties, Mr. Flower proposes a more definite system of nomenclature, a simplification of that of Malgaigne and the modern French surgeons, in which the names are derived from the relation of the head of the bone in its new situation to important contiguous osseous structures:—Sub-coracoïd, forwards and slightly downwards; the most common form of the dislocation. Sub-glenoïd, downwards and forwards; a rare form, though often, under the name of "dislocation into the axilla," described as the most common. Sub-clavicular; very rare, the most difficult of reduction, sometimes resisting every attempt, even in the hands of the most experienced. Sub-spinous, backwards, on to the dorsum of the scapula; the rarest form of all, the most easy of reduction, and, though not likely to be confounded with any of the others, yet sometimes overlooked; though rare, opportunities in sufficient number have been found to study the effects of this accident in its anatomical relations.

Mr. Flower's descriptions of the symptoms, varieties, and anatomical characters of these injuries, and of the after changes which take place in the affected structures when left unreduced, are full and accurate; and they are well deserving of the attention of surgeons, of those especially who are engaged in educating students for practice. In the face of the facts demonstrated by anatomy, "it is difficult," Mr. Flower observes, "to understand how the wide-spread error of regarding the sub-glenoïd as the typical form of dislocation at the shoulder-joint, should have been so long maintained." (p. 566.)

A surgeon, now of large experience, once told us that, having started in life with the approved knowledge of this subject, "the wide-spread error," as Mr. Flower would say, he was much puzzled with the

first cases of dislocation of the shoulder he had to treat in private practice. He met with the sub-coracoïd form again and again, many times in consultation, where the first attempts at reduction had failed. The sub-glenoïd variety, he told us, he had seen but rarely; it is most frequently reduced without difficulty, we incline to think, in an early attempt.

Some other varieties, very few in number, we think, when unattended with fracture, may undoubtedly now and then be seen, in the position of the head of the bone, which cannot be arranged with perfect justice under these four heads. The particulars of the late Lord Langdale's accident, which happened when attending a meeting of the Trustees of the British Museum, have not, we believe, been laid before the profession. If we understood rightly the description given by the former President of the College of Physicians (Dr. Paris), who was the only person present (if we may except the noble patient himself) with medical knowledge, the head of the bone was in the axilla, and the arm held immovable in an elevated position, with the elbow above the shoulder-joint.

It seems to us an omission that the bending of bones has not been included among the injuries to which the upper extremity is obnoxious. Although the literature on the subject is not extensive, there is no doubt of the occurrence of such a lesion. In surgical writings the fact requires to be noticed. It would seem uncertain at what age a cartilaginous bone exists that is liable to bend; and it is an interesting question to consider the ages, with the peculiarities of constitution and other favouring circumstances, at which persons are liable to such an occurrence.

Mr. Holthouse has contributed an Essay upon the *Injuries of the Lower Extremity*, taking the fractures and dislocations for the chief subject of it. In describing the fractures about the hip-joint, he has condensed what has been written by preceding authors, and which in past years formed a subject of continued controversy among anatomists. The reader will nowhere find the symptoms, causes, and varieties of these cases more clearly set forth. Since the general adoption among English surgeons of the straight position of the limb in all fractures of the thigh-bone, the difficulties formerly found in treatment have been much lessened; union takes place more favourably, and the resulting deformity in these, as in fractures of the shaft of the bone, is found to be less.

In fractures of the shaft, it still remains a question how to hinder the shortening of the limb which the close observation of modern surgeons shows to be all but universal when the accident happens to an adult.

"With the full knowledge of this tendency to shortening, and with every attempt to prevent it," Mr. Holthouse says, "he has not yet succeeded in a single case in the adult: nor has he found, in upwards of 100 specimens which he has examined in the various museums of the metropolis, more than one in which there was not some shortening." (p. 613.)

The comparison of the two limbs has been made by Mr. Holthouse,

as by other observers, by measuring "from the anterior superior spinous process of the ilia, to the lower border of the patella, to the extremity of the outer malleolus, and also to that of the inner malleolus." We have been in the habit ourselves of taking the measures from the trochanter major to the centre of the knee-joint, at the point where the outer condyle is in contact with the tibia, where the articular surfaces of these bones meet, and to the centre of the outer malleolus. It wants, perhaps, a practised eye and hand to obtain a good and correct measurement, taking it from these points; but it seems to us to be the only way in which the length of the thigh-bone itself can be measured with accuracy.

"Whatever plan of treatment may be selected, it is essential to bear in mind that the amount of shortening is to a great extent within the control of the surgeon; and though he may fail to prevent it altogether, he may greatly diminish it by care and frequent supervision." (p. 619.)

It is *attention*, Mr. Skey has remarked, that is required for the successful treatment of fractures.

When a man breaks the patella—if he knows it, for he does not find it out invariably—he is not always willing to submit to the amount of rest which the surgeon tells him is necessary; he has not "broken his leg," and he soon thinks he has been confined long enough. Union by bone does not follow, and the fragments are widely separated.

"The great rareness of bony union in transverse fractures of the patella," Mr. Holthouse observes, "is owing simply to the difficulty of keeping the fragments in sufficiently close apposition; when this is accomplished, bony union occurs as in other fractures." (p. 623.)

The resulting disability of the limb, however, is not so great as might be expected. The late Mr. Lonsdale has observed that as long as the upper fragment of the bone remains within the trochlea of the femur, the patient will have a comparatively useful limb. A friend who has the medical charge of the servants at a large station on a railway, told us how he once treated a transverse fracture of the patella in one of the porters. He went to the engineer's workshop, and himself superintended the construction of the apparatus he wanted. The workpeople entered well into his views, and, with excellent mechanical skill, fitted a large wooden splint to the back of the limb, with an ample supply of leather straps well padded. Our friend described it as being "not a splint, but a piece of timber." The machine answered its purpose, and bony union followed.

Among the dislocations of the lower extremity, those of the hip are the most important, not only from the frequency of their occurrence, but also from their liability to be confounded with other injuries—such, for instance, as fracture about the head and neck of the thigh-bone. Mr. Holthouse adopts the generally accepted arrangement of those dislocations which happen in sufficient numbers to admit of a regular classification; two backwards, one where the head of the thigh-bone is thrown upwards and rests upon the iliac bone, above the margin of the ischiatic notch, and the other, where it rests in the

notch, upon the muscles or ligaments which close the opening; and two forwards, one where the head of the bone rests upon the foramen ovale, and the other upwards, where it rests on the pubic bone. The question, discussed by several previous writers, whether these four species are more than varieties of two large and easily distinguished classes—dislocations backwards on the ilia, and forwards (or inwards) on the ischium and pubes, is considered by Mr. Holthouse; and he has given a full description of the symptoms and anatomical characters of each of these injuries, with their diagnostic peculiarities, as well as the various methods which have succeeded in effecting reduction, not only in simple cases but in those where the dislocation has been complicated with other injury to the neighbouring structures. He refers with approbation to the modern method, or rather the old one revived, of reduction by manipulation, which has been practised, he says, "from the earliest times."

Other "anomalous" cases of dislocation have been recorded by different observers; but there have not been sufficiently numerous examples of each to enable anatomists to arrange them in classes.

The closing subject—forming about a fourth of the whole volume—is a systematic and comprehensive treatise on the *Diseases of the Eye and its Appendages*, from the pen of Mr. Dixon. Forming, as the treatise does, a part of a general system of surgery, the author does not profess to include all matters which are to be found in works specially devoted to this branch of surgery. The different subjects included in his present treatise are arranged under the heads of the tissues which become the seat of disease, either local or constitutional, or are liable to injury from external violence.

In selecting a few heads under which to group the different diseases of even one species, the author has been guided by the very decided peculiarities which certain forms present, or by the marked difference in the treatment they require. This mode of arrangement of the subject is useful to the practitioner, and convenient for reference. As a matter of history, he refers to the severe antiphlogistic treatment once practised in London in diseases considered to be inflammatory, and recommended by writers of acknowledged authority, early in the day when the knowledge of diseases of the eye first began to be cultivated as a branch of professional study in England. When the fact once became recognised by the profession that the severest form of purulent inflammation of the conjunctiva could be of local and not of constitutional origin, the treatment became simplified, and the local application of astringents at once superseded the bleedings, the mercurials, the counter-irritants, and the thin dieting, under which success had scarcely ever been attained. This "contra-stimulating" system of treatment in other forms of disease, and preparatory and subsequent to operations, and the theories which gave countenance to the practice, did not so rapidly lose favour. Indeed, Mr. Dixon's observation tells him that the practice and the theory are still to be found lingering among us.

Much of our existing knowledge of the pathology of the eye, and

(as a necessary accompaniment) a large part of the improvement in our practice in the treatment of its diseases, has arisen from the better acquaintance we have only lately obtained with the appearances of the living structures and of the progress of disease, or of reparative action. The ophthalmoscope is an innovation for which the patient has as much reason to be thankful as the surgeon. Mr. Dixon has given a short account of the introduction of the instrument, with some critical remarks upon the different kinds which have been hitherto brought before the profession. Valuable as the help is derived from such an instrument, it is not to be expected that it can clear up all previous difficulties in diagnosis, or that it can show every morbid change in all diseases of the eye, when so considerable a part of the visual apparatus is within the cranium. While professing to present to the reader merely a sketch of what he is to look for in an eye which fairly performs its functions as an organ of vision, Mr. Dixon has given a remarkably clear and truthful description—as far as a verbal description without the aid of coloured diagrams can be called such—of the ophthalmoscopic appearances of the eye in health and under disease. This will be found of inestimable value, as it may recall to memory the peculiarities of form and colour once studied in the living subject.

Without indulging in minute and tedious subdivisions, Mr. Dixon's descriptions of diseases and their symptoms are discriminating and concise, and the directions he gives for treatment are judicious and practical.

On a careful perusal, we think the reader will see how much Mr. Dixon has simplified a complicated branch of surgical science. He will find the treatise to be the production of a surgeon of extensive experience, and of great practical acquaintance with the subject on which he writes; and although Mr. Dixon does not profess to include all forms and varieties of diseases and injuries of the organ of sight, we do not think the reader will find that much of importance has been omitted. We cannot say that we know any work of similar size which the practitioner or student may peruse with greater pleasure, or one which in so small a compass conveys so much practical information.

PART SECOND.

Bibliographical Record.

ART. I.—*The Spas of Europe.* By JULIUS ALTHAUS, M.D. *London*, 1862. pp. 494.

WE welcome with pleasure the painstaking and conscientious treatise 'On Mineral Waters and their Applications,' which Dr. Althaus has produced. It is not to be expected that such a work should contain much that is original, or that it should enter into those exhaustive details with which the voluminous productions of French and German hydrologists abound. In countries where a trip to the baths, or six weeks under one of the numerous "cures" which are now in fashion, is looked upon as a regular annual pastime, not to say a positive duty, the demand for such works is sufficiently developed to justify their publication. With us, however, such a treatise as the comprehensive 'Dictionary of Mineral Waters,' by M. Durand-Fardel and others, which we lately noticed,* would be a speculation in which no one who has a desire to be on the right side with his publisher would care to embark. But there has for some time been a want in English medical literature of a book which should bring the subject of balneology up to the level of recent researches, and should contain sufficient information as to the general character of the principal watering-places of Europe, to guide the medical practitioner in selecting an appropriate one when circumstances require him to do so. For our own part, we have little expectation that hydrology will ever take the prominent position in English therapeutics that it occupies in those of the Continent. Various reasons prevent its doing so. But it is, nevertheless, desirable that every medical man should possess such a general acquaintance with its principles as may enable him to have recourse to its assistance in those cases in which its utility has been well established. As Dr. Althaus justly observes, there is no work in the English language which can be said at all to represent the present state of this department of medical science. He has, therefore, in the publication of this work, addressed himself to meet a most undoubted want, and we must add that he has done so in a way that fully justifies the reputation which he has already established for accuracy, erudition, and practical acquaintance with the subjects which he takes up. We strongly recommend every medical man to provide himself with it who requires a convenient epitome, not only of our present knowledge on the subject of mineral waters, but on that of balneology in general.

* No. 57, p. 68.

ART. II.—*Religio Chemici.* Essays by GEORGE WILSON, M.D., F.R.S.E., late Regius Professor of Technology in the University of Edinburgh.—*London* and *Cambridge*, 1862.

THIS volume consists of seven essays, which, with one exception, have been published before. The author had intended to have written a book corresponding to the 'Religio Medici' of Sir Thomas Browne, but ill-health and a premature death prevented the accomplishment of the project. To the three or four fragments of this plan which Dr. Wilson's indomitable courage enabled him to prepare, three biographical sketches—of Boyle, Wollaston, and Dalton—have been added; and the collection thus formed, however inaccurately its title may describe it, is of no mean interest or value.

Dr. Wilson's memoir of Robert Boyle displays a large amount of careful research and acute criticism, and it is written in a lively and attractive style. His estimate of Boyle's rank as an inventor and discoverer, is based upon a close examination of the relative merits of the men of science of that day, and concludes with a warm and well-deserved tribute of praise to the chemist, physicist, naturalist, and philosopher who devoted his whole life to continuous and varied labours, with the settled desire of imparting new benefits to his fellows. Boyle's connexion with the origin of the Royal Society, and with the early history of the air-pump, of the thermometer, and of phosphorus, together with his countless observations, and his experiments—chemical and physical—render his name for ever memorable in the annals of almost all branches of natural science. Yet for all this, he is not often referred to as a chemist, except by professed historians of chemistry. Indeed, as Dr. Wilson says, he is known to many only by reason of "a certain noisome compound of sulphur, hydrogen, and nitrogen, called of old the 'fuming liquor of Boyle,' which still continues at times to offer up its sorry incense to his memory. In natural philosophy, however, especially in pneumatics, he retains, and will retain, a high place as an observer."

Boyle, though he called himself "the Sceptical Chemist," had strong leanings towards alchemy. He was also a great elixir-maker, and an amateur doctor. We must close our notice of this memoir of Boyle by giving in abstract Dr. Wilson's estimate of his character as an "Emeritus Physician." Padua or Leyden, he says, were glad to give their doctor's hat to many less accomplished students of medicine. He was practically acquainted with anatomy, and made several additions to the meagre physiology of the day by his air-pump experiments on living animals, and by his numerous examinations of the secretions and tissues of the body. His knowledge of chemistry and natural history enabled him to prepare novel remedies, or supposed remedies, without limit; these he tried on every one whom he could induce to submit to his treatment. Fellows of the Royal College of Physicians consulted him on the cases of their patients, often, doubtless, to good effect; while numerous correspondents begged of him a few drops of "Ens

Veneris," or some "Aqua Limacum," or "the ashes of a toad burned alive in a new pot."

The notices of Wollaston and Dalton are equally interesting. Dr. Wilson tells not only of what these illustrious men did, but of what they were; it is, however, impossible within our narrow limits to give a fair idea of his treatment of their character and life. Wollaston's scientific memoirs were numerous and most varied in subject; nearly all of them are of permanent value. His camera-lucida and reflecting goniometer, and more especially his process for rendering platinum malleable, were vast boons to science and the world, even should platinum be worked henceforth by fusion, according to the method lately perfected by Deville. The historical development of the laws of definite proportion, and of the atomic hypothesis, is carefully delineated by Dr. Wilson, in his notice of the life and labours of Dalton—a notice which in all respects is very ably written.

The four remaining essays, from which, indeed, our author's book is named, are chiefly occupied with discussing the relations of natural science (of chemistry, more especially) to theology. The various subjects—"Chemistry and Natural Theology," "Chemical Final Causes," "The Chemistry of the Stars," and "Thoughts on the Resurrection"—are handled with skill and candour. The reasoning is too condensed to admit of further reduction; we can only say here that the author does not shirk difficult and painful problems; that his arguments, if not very profound or original, are frequently illustrated by fresh and striking examples (such, for instance, as some of those which he cites to show the happily-contrived relation and interdependence of the inorganic and organic kingdoms, and the eminent fitness of certain elements for the functions they have to perform); and lastly, that he seldom, if ever, sacrifices the truths of science in order to make out his case, thus avoiding the serious error into which many writers have fallen. We refer particularly to the common mode of discussing (or rather of omitting to discuss) the great problem of the existence of physical suffering. We commend to the attention of our readers the arguments given on pp. 41 to 50 of this interesting and pleasant work.

ART. III.—*Phosphorescence, or the Emission of Light by Minerals, Plants, and Animals.* By T. L. PHIPSON, Ph.D.—*London*, 1862.

MR. PHIPSON'S account of cases of phosphorescence is, without doubt, of considerable interest. He introduces the subject, the extent of which is by no means rigidly defined, by narratives of the discovery of Bologna phosphorus (sulphide of barium), of Canton's phosphorus (sulphide of calcium), and of phosphorus *par excellence*. In the various chapters on "Phosphorescence after Insolation," "Phosphorescence by Heat," "Phosphorescence by Cleavage, Friction, Percussion, Crystallization, and other Changes," "Meteorological Phosphorescence," and the "Phosphorescence of Vegetables," many noteworthy facts and observations are recorded with care; it is, however, in the third part of the volume, on the

"Phosphorescence of Animals," that its chief interest centres. The phosphoric light emitted by dead animal matter, the phosphorescence of the sea, of the earth-worm, of various species of scolopendra and of certain insects, are the chief phenomena here detailed; but it is the account given of problematical cases of phosphorescence in higher animals, and phosphoric phenomena observed in man, which specially arrests attention. On page 159, a case of phosphorescence witnessed by Dr. Kane in his last voyage to the Polar regions, is narrated at length. Dr. Kane and Petersen were in a perfectly dark hut at Anoatok, the temperature being $-34°{\cdot}5$ Centigrade, when a faint tremulous light occurred on their hands accidentally meeting. This light was sufficient to enable Dr. Kane to find the necessary materials for relighting his lamp, which had gone out, and thus averted, in all probability, a terrible catastrophe. Mr. Phipson reasonably refers this phenomenon to the electrical condition of the atmosphere.

Several cases of the phosphorescence of the living human subject, generally in cases of extensive disease, are then noted (pp. 163–167). Here, as elsewhere, our author's attempts at explanation are vague, and promise more than they fulfil. His theories are not applied to the special cases under review, and seem little more than an imperfect *résumé* of the well-known principle of the correlation of forces. As a record of observations, the book is valuable, and it is got up with great care, but it fails to advance our knowledge of the causes of the phenomena in question. It is no explanation of the nature of the Will-o'-the-Wisp to say that it is "connected with . . . . curious cases of luminous mists . . . . in which electricity doubtless plays an important part."

ART. IV.—*Crania Britannica: Delineations and Descriptions of the Skulls of the Aboriginal and Early Inhabitants of the British Islands; together with Notices of their other Remains.* By JOSEPH B. DAVIS, M.D., F.S.A.; and JOHN THURNHAM, M.D., F.R.C.P. Lond., F.S.A., &c. Decade V.—*London*, 1862. Published by Subscription.

IT is a matter of just pride with the medical profession to point to the very large contributions made by its members to the progress of most of the sciences, and particularly of the natural history sciences. The valuable and extensive work the title of which we have above given in full, is calculated to bring honour alike to the profession and to the country producing it. It is now nearly complete, one more part or decade alone remaining to be published; and we are glad to observe, in the list of subscribers, the names of so many medical men, and also those of so considerable a number of men eminent in literature and science.

The work has a twofold character—being, on the one hand, natural-historical, descriptive of crania of various races, and their peculiarities and relations in an ethnological point of view; and on the other, antiquarian, setting forth a history of the arts and civilization of the

various tribes which have from time to time dwelt in these islands. The present decade comprises a most able sketch, by Dr. Thurnham, of the historical ethnology of Britain, in which the religion, the mythology, the language and letters of the various races are discussed. This is followed by an "ethnographical sketch of the successive populations of the British islands," which will be completed in the ensuing decade. Both these essays exhibit most extensive and accurate research, and a thorough knowledge and judicious criticism of ancient and modern authorities on the subjects in hand.

The figures of the crania are of life-size, and beautifully engraved and printed on thick paper; whilst numerous woodcuts are introduced in the pages of the work in further illustration of crania, of the weapons and utensils found with these, and of the barrows or burial-places in which the remains have been discovered.

Ethnology, as now scientifically pursued, is a modern department of knowledge, of most wide and varied extent and of the highest interest, which, whilst on the one hand it addresses itself to the student of languages, or to the student of archæology—it does so, on the other, to the anatomist, and consequently to every member of the medical profession who can find gratification in the progress of other than the mere knowledge connected with the pursuit of his own craft. How much opportunity, if seized on and used, the members of our arduous profession may find in the desirable and salutary pursuit of subjects extraneous to it, is forcibly exemplified in the work before us, which is the product of the labour of two gentlemen—the one, the medical superintendent of a large county (Wilts) asylum; the other, a general practitioner in a manufacturing district (Hanley), charged also, we believe, with poor-law parochial appointments.

With Dr. Davis the work already done appears to serve as an inducement to further labour, for the cover of the present decade apprizes us of his commencing a still wider subject—viz., the examination of the crania and of the human races in all parts of the world, commencing with the sub-Himalayan tribes, under the title of 'Amœnitates Ethnographicæ,' also to be published by subscription. We heartily wish him success, and commend his labours to the support of our readers.

ART. V.—*The Principles of Biology.* By HERBERT SPENCER. *London,* 1863. pp. 80.

THIS tract is marked No. 7 of the author's system of philosophy. We have read it with interest, we cannot say with complete satisfaction. As the production of a thoughtful and inquiring mind, of one who has made himself familiar with the phenomena of life, of which he attempts to evolve the principles, we can recommend it to those who are not likely to be repelled by its speculative and somewhat transcendental character. The author offers his observations in five chapters: the first, on organic matter; the second, on the action of

forces on this matter; the third, on the reaction of organic matter on forces; the fourth, an approximate definition of life; the fifth, on the correspondence between life and its circumstances; concluding with this definition of life, that it is "the continuous adjustment of internal relations to external relations."

The difficulty of defining life in an unobjectionable manner is very characteristic of the obscurity of the subject. Mr. Herbert Spencer is satisfied with his own attempt, made after a searching criticism of the attempts of others. Will his definition bear a like examination? We have our doubts that it will. Adopting it, must we not admit the earth's surface, the fertile soil, to be of the same category as the plants it sustains, and like them, endowed with life? for how perfect and continuous is the adjustment of its internal relations—substances in constant change—to its external relations—substances in constant action on the earth, atmospheric air and vapour, and instrumental to these changes.

Whether Mr. Spencer would allow the earth thus to be comprised in his definition we know not; but there is one recent writer who, it appears, would not object—Mr. Hinton: this gentleman maintaining in his work, entitled 'Life in Nature,' that there is no essential difference between the organic and inorganic world.

Need we say that our impression of the difficulties and obscurity of the subject is not lessened when we reflect either on the peculiar qualities of organic matter, or on the varied agencies or powers concerned in the production of the phenomena of life? Though we apprehend the time is not yet come for the establishment of the principles of biology, yet it may be well for the attempts to be made; even provisional or quasi-principles, may have their use so far as they may conduce to sober discussion, and excite experimental research.

ART. VI.—*On the Growth of the Recruit and Young Soldier, with a View to a Judicious Selection of Growing Lads for the Army, and a Regulated System of Training Recruits.* By WM. AITKEN, M.D., Edinburgh, Professor of Pathology in the Army Medical School, &c.—*London*, 1862. pp. 70.

THIS little work is very creditable to its author and to the new medical school from which it proceeds. To the medical officer in the performance of the very responsible and difficult duty of examining recruits, it cannot fail to be of great value, as affording exact rules, the results of accurate physiological inquiry on growth and development from the age of eighteen to twenty-five and thirty years.

The author's main proposition is, that there is a certain normal correlation of age, weight, and stature, any deviation from which is indicative of unsoundness of organization, and is likely to be connected with or to be productive of disease. The illustrative details by which he supports it by reference to osteology, to skeletons of different ages, and to particular bones, are most interesting and very highly instructive.

The book is very properly dedicated to the Right Honourable the Secretary of State for War, from whom he makes two quotations, one at the beginning, the other towards the end. This, on a sound method of observation and inquiry, applicable to all questions bearing on the nature, the prevention, and cure of diseases; that, on the improved health of the army, as denoted by diminished mortality, attributable to the recent ameliorations of a sanitary kind affecting the condition of the soldier. As we are sure that the results will be gratifying to our readers, we shall insert them:—

"*Deaths among the Troops serving in the United Kingdom annually per* 1000 *Men.*

	From 1830 to 1836.		1859 to 1860.
Generally throughout	14	...	5
Cavalry of the Line	15	...	6
Royal Artillery	15	...	7
Foot Guards	21	...	9
Infantry of the Line	17	...	8

"*Similar Returns from the Colonies are as follow:—*

	From 1837 to 1856.		1859 to 1861.
Gibraltar	22	...	9
Malta	18	...	14
Ionian Islands	27	...	9
Bermuda	35	...	11
Canada	20	...	10
Jamaica	128	...	17
Ceylon	74	...	27."

One more remark we will make, and it is to express the hope that a work of such practical usefulness will have the attention, not only of the medical officer, but also of officers commanding regiments and their adjutants, who, with their drill-serjeants, hitherto have acted in ignorance of those physiological laws concerning growth, a neglect of which, in a forced and rapid training of the young soldier, is in a high degree dangerous. We need hardly add that the same danger is incurred in any severe training, whether of young men in civil life, or of young animals, whether of the collegian for a boat-race, or of a three-year-old for Newmarket.

ART. VII.—*Air and Water: their Impurities and Purification.* By HENRY BOLLMANN CONDY.—*London.* pp. 60.

THIS is a valuable work, containing *multum in parvo*, and to be recommended both for its sound chemistry, and for the very useful, indeed excellent, instructions which it contains, both for the purification of bad air and of bad water. Though a popular treatise on air and water, it may be read with advantage by the man of science. It is specially informing respecting atmospheric impurities, and their great natural antidote—ozone. Moreover, though written evidently to bring into notice a patent deodorizer—the alkaline permanganates—it has nowise the character of an advertising publication; indeed, we are pleased

with, and even thankful for, the testimonials appended—those of men distinguished in science, such as Baron Liebig, and others, who, we are very confident, would not write as they have done in favour of Mr. Condy's discovery, unless they were fully satisfied of its efficacy.

The book deserves a more extended review than our limited space permits. This, however, we think it right to add, our conviction—viz., that the alkaline permanganates, as purifiers, disinfectants, and deodorizers, are superior to any other we are yet acquainted with; and that they are perfectly fitted to accomplish, under the direction of man in his limited sphere of action, what ozone effects in nature. We need hardly point out, that the admirable efficacy and wide applicability of these compounds depend on the readiness with which they give up a large portion of their oxygen, and on their fixed bases, the alkalies and manganese, being not only innocuous, but, there is reason to believe, wholesome, manganese, it would appear, in minute quantity, as well as the alkalies, entering into the composition of the blood.

ART. VIII.—*The Diet of the European Soldier in India, with the Effects of "Tobacco Smoking" upon the Animal Economy.* By ARTHUR E. T. LONGHURST, M.R.C.S., &c., Assistant-Surgeon H.M.'s 13th Light Infantry.—*Calcutta*, 1862. pp. 82.

WE cannot, on the whole, praise this work, either as regards its matter or style; and we must express our regret that a subject so important has been so imperfectly treated. The object of the author is praiseworthy, and some of his suggestions—the best of them not new—are, however, deserving of attention. His reflections on tobacco, not on its use, but abuse, are of a commonplace kind.

We shall offer only one extract, and that relating to the soldier's ration in India, which, irrespective of climate and season, it would appear is established, without change, as follows, per man—

	lbs.	ozs.
"Bread	1	0
Meat	1	0
Vegetables	1	0
Rice	0	4
Sugar	0	$2\frac{1}{2}$
Tea	0	$0\frac{1}{7}$
Coffee, when tea is not used	0	$1\frac{3}{7}$
Salt	0	1
Wood	3	0"

Moreover, "each man pays the cook four pice per day, two of which he is expected to spend for curry and other articles."

We are glad to see, by a General Order from Calcutta, of October 8th, 1860, that measures have been taken for the establishing "Soldiers' Gardens" for the growing of vegetables for the men's own use. Should they succeed, as they have done in the United States, they will be of inestimable value; and it is to be hoped that the example will be followed in our colonies, especially those in which the soldier's ration is on a less liberal scale than in India.

ART. IX.—*The Theory of Vital Force applied to the Cure of Disease.* By E. HAUGHTON, A.B., M.D., &c. pp. 33.

WE have some difficulty in expressing our opinion of this little work, because we cannot conscientiously approve it, either its science or logic. The author's theory of vital force, which he proposes as the true basis of medical science, seems to us to have the most unstable foundation, resting not on facts but on postulates, such as, there is only one force in nature—"the will of God"—that comprising all physical forces, including vital force; that animals are machines; animal functions the products of these forces acting on an organism; health, vital action in due amount; disease, "a minor degree of life;" "death, an absence of life."

Bacon has called epitomes barren, and most justly; and we cannot but consider hypotheses, such as these of our author, equally so. The time is past for medical science to be advanced by such summary methods and bold assertions as are indulged in by Dr. Haughton.

We envy his confidence in his concluding with the words of the philosopher of Syracuse, "ἑυρηκα, ἑυρηκα."

ART. X.—*Statistical Return of the Health of the Royal Navy for the Year* 1859. pp. 203.

THIS is a continuation of the many valuable reports on the health of the navy, for which we are indebted to the zeal and ability of Dr. Bryson. It can hardly fail of being read or referred to by all those who are interested in medical statistics, and in tracing diseases to their causes; and should it not fully repay their labour, it will not be owing to any omissions that we are aware of on the part of the author, but rather to the obscurity and difficulties inseparable from almost all ætiological inquiry.

It is satisfactory to find how, from year to year, the health of the navy is improving, as shown by a diminished mortality and a diminishing loss of men to the service by invaliding. The total mean force afloat in 1859, is stated to have been 52,825 of all ranks and ratings, yielding of sick and wounded 81,325, of which number 1994 were invalided, and 886 died, the first being in the ratio of 1540·2, the second of 37·7, and the third of 16·7 per 1000 of mean force.

"These ratios," remarks Dr. Bryson, "compared with the preceding year, are most satisfactory; for, notwithstanding the number of deaths from wounds received in action in the Chinese waters, and the loss from an eruption of yellow fever in two vessels on the West coast of Africa, they show a decrease under each head."

Consulting the tables, we find, as usual, that pulmonary consumption, dysentery, and fevers were the most fatal diseases; that the two first produced the greatest number of invalids; and that influenza and venereal complaints brought the greatest number on the sick-list. As usual, too, we find the mortality from wounds and injuries small in

comparison with that from disease, being in the ratio of only 2·8 per 1000 of mean force.

According to former experience, dysentery has been most prevalent in the crews of ships serving in the Eastern seas, especially in China. The use of impure water, it is probable, with great vicissitudes of temperature during the twenty-four hours, have been the main causes there operating; and, favouring the conclusion as regards the water, we find mention made of many of the patients who laboured under diarrhœa or dysentery having been infested with intestinal worms.

Before concluding this our too brief notice of these valuable statistics, we would call attention to one sad feature of them, the great prevalency of venereal disease in our own sea-port towns, and the large number of sailors infected in consequence. Is it not a disgrace to our country that the author should have to write as follows?—

"Portsmouth and Plymouth still maintain an unenviable notoriety for containing a population amongst whom venereal complaints exist to an extent unknown in almost any other town, whether in this country or abroad."

He adds—

"It is much to be regretted that the local authorities" [why not the Government authorities?] "do not take measures to lessen this evil, which, either in its primary, secondary, or tertiary forms, may affect the health, not only of their own families, but of the entire community, and of generations yet unborn."

Dr. Bryson very justly remarks—

"The transmission of syphilis from parents to their offspring is a question which does not appear to have met that serious consideration which it deserves."

ART. XI. — *On Fibrinous Deposition in the Heart.* By W. B. RICHARDSON, M.D., Senior Physician to the Royal Infirmary for Diseases of the Chest, &c. &c.—*London*, 1860. pp. 42.

IN this brochure Dr. Richardson illustrates the subject of fibrinous concretions or deposit within the heart's cavities, as formed before or after death, from various points of view. His observations treat upon the various forms of concretion and the modes by which they are produced; the conditions of disease under which they are formed, and the periods in the course of a disease at which they occur; the symptoms indicating fibrinous deposition, and the point at which it has taken place; as also the value of a knowledge of the subject in the practical treatment of disease. As we hope before long to have the opportunity of presenting our readers with a systematic account of the part played by the fibrine of the blood (as far as our present knowledge serves us) in the phenomena of disease, we do not propose at the present time to dwell at any length upon the various items of inquiry contained in the volume under notice. The whole subject is one which of late years has had much light thrown upon it, and various points in connexion with it have received attention at our Pathological Societies' meetings. Figure six in the volume illustrates the formation of a globe-shaped (or rather pear-shaped) concretion in one of the

cavities, still adherent to the heart's walls (or the mitral valve). The author omits, nevertheless, to mention the occurrence, certainly very rare, but lately, as it so happens, exemplified at the London Pathological Society, of these concretions as perfectly spherical masses lying "*loose*" within the heart's cavities. He notices, however, in connexion with the same figure, the occasional possession by these concretionary masses of vessels distributed throughout them, a fact which we have ourselves never witnessed.

A large number of cases have come before our notice in which the fibrinous concretions have in their interior become thoroughly broken down and softened into a grumous puriform fluid; and so much, indeed, in some instances, has this been the case, that but a delicate film or lamina of firm fibrin has separated the interior diffluent portion from the general blood-current. The question has been asked, what would happen provided that the outer part of such a concretion were to give way, thus allowing the escape and free admixture of the puriform fluid with the blood? It is one worthy of a reply.* The chapters on the symptoms produced by these concretions are not wanting in suggestion; but we do not feel able to regard their diagnosis as quite so easy a matter as Dr. Richardson would have us to think that it is, although no doubt we frequently encounter typical cases, those especially wherein the movements of the valvular apparatus of the heart become embarrassed by the presence of the fibrinous clot or concretion, in which the diagnosis is tolerably straightforward.

In the final chapter, "*cui bono*," the prognosis and treatment of these fibrinous concretions are considered, the treatment having reference, we perhaps need hardly say, to the attempt to prevent their deposition rather than to deal with such after they have occurred—to anticipate, in other words, hyperinosis (whether positive or relative) of the blood.

ART. XII.—*On Chronic Alcoholic Intoxication: with an Inquiry into the Influence of the Abuse of Alcohol as a Predisposing Cause of Disease.* By W. MARCET, M.D., F.R.S., Assistant Physician to the Westminster Hospital, &c. Second Edition.—*London,* 1862. pp. 258.

THE first edition of this small and unpretending but suggestive work was fully brought before our readers in an article on "Alcohol," in a previous number.† The author's views on chronic alcoholism, its predisposing and exciting causes, as also the influence exercised by occupation upon its production, were then commented upon, and especial reference was made to his high estimate of the value of oxide of zinc in its treatment. Since the appearance of that edition, Dr. Marcet has pursued his investigations as to the effects, both good and evil, of spirituous liquors on the human frame; and the results of these inquiries are presented to us in the present volume. This volume also

* See Report of Pathological Society in Medical Times and Gazette, Feb. 14th, and Lancet, Feb. 28th.

† July, 1861.

embraces "several new and interesting cases bearing on chronic alcoholism;" and beginning at page 212, we have a short chapter "On the Administration of Oxide of Zinc dissolved in Water by means of Carbonic Acid." This method of exhibiting the metal has the double advantage of rendering it more easily acted upon by the gastric juice, and of offering it in a more palatable form; for as manufactured, the solution of it closely resembles the ordinary effervescing soda water, "with a very slight metallic after-taste." The author has inserted, towards the close of the work, the observations which appeared as an original communication in our pages, on the "Influence of the Abuse of Alcohol as a Predisposing Cause of Disease."*

ART. XIII.—*Transactions of the Pathological Society of London.* Vol. XIII., comprising the Report of the Proceedings for the Session 1861-62.—*London*, 1862. pp. 284.

THE issue of volumes like the present one is a sufficient proof—thanks to the honorary secretaries especially—that in interest and efficiency the Pathological Society is second to none among the medical societies of our metropolis. We cannot attempt to "review" this volume of Transactions, for to analyse a collection of details such as are contained in a single work like the present one would be impossible, even if, considering its composition, it were not invidious; but we may here observe that we are looking forward to the opportunity of giving to our readers a digest of all, or at any rate the chief facts, which the Society from its foundation has collected together in its various yearly productions. There cannot be a doubt that such a digest, if comprehensive and exact, would be a boon to the whole profession. In connexion with this subject, we may state that in all probability a general catalogue (the want of which has been widely felt, and freely expressed both in our pages and elsewhere) will ere long emanate from the council of the Society. Such an expectation was raised by the remarks of the newly-elected president on entering upon his duties, and its realization would alone suffice to "mark" a period of office.

The volume before us is admirably provided both with plates and woodcuts, and we trust the Society will eschew neither expense nor trouble in continuing such illustrations, as they add extremely to the value of the Transactions.

In conclusion, we would suggest that it seems a matter of regret that such a Society does not undertake in a definite manner the investigation and elucidation of specific pathological points of inquiry. Even the committee on the diseases of the supra renal capsules—a piece of pathology as yet very far from having received all the attention which it deserves—has been dispersed; and we are sorry to find that interest on this subject has so far diminished in the Society, that the present volume contains only seven cases illustrative of the so-called Addison's disease.

* No. 38, p. 485.

PART THIRD.

Original Communications.

Art. I.

On the Influence of Sex in Hereditary Disease.

By William Sedgwick.

There are few subjects in medicine more important than the family history of disease, and there are perhaps few, if any, in which more error and uncertainty prevail. It is chiefly in consequence of this, that whilst all medical observers are more or less ready to obtain information from this source, yet the result of their inquiry is for the most part too unsatisfactory to be of much practical value, for in addition to the apparently contradictory nature of some of the positive evidence obtained, there is often a well-grounded suspicion attached to a large proportion of the negative evidence on the subject, resulting from the unwillingness of relatives to admit the truth in those cases in which it is supposed that its suppression can do the patient no harm, as well as occasionally from a desire on their part to mislead in those cases in which their own feelings or interests are involved, when the question of hereditariness in disease seems to approach too near not to be denied. To these obstacles in the way of obtaining trustworthy evidence must be added the errors resulting from omission on the part of the inquirer, both as regards the extent to which the investigation of hereditary disease is carried, so that the medical history of collateral and remote members of the family is often neglected, and also as regards the prevailing tendency to limit the inquiry to such cases chiefly as present some novel or important peculiarity, in consequence of which many of the recorded cases of hereditary disease are commonly looked upon as morbid curiosities, and are cited only to illustrate what are called "the freaks of nature." Notwithstanding, therefore, the great progress which has been made of late years in other departments of medicine, very little useful information has been added to our previous knowledge respecting the hereditariness of disease, for, beyond some occasional and isolated cases, there are few records of any extent respecting the family history of a single class of what may be called common diseases, except, it may be, the mental, all inquiry into which is beset with such great difficulty that the information obtained is often without value; and in reference to disease generally, if cases of colour blindness and the hæmorrhagic diathesis be

excluded, there are not, so far as I have been able to ascertain, any well recorded series of cases of any disease or defect in which the family history has been fully investigated even for only three generations, short of which no negative evidence connected with the hereditariness of disease is of much value.

The object of the present inquiry is to determine how far hereditary disease is subject to any rule or controlling influence capable of regulating its course and restricting its development. so as to produce some degree of order both in its appearance and transmission, as opposed to the commonly accepted view that both its course and its development are too uncertain and irregular for any controlling power to restrict either the one or the other within certain and well-defined limits; as was once thought to be the case in ordinary travelling before rails were invented, which now, by regulating and restricting the course of the carriage, ensure rapid and continued progress in the right way. In an introductory paper on this subject,* I called attention to the importance of sexual limitation, and briefly referred to the general nature and extent of its influence both on the development and transmission of hereditary disease; and it is proposed in the following pages to continue the same inquiry, not on account of sexual limitation being the only, or in some cases the chief, influence capable of controlling hereditary disease, for there are not unfrequently other influences more or less important, either associated with or independent of it, but on account of there being much in my former paper on the subject which needs to be more fully illustrated and confirmed, before the influence of sex on disease will be satisfactorily established, or the result of the inquiry can be favourably received. From the limited opportunities which have been offered for investigating this subject, it would be somewhat premature for me at present to draw any general conclusions; but from what has been already ascertained, it is not unreasonable to infer that if due attention were shown in "taking" the history of all diseases, so as to determine how far not only the immediate parents or relations of the patient were similarly or not affected, but also the condition of the grand-parents on both sides, and all collateral relations in the order of their birth, that we should possess a series of records of great practical value for determining the extent to which disease is liable to recur in successive generations, and also the probability of its affecting individual members of the same family. If such an investigation could for only one year be consistently carried out at one of our large metropolitan hospitals, where the great number and variety of the cases daily brought under notice, and the almost unlimited means at the command of the medical staff for following up such researches, afford opportunities which far exceed those which are met with in private practice, it is probable that our literature, like that of other countries, would in time be enriched with some useful works, instead of being now, as regards special treatises on the subject, almost exclusively confined to one author (Mr. Joseph

* British and Foreign Medico-Chirurgical Review, April and July, 1861.

Adams) and one work, written chiefly to disprove the inheritance of disease.

In any inquiry respecting the influence of sex in hereditary disease, the cases to be referred to must necessarily be very varied and very numerous, and it has therefore appeared to be a good plan to select for consideration those chiefly which admit of being grouped together in some natural order, so as to avoid the confusion which would result from citing a large number of cases having no common bond of union derivable either from the nature or the seat of the disease itself. With this object in view, it was thought desirable, in the introductory paper on this subject, to refer chiefly to those diseases and peculiarities which affect hereditarily the skin and its dependencies, in which the principle of sexual limitation appears to be particularly well marked. It is proposed to follow out to some extent the same plan now, by citing in the first instance some corroborative cases belonging to the large group already referred to, and then proceeding to illustrate the subject by such additional cases as admit of being referred to some anatomical division of the body, such as the upper and the lower extremities; to some physiological division, such as the cerebral, circulatory, and respiratory systems; and lastly, to notice briefly such other cases as may not have been included under the preceding heads.

Subsequent research has tended to confirm the opinion which was advanced in the paper already referred to, that sexual limitation, although met with in all forms of hereditary disease, is more constant and more strongly defined in those diseases affecting hereditarily the skin and its dependencies, than in those affecting the other organs or tissues of the body; and in thus drawing attention to sexual limitation as more frequent in the hereditary affections of these structures than in those of internal parts, it must not be supposed that there is anything unexpected in its occurrence under these circumstances, for it might be inferred from analogy that if such restriction by sex was a characteristic phenomenon in disease, it would be especially so in connexion with the skin and its appendages, which naturally present peculiarities dependent on sex, which we fail generally to recognise in the structure of internal organs; and in many of the lower animals, as, for example, in the plumage of birds, and in the external structures of insects and other invertebrate animals, the contrast is so great that naturalists have often, by mistake, referred the external and hereditary distinctions of sex to difference of species. In addition, therefore, to the cases already adduced in support of this opinion, the following have been cited to show that on this point the evidence can be almost indefinitely increased, and that further inquiry may be expected to lead to the same or similar results.

With respect to diseases of the skin proper, Rayer* states that the hereditary nature "of many cutaneous affections is one of the best-established facts in pathology," and that "it often follows the law of resemblance and sometimes that of sex;" and he has published some

* A Theoretical and Practical Treatise on the Diseases of the Skin, by P. Rayer, M.D., second edition, 1835, p. 29. Translated by R. Willis, M.D.

interesting cases which may be quoted to illustrate this point. One is a case of general ichthyosis in two brothers; neither the father, mother, nor three sisters had the disease.* In another case, three brothers in one family suffered from ichthyosis.† Similar observations have been made respecting allied forms of skin disease, such as leprosy, psoriasis, and lepra, which are so often hereditary that Alibert,‡ in allusion to the latter, remarks, "nearly all the world agrees in saying that hereditariness is the most frequent cause of lepra." The great frequency of leprosy (sometimes called radesyge) in the northern states of Europe has been already referred to, as well as the severe measures which have been proposed to abate the evil. The disease seems to prevail chiefly in countries imperfectly civilized, and was formerly very common in England and Scotland, as is well shown to have been the case by Dr. James Y. Simpson, in his 'Antiquarian Notices of Leprosy and Leper Hospitals in Scotland and England,' which contains the following case of the direct transmission of leprosy from father to son: "In the Burgh records of Glasgow for 1581, Patrick Bogle is ordered to be inspected for leprosy; and eight years afterwards (1589), 'Robert Bogill, *sone* to Patrick Bogle,' is reported to as an inmate of the leper-house belonging to the city."§ This case is interesting, not merely as an early record of hereditary leprosy, but as an illustration of its direct inheritance in the male line, for it has lately been asserted, and apparently with some reason, to be more commonly transmitted by collateral and atavic, rather than direct descent. In whatever way the transmission may be effected, there is a very general belief in the hereditary character of the disease, and this popular opinion seems to rest, not on any fanciful assumption, but on the fact that different members of the same family have been subject to it; and in addition to what has been already stated respecting the hereditary nature of the disease in comparatively modern times, it may be further urged that Tamerlane, in his widely-extended conquests, everywhere ordered lepers to be exterminated: that in Scotland, where leprosy appears to have been formerly very common, male lepers were, it is said, by law, ordered to be castrated, a practice which it has lately been proposed to revive in Norway and Sweden; and that the attempt made in 1854 by the Royal Commission on Leprosy in Norway to establish a law prohibiting the marriage of lepers would probably have been successful but for the strenuous opposition of Dr. Hjort, who maintains that the disease is not hereditary. This opinion of Dr. Hjort has been very warmly contested by Drs. Boeck and Danielssen,‖ who have adduced evidence to show that whilst leprosy is a thoroughly hereditary disease, it descends more by collateral branches than by immediate succession, and that it also frequently skips over one, two, or three generations, to reappear with fearful severity in the fourth. This statement is quite consistent with what has been observed respecting the inheritance of

* Rayer, loc. cit., p. 972. † Ibid., p. 973.
‡ Déscription des Maladies de la Peau, p. 144. Par J. L. Alibert. Paris, 1814.
§ Edinburgh Medical and Surgical Journal, vol. lvii. p. 405. 1842.
‖ British and Foreign Medico-Chirurgical Review, April, 1858, pp. 336–7.

other diseases, and it not only removes many difficulties, but also reconciles many apparent contradictions, as it will be my endeavour to show in some general and concluding remarks which it is proposed to offer on the nature of atavism as associated with limitation by sex in hereditary disease: and some additional information on this subject may shortly be expected as the result of our own Government Commission of Inquiry on Leprosy in the West Indies.

In the following case of hereditary pityriasis versicolor, for which I am indebted to Dr. H. Stewart, there was limitation by age as well as sex, and moreover atavism through the opposite sex occurred when females intervened to check its direct transmission to males:—A single man, aged twenty-four years, and the eldest son of a family consisting of two sons and two daughters, has well-marked pityriasis versicolor affecting his chest, neck, back, and arms, and which was first observed when he was about fourteen years of age; his brother, now twenty years of age, has it, though not to the same extent; and his father, paternal uncles, paternal grandfather, and seven male cousins on the paternal side, have all been similarly affected; the disease, strictly limited to the males, usually appeared in all of them at puberty, and disappeared about the age of forty or forty-five years; whilst the females of the family, although not suffering from it themselves, have transmitted it to their male children. Dr. Caillault has recorded a case "of local pityriasis in a family consisting of ten children, three girls and seven boys; all the boys, when about four or five years of age, were attacked by persistent *pityriasis palmaris*."* In a strongly-marked case of "Discoloration of the Skin of the Fore-arms and Hands during Pregnancy," brought before the notice of the Obstetrical Society, February 5th, 1682, and which had affected the patient in each of her four pregnancies, commencing at the fourth month, and increasing in intensity from that time, the mother had been similarly affected. A similar case to the preceding has presented itself in my own practice, which possesses additional interest from the fact that whilst bronzing of the skin has hereditarily affected the females, a peculiar and congenital distortion of the little fingers has hereditarily characterized the males: a married woman, aged thirty-four years, the eldest of a family consisting of two daughters and one son, has well-marked bronzing of the skin, especially well marked over the face and forehead, arms and wrists, trunk of the body in front, and upper part of the thighs, which commenced at the age of twenty-five years, during her first pregnancy, and diminished, but did not disappear after delivery; in each succeeding pregnancy the bronzing was progressively more marked, and its diminution after delivery became correspondingly less, so that there is now a very noticeable and permanently bronzed condition of the skin over a great part of the body; her sister, aged thirty-one years, who has also several children, presents the same bronzed condition of the skin, which commenced during her first pregnancy, and has gone through the same progressive

* A Practical Treatise on Diseases of the Skin in Children : from the French of Caillault, p. 139. With Notes by R. H. Blake. 1861.

changes; her brother, aged twenty-nine years, who is married and has a family, is quite unaffected by it; but their mother, who died at the age of fifty-two years, from what is stated to have been disease of the kidneys, had strongly-marked bronzing of the skin, which commenced during her first pregnancy, and followed the same developmental changes: it could not be ascertained whether any other members of the family had been similarly affected.

In addition to the cases of congenital leucopathia previously referred to as hereditarily limited to one sex, I may cite the case observed by M. Rayer,* of Louisa de Brun, aged three years, native of Paris, and an albiness; her sister, aged fifteen years, was also an albiness, and their mother had hair of the very lightest kind: M. Arthaud's† case of female twin albinoes, in the Antilles: and a case referred to by Cox,‡ of three albino women in one family. And observation has led M. Girou,§ he informs us, to make the following general remark, that "the son resembles sometimes the father by the colour of the skin, and the mother in form; whilst the daughter resembles the father in form, and the mother by the colour of the skin."

In the family of one of my patients at present under observation, warts on the hands have been hereditarily limited to the female line for two generations; the mother herself was much troubled with numerous warts on both hands, which appeared in infancy, continued during childhood, and disappeared soon after puberty; she has had five children—viz., James, aged eleven years; Ellen, aged nine years; Clara, aged seven years; George, aged five years (since dead); and Rosa, aged two years and a half; the two sons have never had a wart, whilst all of the three daughters are troubled with them. The eldest daughter has at present thirty, and the next daughter has twenty-four warts on the two hands, which commenced in each case during infancy, and have gradually increased in number since; the youngest daughter has at present two small warts. It cannot be ascertained whether any similar tendency to this warty disfigurement of the hands has occurred in other branches of the family. And the same limitation has been observed in the unhorned varieties of oxen, sheep, and goats, which are descended from animals in which the peculiarity appears to have been at first restricted in some degree by sex; for Azara‖ states, that the now common race of oxen in Paraguay is derived from a bull which was accidentally without horns, and implanted this vice upon all its male progeny.

In the following two cases of sebaceous tumours of the scalp, which occurred in the practice of Dr. Henry Stewart, and which were hereditarily limited to the female sex, in the first case for ten, and in the second case for five generations, it will, moreover, be observed, that in the first case limitation by age as well as by sex occurred, and also

* Op. cit. p. 935.

† Observations sur les Albinoes, in Journal de Phys., 1789, part 2, p. 276.

‡ Cox: Philadelphia Medical Museum, vol. i. p. 151.

§ De la Génération, pp. 131–2. 1828.

‖ Reise nach Südamerika, p. 161. Berlin, 1810.

that some of the females derived the inheritance from their paternal grandmother by atavic descent, which affords an additional proof of the influence of sex, for except when a male thus intervened to arrest the appearance of the disease, the inheritance was direct from parent to child.

First Case.—The wife of a painter, aged fifty-four years, has thirty-three sebaceous tumours on the scalp, none of which are larger than a walnut; but thirteen years ago, nine sebaceous tumours, varying in size from a nutmeg to a small orange, were excised by the late Mr. Morton, with considerable relief to the severe headaches she had previously suffered from; her daughter and her grand-daughter are both affected by them, her sons are perfectly free; her brother's daughters are troubled with them, as well as several female cousins of different degrees of relationship; her mother, grandmother, and female relations backwards for seven generations, were similarly affected; no female who had attained her tenth year of age was without them, whilst none of the males in the family had ever had them.

Second Case.—A single woman, aged thirty years, the only child of her parents, and suffering from phthisis in the second stage, which she has inherited from her mother's family, has ten sebaceous tumours on the scalp, varying in size from a nutmeg to a pea, and which were first observed when she was about fifteen years of age; these tumours have been common to the females of her mother's family—her mother, maternal grandmother, maternal great-grandmother, and maternal great-great-grandmother all had them, and so likewise have several female cousins on the mother's side of the first and second degrees of relationship; all the females, but none of the males, in the family have suffered from them.

From hereditary affections of the skin proper we may pass to those of the hair, in which the same tendency to limitation by sex will be often found to prevail. As regards the colour of the hair, Siebold* records the case of a married couple whose fathers were both red-headed, but not having red hair themselves, who had four sons red-headed, and three daughters whose hair was of another colour. This case accords with the following observations by Girou,† on the same subject: "I have seen reappear in male foals the hair of their grandfather, and in young mares that of their grandmother, although it has not been found either in the father or in the mother;" and so likewise with respect to other animals, Girou remarks that, "one is often surprised to see lambs black, or spotted with black, born of ewes and rams with white wool; but if one takes the trouble to go back to the origin of the phenomenon, it is found in the ancestors." In the following case, the associated influence of atavism was partly but not exclusively concerned in the limitation by sex of the colour of the hair; a sporting-dog, the issue of a setter mother and a spaniel father, was coupled with a setter bitch, and the male offspring were spaniels like the paternal grandfather, and resembled him in their hair,

* Journal für Geburtshülfe, Band i. p. 266. † Op. cit., p. 123.

whilst the female offspring were setters, having the colour of their mother.*

In addition to such cases there are many others of an imperfect character, in which no particulars of the family history have been given, such as the case referred to by Portal,† of a well-known French family, remarkable for their enormous black eyebrows; and the case lately cited by Dr. Hodgkin,‡ of a noble family in this country, in which "every member had a lock of hair of a lighter colour than the rest on the top of the head." As the information afforded in these cases is very indefinite, and no attempt has been made to trace the inheritance of either peculiarity, it cannot be determined how far sex may at first have limited, or may still limit, the influence of development. In like manner Mr. Catlin's statement respecting the grey hair of the Mandan Indians occurring (irrespective of age) in about one in ten or twelve of the whole tribe, and which he ascertained was "unquestionably an hereditary character which runs in families," is also defective, but it may reasonably be inferred that the peculiarity in this race was chiefly characteristic of the males.§

In plica polonica, a disease of the hair which is hereditary in Poland, Alibert|| states, that "it is observed not unfrequently to attack the father and the grandson, whilst the son is spared, a character (he proceeds to remark) which is common to it with other maladies, particularly with gout."

In cases of hereditary absence of hair, it is necessary to distinguish between those in which its development would be naturally limited to one sex, and those in which the hair is shared by both sexes alike. For example, in the justly celebrated story of Burnt Njal,¶ the tragic occurrence, from which it derives its name, resulted from the feuds occasioned by Njal himself, nicknamed the "Beardless Carle," and his three sons, Skarphedinn, Grim, and Helgi, being taunted with their want of beard; and this hereditary absence of hair, peculiar to one sex, is well-known to characterize certain races of men, such as the North-American Indians, of the present day. As these cases could not be otherwise than limited to one sex, they are only indirectly connected with our subject by the fact of being hereditary. But there are many cases on record, in which the absence of hair common to both sexes, is hereditarily limited to one. In the case of a man at the late hospital of La Charité, in Paris, observed by M. Rayer,** there was congenital deficiency of hair, so that the cranium appeared completely naked; "his mother and both his sisters had fine heads of hair, whilst his father presented the same defect in regard to the hair which

* Girou: op. cit., p. 123.

† Considérations sur la Nature et le Traitement des Maladies de Famille et des Maladies Héréditaires, troisième édition, p. 1, note 2. Paris, 1814.

‡ Lancet, Dec. 6th, 1862, pp. 619, 620.

§ Prichard: The Natural History of Man, p. 402. 1845. || Op. cit., p. 40.

¶ The Story of Burnt Njal, or Life in Iceland at the End of the Tenth Century. From the Icelandic of the Njal Saga. By George Webbe Dasent, D.C.L. 2 vols. 1861.

** Op. cit., pp. 1049–1050.

he did himself." Danz* relates the case of a Jewish family in his neighbourhood, in which two adult sons neither have nor ever have had hair or teeth. In these cases it will be noticed that the baldness was both hereditary and congenital, but in the following cases the peculiarity was developed at a definite period after birth, showing, as often happens in hereditary affections, the associated influence of sex and age. The first is a case observed by Dr. Burgess,† in which the baldness affected two brothers very early in life—"A young gentleman, eight years old, was brought to me (says Dr. Burgess) on the 4th of February, 1854, by his parents, with a shining scalp, as seen in old men, without a vestige of hair on it, denuded of eyebrows and eyelashes, and without hair on any part of the body. This boy had the usual supply of hair until he was four years old. The hair then began to fall gradually, until it totally disappeared. . . . . His brother, two years younger, began to lose his hair in detached places. His sisters, younger and older, have a good supply of hair, as have also his parents who brought him to me." In a case recorded by Poilroux,‡ three brothers became bald at the age of twenty-five years, and an uncle in their family had experienced the same loss at the same age. In a somewhat similar case referred to by Prosper Lucas,§ all the sons became bald like the above at the age of twenty-five years, whilst the daughters preserved their hair. In the following case, related by Dr. Thurnam,‖ the baldness was congenital, but less complete than in the cases previously referred to—"A gentleman, aged fifty-eight, had been distinguished throughout life by the almost complete absence of hair, by the teeth being not more than four in number, by the delicate structure of the skin, and by the absence of sensible perspiration and tears; a cousin-german on the mother's side, who was born only a year or two before the subject of the preceding case, presented almost precisely the same peculiarities."

With respect to the preceding case, it is to be noticed that the association of peculiarities of the hair and teeth in the same individual is not uncommon, for it occurred also in Danz's case of hereditary absence of hair and teeth, and it is well known that a renewal of the hair in old age, of which there are many examples on record, is usually accompanied by a renewal of the teeth.¶ The hereditary peculiarities of the teeth may therefore be conveniently considered after those of the hair. Some years since, I became acquainted with the case of a

* Stark's Archiv f. d. Geburtshülfe, Band iv. p. 684. Jena, 1792.

† Manual of Diseases of the Skin: from the French of Cazenave, with Notes and Additions by Thomas H. Burgess, M.D. Second edition, 1854, note, p. 242.

‡ Nouvelles Recherches sur les Maladies chroniques: quoted by Prosper Lucas, tome i. p. 255.

§ Traité Philosophique et Physiologique de l'Hérédité naturelle, &c., tome i. p. 255, 1847: quoted from Encyclopédie Méthodique, tome viii. p. 164.

‖ Medico-Chirurgical Transactions, vol. xxxi. pp. 71–82. 1831.

¶ This is still further illustrated by the late Lord Egremont's observation, that a preternaturally short lower jaw was always found in the white varieties of his red deer (*cervus dama*), in consequence of which they never lived more than a day or two, from not being able to press the udder in their attempts to suck.—Otto's Pathological Anatomy, translated by South, 1831, p. 183, note.

gentleman abroad who had never had any teeth, and whose children inherited the same defect, but I did not secure a complete history of the case. Otto* refers to a case in which all the teeth were wanting in two brothers. Whilst, on the other side, Dr. Jacobi,† of New York, cites a case in which three sisters were born with central incisor teeth. Deficiency of particular teeth has been occasionally noticed; and, according to Dr. Mason Good,‡ "the absence of some of the teeth, such as the bicuspids, is not uncommon;" but he considers that "it occurs more frequently in the incisors of the lower jaw; and Mr. Fox (he goes on to inform us) refers to an instance in which this defect appertained to several individuals of the same family, none of whom had ever cut incisors of the lower jaw." One of the most curious cases of hereditary peculiarity of the teeth is the following, for which I am indebted to Dr. Cotton, and which affords a good illustration of atavism in connexion with the influence of sex. A gentleman had, with both dentitions, a double tooth in place of the left second incisor in the upper jaw; he was the only one in a family of nine children who presented this peculiarity, which he inherited from his paternal grandfather, whom he so exactly resembled, even in the form of the hands also, as often to have arrested the attention of their acquaintance. The influence of sex has been observed also in peculiarities affecting the colour of the teeth, for Professor Heider, of Vienna, has related a case in which teeth of a rose-red colour occurred in twins, the daughters of Italian parents; both the first and second dentition were marked by this peculiarity.§ So likewise the hereditary tendency to caries of the teeth and toothache is sometimes limited, in a very decided manner, to one sex, as in the following case which occurred in my own practice, and in which complete limitation to one sex occurred for three generations. Mrs. A——, under the age of forty years, and the mother of seven children, has not had for many years a sound tooth, the decay having begun very early in life; she has no brothers, but there are three sisters, younger than herself, whose teeth are in a similar state, and in all of whom the decay commenced at a very early age; their mother was similarly affected in the teeth, and like her four daughters, was a "martyr to the toothache." Of Mrs. A——'s seven children, five are girls, in four of whom, aged respectively sixteen, twelve, nine, and seven years, the teeth began to decay at the age of two years or soon afterwards; in the youngest girl, aged two years and a quarter, the teeth are not decayed, but the dentition has been difficult. Of the two boys, the third and fifth children in the order of birth, one died at the age of three years, and the other has attained the age of four years, without any decay in their teeth. The father of these children has sound teeth. Of Mrs. A——'s three sisters, the eldest has four children, two boys, aged fifteen and five years, with sound teeth; and two girls, aged thirteen and three years,

* Loc. cit., p. 188. † American Medical Times, Dec. 15th, 1860, p. 418.
‡ The Study of Medicine, second edition, vol. i. p. 64. 1825.
§ Lancet, Dec. 6th, 1862, p. 637.

with decayed teeth. The two other sisters of Mrs. A—— have no children.

From special affections of the teeth we might readily pass to those of the eyes, for so intimate is the connexion which exists between the skin and its superadded structures, that peculiarities or defects of two or more parts are frequently associated in the same case; and as regards the teeth and eyes, Mr. White Cooper* goes so far as to state, that in all cases of double microphthalmia brought under his notice, he has, at the same time, met with defective development of the dental system. Before, however, leaving the mouth, it will be useful to notice some cases of hereditary hare-lip limited in like manner by sex, some of which are also associated with lachrymal affections, and may therefore appropriately precede the consideration of special defects of the eye hereditarily limited to one sex. M. Demarquay,† in a paper on hair-lip, published in 1845, called particular attention to the influence of hereditariness in the production of this deformity; and from among the cases he has recorded may be cited that of Eliza Dif, affected with double hare-lip, whose mother had simple hare-lip. In another case, a carpenter and his son were affected with hare-lip; in another, a mother and her daughter were similarly affected; and, lastly, in the case of a young man operated on by M. Thierry for this deformity, it was ascertained that the father had been previously operated on for the same by M. Desault. In the case of a boy with simple hare-lip, operated on by M. Roux,‡ a brother had been previously operated on for double hare-lip. In another case of M. Roux's, of a father and son with six fingers on each hand, and six toes on each foot, there was also double hare-lip in both. M. Roux§ used to cite in his clinical lectures the case of a peasant of Seine and Oise, on whom he had operated for a double hare-lip, and who was at the same time affected with ectropium of the two superior eyelids; his son presented exactly the same departure from nature. Whilst the atavic inheritance of the defect is shown in the following case quoted by Prosper Lucas:‖ "A man well formed, among the parents of whom were found two attacked with hare-lip, had by a first wife eleven children, two of whom had hare-lip; and by a second wife, two who were affected with the same deformity."

The following cases of hereditary disease, and defect of the eye and ear, may be added to those previously cited, as illustrating still further the extent to which the influence of sex prevails. In a case of cataract observed by Duval,¶ four sisters, their mother, and grandmother were similarly affected. Prosper Lucas** relates the following case of hereditary blindness limited to the female sex for three generations: "The grandfather had excellent eyes, the grandmother was attacked with

* Ophthalmic Hospital Reports, vol. i. pp. 112–13. 1857–9.

† Gazette Médicale de Paris, Jan. 25th, 1845.

‡ Gazette des Hôpitaux, Jan. 29th, 1846.

§ Referred to by Deval: Traité Théoretique et Pratique des Maladies des Yeux, p. 89. 1862.

‖ Op. cit., tom. ii. p. 36. 1850. ¶ Quoted by Deval: op. cit., p. 89.

** Op. cit., tom. i. pp. 400–1.

amaurosis at the age of thirty-five years; her daughter (married) became blind at nineteen—she has had seven children, the eldest, a girl, became, from amaurosis, blind at thirteen; the second, a daughter also, became amaurotic at the same age as the preceding; of the last four children, one, a daughter, died at the age of two years, and another, also a daughter, is aged thirteen years, both free from the disease; the other two children are boys, one three years, the other scarcely one year, seeing well." In a case observed by Deval,* a young man, his father, and two uncles, were amaurotic, a sister had amblyopia: in this case it is to be noticed, that as the father and two uncles were similarly affected, the inheritance was probably derived by direct or by interrupted descent from a previous generation. In a case of hereditary amaurosis observed by Graefe,† three sons were successively affected about the age of twenty years, their father having been myopic; and in another case which came under my own observation, and which has been already published,‡ five brothers and their paternal uncle were amaurotic, whilst their three sisters had no imperfection of sight; in this case also it may be inferred that the inheritance was derived from a previous generation, and transmitted by interrupted descent. Among the cases observed by M. P. A. Dufau§ are congenital amaurosis in two brothers named Clapos, and in two brothers named Caffet; congenital cataract in a young man named Croiset, whose grandfather, and a first cousin of the male sex, also had cataract; and a case of amaurosis in a family of three sisters, named Baudisson. Mr. Critchett|| has observed a case of nuclear congenital cataract in three brothers. In a case of coloboma iridis, for which I am indebted to Mr. Ernest Hart, the defect was limited to two sisters, who belonged to a family of three children, in which the intermediate child was a boy, free from the defect. Mr. Zachariah Laurence lately showed me a well-marked case of hypermetropia, affecting a father, and his son aged seven years. Deval¶ relates a case of troublesome affection of the left eye in a woman whose mother, two maternal aunts, and maternal grandmother were the subjects of lachrymal affections. In the following case, observed by Stahl,** we have an illustration of the inheritance of accidentally-acquired defects of the eye: "A soldier lost in war one of his eyes; he returned to his country and married; his wife bore him a son, one of whose eyes was quite dried up, so that he was monoculus like his father." Lastly, in the curious case of colour-blindness observed by Deval,†† we have an illustration of an hereditary defect, sexually limited, and in most

* Op. cit. p. 89.

† Archiv für Ophthalmologie, tom. iv. part 2: quoted in Annales d'Oculistique, tom. xlv. pp. 187–8. 1861.

‡ Medical Times and Gazette, March 22nd, 1862, p. 309.

§ Essai sur l'Etat physique, Moral et Intellectuel des Aveugles-nés, &c. Paris, 1837.

|| Ophthalmic Hospital Reports, vol. iii. p. 339. 1860–1.

¶ Op. cit., p. 89.

** Quoted by Steinau: Essay on Hereditary Diseases, p. 30. 1843.

†† Op. cit., pp. 607–8.

other cases apparently congenital,* but in this case developed in after-life during the progress of disease: "Under the influence of an attack of hemiplegia and double amblyopia, supervening on the sudden suppression of a skin disease, Poiré, a clock-maker, and long-sighted, who had been under treatment in 1850, lost the power of discerning red, and the madder coloured trousers of soldiers appeared to him to be yellow; other colours were, however, perfectly distinguished; curiously enough his father had never been able to distinguish red. Our patient, adds M. Deval, was then hereditarily predisposed to colour-blindness, but a cause capable of disturbing the visual functions was needed for this symptom to take its place among the amaurotic phenomena developed."

With respect to defects of the organ of hearing, I have lately had under observation the case of a surgical-instrument maker, aged twenty-nine years, who became deaf, like his father, at the age of eighteen years; there were five other children in the family—namely, a son, who died at the age of seven years, one son and a daughter above, and one son and a daughter below the age of eighteen years, none of whom have ever had any defect of hearing. Dr. Camps has informed me of a case occurring in his practice, of nervous deafness affecting a father and son. In a case for which I am indebted to Mr. Anderson Smith, a woman six months after marriage had an attack of fever, followed by permanent deafness; of four children born subsequently, one of them, being the third in order of birth, and a daughter, is a deaf-mute, whilst the other children, who are sons, hear well. Prosper Lucas† records the case of a female cat, born deaf, and among many kittens that she had, was a female one, also deaf like the mother. In addition, also, to the illustrations of deaf-muteism previously cited, may be added the case observed by Portal,‡ of three sisters who were deaf-mutes; and although it is generally difficult to trace the occurrence of this defect to any hereditary source, yet its occasional development in connexion with atavism leads to the supposition that it is at least sometimes hereditary; for, in addition to Mr. Wilde's evidence already quoted,§ Meckel|| relates that a woman, herself enjoying perfect health, but in whose family there had been many members attacked with hardness of hearing and idiocy, gave birth to two sons who were deaf-mutes, and two daughters and one son who were not so. Whilst the following case, observed by Mr. Anderson Smith, affords a good illustration of hereditary defect of the external structure of the ear: a married woman, who had rudimentary ear-lobules adherent to the head, has had five children, consisting of two sons and three daughters: one son deceased, and one daughter, have not been examined; the living son has the ear-lobules pendulous and well-formed, like those of his father, and two daughters have rudimentary

* For cases of non-congenital colour-blindness, see Arch. f. physiol. Heilk., 1858, p. 41; and Gaz. des Hôp., 1861, p. 450.

† Op. cit., tom. i. p. 428.

‡ Op. cit., p. 8.

§ British and Foreign Medico-Chirurgical Review, July, 1861, pp. 200–1.

|| Archiv für Anatomie, p. 186. 1828.

and agnate ear-lobules, like their mother; they are both married, but one has no issue—the other, whose husband has ear-lobules of natural size and pendulous, is the mother of three children, one of whom is a son with ear-lobules resembling those of the father, and two are daughters, both of whom have rudimentary and adherent ear-lobules precisely like those of their mother, maternal aunt, and maternal grandmother.

Before leaving the diseases and defects of the skin and its dependencies, it may be useful again to direct attention to the frequency with which they are connected together in the same individual; for not only has this been observed with respect to colour-blindness combined with inability to distinguish musical notes, as well as in several other examples of associated disease of these structures already referred to, but it has also been noticed in many other cases, from which the following may be selected as illustrations. M. Liebreich* has observed that "when deaf-muteism and pigmentary retinitis were developed in the same family, the two affections were constantly conjoined in the same individual." M. Bouvyer-Desmortiers† relates the particulars of "a family of Angora cats, of which the mother is white and deaf; the father, which hears, is white and black; all the kittens which are born white are deaf as the mother; those which resemble the father are not so." The connexion which exists between the organ of hearing and the hair corresponds with the following case observed by Dr. Pauli,‡ in which the defect in the organ of hearing is replaced by defect in the organ of sight:—"Rudolph Median and his wife, endowed with a normal conformation, had nine children, all born blind; the father has black, and the mother light-coloured hair; five children, with dark hair and brown iris, are afflicted with amaurosis; the four others, provided with light-coloured hair and blue iris, have amaurosis and cataract conjoined." Many other illustrations of these associated defects might be cited, but the above are sufficient to show that hereditary affections of the skin and its dependencies, under which term have been included not only the ordinary appendages of the skin, but also the organs of special sense, have not been abruptly brought together, but are naturally more or less closely related, and that this relationship sometimes becomes very conspicuous in sexually limited and hereditary disease of these structures.

It may now be convenient to consider some of the hereditary peculiarities and defects of the upper and lower extremities, in which the influence of sex has in like manner been observed to prevail, and which are of not unfrequent occurrence in families, although not always noticed by medical writers; for some of them are very erroneously thought to be of too trivial a character to be recorded, and the mention

* De la prédisposition à la rétinite pigmenteuse chez les enfants-nés d'un mariage entre consanguins: Archives Gén. de Méd., Février, 1862, pp. 145–151. (Extrait de la Deutsche Klinik, 1861, No. 6.)

† Considérations sur les sourds-muets de naissance, in 8vo, an. vii. p. 123.

‡ Quoted by Deval, op. cit. p. 89.

of many others is purposely suppressed. Portal* refers to cases in which the bones of the arm, the fore-arm, the thigh, or the legs, are out of proportion with the rest of the body, but of which he "suppresses examples, so as not to displease families;" and I have been privately informed of some interesting cases of hereditary defects of the extremities, in which the history has been withheld, from an over-sensitive reserve on the part of the family affected. Whilst in some of the lower animals—as, for example, in insects—supernumerary limbs and parts of limbs, such as three legs attached to one coxa, and other curious anomalies, appear to be of rather frequent occurrence, although hereditariness in such cases necessarily cannot be established.†

As an illustration of the influence of sex in hereditary defects of the upper extremity, I would refer to the case observed by Dr. Pauli,‡ of hereditary brittleness of the bones, which seems to have affected chiefly, if not exclusively, the bones of the upper extremity for three generations; three members of the last generation had broken an arm twice, and one thrice; their father and grandfather had both in like manner suffered from fractures. Some years ago, a man was exhibited at the Academy of Sciences (Paris), whose hands were of a monstrous size, and whose father's were equally large.§ And the same regularity in the limitation of such defects to one sex may occur also in those cases in which the defect itself is not symmetrical as regards the two sides of the body, as in the case related by Portal,‖ "of a father and two sons, who had the left side of the body, with respect to the muscles, much larger than the right, they therefore used the left side and limbs more frequently than the right, and were of course left-handed. Girou¶ relates the case of a man, descended from a family in which the special use of the left hand was hereditary; although not himself left-handed, he has a married daughter who is so, and all of whose children are left-handed; he has, moreover, a son married, who is not left-handed, but who is the father of a daughter so completely left-handed from her cradle, that it has been necessary to tie up the left hand, so as to force her to serve herself with the right hand; in this case the influence of sex appears to account for the atavic inequality of the descent. Mr. Joseph Adams** refers to the case of an Irish mendicant scholar with a deformity of the hand,

* Op. cit., note, p. 17.

† Dr. Herrmann Asmuss: Monstrositates Coleoptorum. Rigæ et Dorpati, 1835.

‡ Untersuchungen und Erfahrungen um Gebiete der Chirurgie. Leipsic, 1844. (Quoted in the British and Foreign Medico-Chirurgical Review, vol. xxii. p. 49. 1846.)

§ Portal, op. cit. p. 18.

‖ Op. cit. p. 20. As other examples of this want of symmetry in deformities hereditarily limited to one sex will be referred to in speaking of the fingers and toes, it will be sufficient to state here that such unsymmetrical malformations occur in all parts of the body, and are sometimes very limited in their extent, and very conspicuous in their appearance, as in the case related by Portal (pp. 20–1), of a Spanish nobleman, who had one cheek bigger than the other; his father and some of his uncles had the same peculiarity.

¶ Op. cit., pp. 278–9.

** A Treatise on the supposed Hereditary Properties of Diseases, &c., p. 68. 1814.

which was "an exact resemblance to his father's." In a case, previously quoted, of hereditary absence of the two distal phalanges,* the transmission of the defect for ten generations had been affected by the females only of the family. A similar defect occurred to a less extent for three generations in the family of a pastrycook at Douai,† named Augustin Duforet, who had but two phalanges to all the fingers, the first being nearly double the length of the ordinary phalanx, and the last or ungual of the normal form and length; the thumbs having each two phalanges, but no metacarpal bone; the toes, likewise, with only two phalanges, as well as the great toes, which were without the metatarsal bone: his grandfather was similarly constituted, and he had three children all similarly malformed; the eldest, of the male sex, had three male children, all of whom wanted the phalanges of their fingers and toes; the second, of the female sex, has had five children, two daughters who have three phalanges, and three sons who have only two; the third, who is the father of Augustin, has had eleven children, five daughters normally formed, and six sons, in all of whom there is wanting a phalanx to the fingers and toes; the mother of Augustin has had two miscarriages, in which the fœtus was both times of the male sex, and equally wanting in the phalanx of the fingers and toes. In the above case the defect was proved to be hereditary for three generations, and although one exception to sexual limitation occurred in the second generation, it is to be noticed that in the third it was complete, for of nineteen grandchildren, twelve were sons, all born with the family defect, and seven were daughters, all born free from it. In the case observed by Dr. Lepine, of Chalon-sur-Saône,‡ of a man who had only three fingers on each hand, and four toes on each foot, both his grandfather and his son had the same anomaly. But it must be admitted that in many cases of deformity affecting the extremities no strictly-defined limitation of this kind is maintained, although the influence of sex can generally, to a certain extent, be traced in most of them; as, for example, in the following case observed by Béchet,§ of a woman (Victoire Barré) who, instead of hands, had on each arm one finger only, the other fingers and their metacarpal bones, with the exception of imperfect rudiments of two of the latter, being entirely wanting; whilst on each foot there were but two toes, apparently the first and fifth, but both very defective: she was twice married; by her first marriage she had a healthy and regularly-formed male child, and by her second marriage two daughters malformed like herself; and her sister and father were also deformed in a similar manner. In this case it is probable that the father inherited and transmitted the defect from a female ancestor of some previous gene-

* Edinburgh Medical and Surgical Journal, vol. iv. p. 252. 1808.

† Des Vices congenitaux de conformation des Articulations (Thèse). Par Alf. Robert. Paris, 1851, pp. 167–8 (quoted in the Bulletin de la Soc. Anat. 1838, p. 35.)

‡ Bulletin de l'Académie Royale de Médecine, séance du 31 Octobre, 1843, tom. ix. p. 145.

§ Essai sur les Monstrosités Humaines, 1829: quoted in the Lancet, 1829–30, vol. i. pp. 791–2.

ration; and it is also to be noted in reference to these cases, that owing to the occasional intermarriage of persons similarly malformed, exceptional illustrations may, in some rare instances, be referred to a double inheritance of the defect, as in the case observed by Piorry,* at Clamart, in 1840, of a person in whose hand one finger was wanting, both the parents having equally but four fingers on the hand: whilst in Dr. Horace Dobell's† case of hereditary malformation of the hands in two cousins who married, but whose offspring was free from the defect, it may be inferred that it will, in consequence of this temporary suppression, reappear in a succeeding generation, for in the most strongly-marked forms of hereditary disease, uninterrupted descent for several successive generations is the exception rather than the rule, and the freedom of the offspring in his case is probably due to the fact that by the consanguineous alliance of persons similarly malformed, the defect itself has been rendered more hereditable, owing to which the immediate offspring had not been malformed, because it had been reserved to transmit the malformation by atavic descent.

The fingers, and especially the little fingers, may be more or less deformed without absence of any of the phalanges. A well-marked case of this description has lately come under my notice, in which a journeyman cabinet-maker, aged thirty-one years, has the little fingers so crooked and bent inwards as to constitute a well marked deformity; of his children, the first, the second and third (twins), and the fifth are boys, with exactly the same malformation of the little fingers as their father; the fourth child is a girl, with the little fingers straight and well-formed, like those of her mother. In the following remarkable case, noticed by Gaubius,‡ a corresponding defect in the little finger, which was also hereditary in the male line, was not congenital, but developed in after life:—"The little finger of a man began, from some cause or other, to grow inwardly, and became quite bent towards the palm of the hand; the eldest of his two sons, when at the age at which his father became affected with the deformity, observed that his little finger began to bend towards the palm; different remedies were applied, but in vain; the second brother, fearing the same fate, began, long before the fatal period, to use all possible preventive means, but without effect; at the same period his little finger bent, like that of his father and his brother." In the following case, observed by Blumenbach,§ a similar deformity, though acquired by accident, and limited to the little finger of only one hand, in like manner affected

* De l'Hérédité dans les Maladies, p. 46. Paris, 1840. In connexion with hereditary deficiency of the fingers, it may be remarked, that when Captain Cook visited the Friendly Islands, he found scarcely one in ten of the Islanders who was not deficient in the little finger of one or both hands. This, however, did not proceed from any hereditary defect, but from the curious custom they had of cutting off the little finger in sickness as a sort of sacrifice to the Deity, "efficacious enough to procure the recovery of their health."—Captain Cook's Voyage of Discovery, edited by John Barrow, Esq., F.R.S., p. 383. Edin. 1860.

† Royal Med.-Chir. Society, Nov. 25th, 1862.

‡ Quoted by Steinau, op. cit., pp. 27–8.

§ Quoted by Prosper-Lucas, tom. ii. p. 493.

the males for two generations: "a man, whose little finger of the right hand had been nearly demolished and set awry, had several sons, all of whom had the little fingers of the right hand crooked."

Lastly, the same influence of sex is sometimes to be noticed in cases of supernumerary fingers, which are usually, though not always, associated with a corresponding excess of toes. In a case of this description, in which a supernumerary finger was attached to the outside of the first phalanx of the little fingers (admitted into Long Island College Hospital, America),* the deformity had occurred for five generations, and it is quoted to show the influence, rather than the complete limitation, of sex in such cases: the patient was the fourth child of the same parents, all having these supernumerary fingers, except the second; the first child had but one, and the third child had two supernumerary fingers. The mother had one attached to the same point as those of her children; the grandmother had two, and the great-grandmother also two; the grandmother's brother had supernumerary fingers on each hand, as also had one of his nephews; the great-grandmother states that her father had the same deformity." In the above case it is to be noticed that the deformity was inherited five generations back from a male ancestor, who had transmitted it to a son and a daughter, and it is at this point in the descent that the influence of sex becomes apparent; for whilst on the one side it affected only the son and one of his nephews, and was so far limited to the male sex; on the other side, it continued in direct female descent for four successive generations. In a somewhat similar case, lately reported to the Swedish Medical Society by Dr. Rörberg,† two brothers, themselves as well as their parents free from deformity, had each two children with supernumerary fingers attached to the metacarpal bones of the little fingers, and also supernumerary toes. So also in the case of a French lady (Madame D——) and her sister, both free from deformity themselves, but some of whose children had supernumerary fingers or toes. Madame D—— had twelve children, nine sons and three daughters; two of the younger sons had supernumerary toes, and the eldest son, free from the deformity himself, had six children, of whom one had an additional toe; none of the daughters of Madame D—— had supernumerary toes, but one of them had a supernumerary finger; whilst the sister of Madame D——, who also had several children, had one with a supernumerary toe.‡ And in a case for which I am indebted to Mr. H. Scholfield Johnson, of a double last phalanx, slightly webbed, equal in size, and with well-developed nails, on the left thumb of a boy, the maternal grandfather's great-nephew had exactly the same deformity. Such cases as these possess an additional interest, as examples of what may be assumed to be remote atavism; and although it must be acknowledged that the influence of sex is less strongly marked in these than in many other hereditary

* Medical Times and Gazette, Dec. 22nd, 1860, p. 619 (quoted from the American Medical Times, No. 16).

† Journal für Kinderkrankheiten, Band xxxv. p. 426.

‡ Medical Gazette, 1832-3, vol. i. p. 361.

defects, yet it can generally, to a certain extent, be traced. Two daughters of Caius Horatius* had six fingers on each hand. In a case recorded by Roux,† of a father and son who both had six fingers on each hand, and six toes on each foot, the defect was associated in both of them with a double hare-lip. In the following case, which has come under my own observation, and in which there was a complete supernumerary finger with nail attached to the outer side of the first phalangeal joint of the little finger of the left hand, the influence of sex, although not at first sight apparent, may be readily perceived on reconsidering the case: the patient was a girl aged six years, the only child affected in a family composed of one daughter and three sons; the father, paternal grandmother, and paternal aunt, had precisely the same deformity; three paternal uncles and two paternal aunts were free from it, and two of the former have each two daughters and one son also free from the defect. The influence of sex, although incomplete in this case, is still shown by the fact that the grandmother's defect was in the third generation transmitted to the granddaughter, but not to any of the grandsons; whilst in the second generation, in addition to its direct transmission to a daughter, the son, who was selected to become the medium of its transmission to the granddaughter, partook also of the inheritance.

In like manner many cases of hereditary webbing of the fingers exhibit the influence of sex in their development, even when the heritage has become much involved, as in the case of a web-fingered family recorded by Mr. J. B. Thompson, of Perth,‡ who concludes his observations on the case by stating, that "we have in it a grandfather, a father, and an uncle sending down an abnormal condition directly through the male line;" and on the other hand, "we have a grandmother and a granddaughter transmitting the same directly to their children."

The following cases may be cited as illustrations of the influence of sex in hereditary defects of the lower extremity. In the case observed by Dr. Maissiat,§ of a fruit-seller at Mantua, named Margaret Gardes, suffering from spontaneous luxation of the thigh, the same affection has been traced through five generations of the family. Among the ascendants of Margaret Gardes, two maternal aunts and one grand-aunt (maternal grandfather's sister), were lame from infancy; and another grand-aunt, sister to the above, though not herself affected, had a child with shortening of the right lower extremity: among the descendants of Margaret Gardes was a daughter, named Limone, who had congenital shortening of the thigh to the extent of about three inches; she married a man, himself well made, but whose grandfather had a double congenital luxation of the thighs; four children resulted from this marriage, one of whom, a girl, had congenital luxation of

* Pliny, Hist. Nat., lib. vii. cap. 11.

† Gaz. des Hôp., 2 série, tom. viii. p. 46.

‡ Edinburgh Medical Journal, 1858–9, pp. 501–4.

§ Dupuytren on Original Luxation of the Femur: Medical Gazette, 1833, vol. ii. p. 570.

both thighs, and another child, a boy, had congenital luxation of the left thigh. It is to be noticed, in connexion with the above case, that congenital luxation of the femur is more common in females than in males; for Dupuytren, who quotes the above case, states, that out of twenty-five or twenty-six cases which had come under his notice, he had not met with more than three or four examples of its occurrence in male infants; consequently, the females in Margaret Gardes' family would be more liable than the males to suffer from this affection; but the influence of sex in this case is very strongly exhibited in the results of the intermarriage with a family in which the luxation was in the male, for one of the offspring affected in the fifth generation was a boy, who seems to have derived the morbid inheritance from his paternal grandfather by atavic descent. Venette* relates a case of a woman and her daughter who both had a sort of limp in the right leg. Mauricean† relates a case of a lame man having had three sons who were all lame. "Borelli, quoted by Rougemont, records the case of a well-made man, who was three times married, and whose father had been lame; the children of this man by his three wives were all lame."‡

In passing downwards from the hip to the knee, those cases come under notice in which the patellæ are hereditarily absent. This occurred in the case of a man who was a patient in St. George's Hospital in 1833,§ and in whom both the patellæ were entirely wanting; neither his grandfather nor his father had ever had patellæ. In a similar case, which Sir Henry Holland informs me he had the opportunity of seeing in private practice, and which is referred to in his 'Medical Notes and Reflections,' absence of the patella occurred in father and son.‖

Similar evidence respecting the influence of sex sometimes presents itself in connexion with club-foot, as in the case of Madame B——, related by Girou,¶ which is of additional interest as an instance of atavism restricted to the females by transmission through a male: this lady, who was herself club-footed, had three male children perfectly well formed; the eldest of these married, and had, at first, six sons well formed, and afterwards four daughters, one of whom was club-footed like her paternal grandmother. And lastly, as regards webbed toes, Mr. Joseph Adams** relates an instance of its hereditary transmission for two generations from father to son; and Dr. Watson†† records the case of a musical composer of some celebrity in London who is web-footed, "and whose father, grandfather, and great-grandfather were all web-footed before him."

From diseases affecting distant parts of the body, we may now pass to those affecting the three great centres of life—namely, the brain,

* Génération de l'Homme, tom. ii. ch. 7.
† Quoted by Steinau, op. cit., p 27. ‡ Ibid.
§ Medical Gazette, Jan. 19th, 1833, p. 518.
‖ Medical Notes and Reflections, third edition, 1855, p. 33.
¶ Op. cit., p. 279. ** Op. cit., p. 68.
†† Lectures on the Principles and Practice of Physic, third edition, 1848, vol. i. p. 109.

the heart, and the lungs, in all of which similar, though in some respects less conclusive, evidence of the influence of sex will be observed.

With respect to the large class of cases which may be massed together as cerebral diseases, it is proposed to offer first a few general remarks on the evidence derived from statistics and general observations on hereditary insanity, as influenced by sex, and then to consider the evidence afforded by special cases of cerebral diseases, which, for convenience, have been arranged as far as possible in separate groups.

It has been satisfactorily proved, that in many of the diseases which have already been considered in some detail, sex has influenced, to a great extent, their development; and in some of them it has had the effect of altogether restricting the disease to one line in a family, to the exclusion of the other—as in colour-blindness, and the hæmorrhagic diathesis, and to a very marked, though a less extent, in many other diseases. It may therefore be reasonably assumed, that the same influence of sex extends also to cases of cerebral diseases; and as regards more particularly insanity, it is especially important to ascertain whether a disease so often observed to be hereditary, and so much dreaded as this is, admits of any corresponding limitation in its development.

Among writers who have directed special attention to the hereditariness of insanity is Esquirol,* who states, that it "is more often transmissible by the mothers than by the fathers;" and this fact he ascertained "by attending, in the last years of his life, the children of those patients whom he had seen at the beginning of his medical career." This statement seems to be very generally admitted to be correct, and it is supported by the statistical researches of M. Baillarger† and Dr. J. Webster,‡ which moreover show that insanity is not only more transmissible by females than by males, but that from whichever parent the heritage is derived, it is more liable to show itself in the children of the same than of the opposite sex. M. Baillarger ascertained that insanity is more to be feared when it is on the mother's than on the father's side, "not only because it is more often hereditary, but also because it is transmitted to a greater number of children;" and from his observations, founded on 600 cases, 453 of which were directly hereditary, and 147 collaterally so, he states that where the madness was transmitted direct from parent to child, the following statistics were obtained—

"Of 346 children who had inherited the disease from the mother, I have found—

197 girls
and 149 boys } 346

The difference is 48, or a fourth.

* Des Maladies Mentales, p. 65. 1838.

† Archives Gén. de Méd., Paris, 1844, quatrième série, tom. v. pp. 116–17; and Annales Médico-Psychologiques, tom. iii. 1844, pp. 328–339.

‡ Medico-Chirurgical Transactions, vol. xxxii. p. 118. 1849.

"Of 215 children to whom the disease had been transmitted by the father, I have found—

128 boys } 215
and 87 girls }

The difference is 41, or a third.

"The madness of the mother is transmitted, then," adds M. Baillarger, "more often to the daughters than to the sons, in the proportion of a fourth; the madness of the father, on the contrary, more often to the sons than to the daughters, in the proportion of a third."

Dr. J. Webster states, from observations founded on 1798 cases of insanity, that it "is a disease more frequently transmitted to offspring by the mother than by the father; whilst mothers also transmit this disease oftener to their female than male children."

More recently, Dr. Moreau, physician to the Bicêtre (hospital for the insane), in a paper "On the Signs indicative of Hereditary Predisposition to Insanity"* which confirms the general correctness of the preceding statements, has endeavoured to show "that personal resemblance and cerebral disorder may be transmitted by either parent, but never by the same;" that where the children resembled the parent of the opposite sex, the following results were obtained: "Of 22 females suffering from insanity, 17 had inherited it from the mother, and 5 from the father; while of 142 insane males, 95 had acquired the disease from the father, and 47 from the mother; when, on the contrary, the analogy of resemblance was inverted, 47 sons who resembled their father derived their insanity from the mother, and 8 girls who resembled the mother derived theirs from the father." These observations of Dr. Moreau seem to possess some interest and importance in connexion with atavism, and may be again referred to, but at present it will be convenient to examine the evidence which can be gathered in favour of the influence of sex in special cases of cerebral disease.

With respect to cases of hereditary insanity limited to males, the following illustrations may be cited. In a case observed by Moreau† at the Bicêtre, the grandfather, father, and son were all insane. The hereditary madness which occurred in the case of Louis XI. of France, is referred back by Moreau‡ to his paternal great-grandfather, who had been poisoned in his youth, and who ever afterwards remained invalid; his grandfather, Charles VI., suffered from periodic mania; and his father, Charles VII., died from excessive abstinence, resulting from a delusion that he should be poisoned. In the case of Papavoine,§ aged forty-one years, who murdered two children in 1825, his father had suffered from periodic mania. In the case of James Roberts,‖ a soldier who had served in the Crimea, and who was tried lately at the

* L'Union Médicale, No. 48.

† Un chapitre oublié de la Pathologie Mentale: L'Union Méd., Jan. 26th, 1850, p. 45.

‡ La Psychologie Morbide, p. 557. Paris, 1859.

§ Georget: Archives Gén. de Méd., tom. viii. p. 206. 1825.

‖ The Times, Aug. 19th, 1862.

Oxford assizes for the murder of his little daughter, Clara Roberts, aged sixteen months, by beating her upon the head with a broken poker during a sudden attack of homicidal monomania, and was acquitted on the ground of insanity, his father, paternal grandfather, and paternal grand-uncle had all been insane; and it is to be noticed in this case, that as the paternal grandfather and paternal grand-uncle were brothers, the inheritance of the disease was probably derived from a previous generation. Such also may be inferred in the case of a military surgeon* confined in the Bicêtre, whose father, eldest brother, and four paternal uncles were also insane, the uncles having, besides, all died by suicide; the maternal line was ascertained to be free from all nervous affection. No history of the paternal grandfather could be obtained in this case; but as five of his sons were mad, it is probable that if not himself mad, he transmitted insanity to his male offspring by atavic descent, which would extend the heritage to four, if not more, generations, such interruptions in morbid descent being of frequent occurrence in insanity. Marc† relates a case in which a grandfather and grandson died mad with the *same* symptoms of insanity; the celebrated author of 'Paul and Virginia' often believed himself to be surrounded by enemies and evil spirits, and his grandson suffered from the *same* delusions;‡ and if it were not for the difficulty of tracing the family histories of individuals comparatively obscure in social position, it is probable that such cases of hereditary madness would be more frequently recorded; for in the well-known case of George III., which will be again referred to in a subsequent part of this paper, the insanity was transmitted in the male line by atavic descent from a male ancestor eight generations back, in whom not only the insanity, but many other of the well-known characteristics of the unfortunate monarch were *exactly* repeated.

In all of the preceding cases the insanity has been limited to the male line, but the same influence of sex prevails also when females become hereditarily subject to the disease. In one of the cases recorded by Moreau,§ a mother and her daughter believed themselves to be under the special protection of spirits, which they called "airs." A case is recorded in the 'Annales Médico-Psychologiques' for 1850, pp. 723-4, of a mother and two daughters who were insane. M. Villermé|| relates a case in which a mother and daughter were insane, the son not so. Gintrac¶ records a case of insanity in a woman whose mother had suffered from puerperal mania; and another case of a woman, aged twenty-six years, subject to delusions, whose mother had twice attempted suicide; the father was healthy, and there were five other children who were all well. In the case of Mrs. Vyse, who was lately tried for the murder of her two children, and had also attempted

* Moreau: La Psychologie Morbide, pp. 138–9.

† De la Folie, Observ. 45. Paris, 1840.

‡ Moreau: La Psychologie Morbide, pp. 538–9.

§ L'Union Médicale, Jan. 12th, 1850, p. 22.

|| Revue Médicale, tom. vi. p. 98. 1821.

¶ Mémoire sur l'influence de l'Herédité sur la production de la surexcitation nerveuse, &c.: L'Académie Royale de Méd., Mémoires, tom. ii. 1845. pp. 276–7.

suicide, the acquittal was given on the ground of hereditary insanity, for her maternal grandmother and maternal grand-aunt were both insane, and the former had also attempted suicide, whilst the latter had been under restraint for twenty years. In this case it may be inferred that as these two female ancestors were sisters, the insanity had been transmitted from a previous generation, for whenever two or more members of the same family are similarly affected, especially with insanity, which has, moreover, been transmitted to a succeeding generation, it may be assumed that the disease has in the greater number of such cases been inherited, unless it has resulted from some other recognised cause of disease—as, for example, the repeated intermarriage of blood relations. In a case of puerperal insanity affecting one of my patients after her first accouchement, at the age of twenty-eight years, and continuing for seven months, it was ascertained that an elder sister, now aged fifty-one years, had become insane at the age of twenty-one years, and had continued so ever since, with short and imperfectly lucid intervals; three brothers and four sisters older than the patient referred to are all married, and most of them have children, but none of them have exhibited any tendency to insanity at any period of their lives. It is probable that the insanity in these two sisters was inherited from a previous generation by atavic descent, for many similar examples are recorded in which it is almost impossible to doubt that such was the case, as in that observed by Moreau* at Charenton, of two sisters who suffered from the same form of monomania, believing themselves to hold intercourse with spirits; in the case, also observed by Moreau,† of two monomaniac sisters, who both fancied that Charles X. was in love with them; in the case of two brothers, twins, confined in the Bicêtre on account of monomania; and in the remarkable case recorded by Moreau,‡ of a gentleman of good position in society, who was the survivor of six brothers who were all mad. In all such cases as these it may be inferred that the insanity was transmitted from an insane member of some previous generation, and probably of the same sex; and in the event of there being no wilful concealment of facts, it may be assumed that the interruption had extended over so long an interval of time, that no record of the descent, such as happened to be historically preserved for more than two centuries in the case of George III., can be procured.

On the other hand, cases occasionally occur in which, through the influence of what may be called insane alliances, both parents, if they do not inherit, at least transmit, the disease. Some remarkable examples of this have from time to time been recorded, such as that which occurred some years ago in Brittany, in which a whole family, composed of father, mother, son, and daughter were insane;§ and in the case observed by Dr. Burrows,‖ of a young man belonging to a

* L'Union Médicale, Jan. 12th, 1850, p. 22. † Ibid.

‡ La Psychologie Morbide, p. 140, note.

§ Gazette des Tribunaux, Fév. 3, 1828.

‖ Commentaries on the Causes, Forms, Symptoms, and Treatment, Moral and Medical, of Insanity, p. 104. 1828.

Jewish family, who, with his father, mother, and six brothers and sisters, were all mad. The influence of sex in these cases may have been maintained, but it could not of course be traced.

With respect to cases of hereditary suicide as distinguished from the preceding, Falret* states that he has established a great number of times the fatal effects of hereditary predisposition in suicidal melancholy; and Cazavieilh† ascertained that in eighty-one cases of suicide occurring in a limited portion of the department of the Oise (France), hereditary influence was shown to occur twenty-two times; that it appeared nine times in the direct line, seven times between brothers, five times between uncle and nephew, and once between cousins.

It is necessary to state also that self-destruction is more common in males than in females; this is shown to be the case by statistics obtained not merely from different countries, but also at different epochs, a precaution needed in consequence of the curious and somewhat unaccountable‡ manner in which epidemics of suicide, also limited by sex, have occasionally broken out, such as that referred to by Plutarch, in which the women of Miletus hanged themselves in crowds; whilst in a late epidemic of the same kind at Lyons, the women drowned themselves in the Rhone; and Montaigne, in referring to a similar epidemic which affected the males of Milan, states that as many as twenty-five masters of houses had committed suicide in one week.§ It will be sufficient for the present purpose to state, that the number of suicides in the department of the Seine (France) in the year 1817, were, according to M. Castel,‖ 351, of whom 235 were men, and 116 were women; and of this number 186 were married, and 165 were single. In England and Wales the number of inquests on suicides during the year 1861,¶ were 1324, of whom 961 were on men, and 363 were on women. Whilst of 95 individuals who committed suicide at or near Boston (America),** 19 only were women; and Falret,†† who may be cited as one of the greatest authorities on this subject, informs us that his own observations have

* De l'Hypochondrie et du Suicide, p. 61. Paris, 1822.

† Du Suicide, de l'aliénation mentale, et des crimes contre les personnes, comparés dans leurs rapports réciproques, p. 5. 1840.

‡ It is necessary to guard against the error of supposing that such occurrences are altogether unaccountable, for they are partly the result of imitation. This is shown by the frequency with which certain places, such as Waterloo Bridge, are selected by females to commit suicide, and also by the events which led to the top of the Monument, near London Bridge, being enclosed. And lest the popular adage that one fool makes many should be thought to refer in such cases by preference to one sex rather than the other, I may state that when, at certain epochs, the bad example has been set by a member of the male sex, it is sometimes quite as liable to be not only followed by, but also to be limited to, individuals of the same sex, as in the well-known case recorded by Falret (p. 248, note), which occurred in the year 1772, at the Hôtel des Invalides, in Paris, when in a very short space of time fifteen invalids (male), hanged themselves to a hook which happened to be in a very obscure passage of the Hôtel; the hook was removed, and no more suicides in that place occurred.

§ Falret, op. cit., pp. 170-1.

‖ Journal complémentaire des Sciences Médicales: quoted by Falret, op. cit., p. 95.

¶ Lancet, Aug. 2nd, 1862, p. 131.

** Falret, op. cit., p. 18.

†† Ibid.

led him to state that suicide is nearly three times more frequent in men than in women.

As illustrations of hereditary suicide limited to males, may be cited a case observed by Dr. Burrows,* in which the suicidal propensity declared itself through three generations; the grandfather hanged himself, and left four sons, one of whom hanged himself, another cut his throat, and a third drowned himself in a most extraordinary manner, after being some months insane; the fourth son died a natural death, which from his eccentricity and unequal mind was scarcely to be expected. Two of these sons had large families; one child of the third son died insane, two others drowned themselves, another is now insane, and has made the most determined attempts on his life. Dr. Burrows further observes, that "several of the progeny of this family, being the fourth generation, who are now arrived at puberty, bear strong marks of the same fatal propensity." A similar case was observed by Moreau,† of a man afflicted with a desire to commit suicide, whose father and paternal uncle had killed themselves, and a brother showed the same overmastering desire: in this case the suicidal monomania of the father and the paternal uncle was probably inherited from a previous generation. In a case recorded by Falleray,‡ in which a father, son, and uncle committed suicide, and another male relation felt an almost uncontrollable desire to do the same, the heritage may in like manner be referred further back. In a case recorded in the 'Annales Medico-Psychologiques' for 1850 (p. 103), the father committed suicide some years previously; his eldest son voluntarily asphyxiated himself, and another son tried to kill himself in January, 1848; his project failed, owing to the vigilance with which he was watched, but on the 11th of September following, he succeeded in doing so by swallowing a large dose of arsenic. In a case of attempted suicide by hanging, of a journeyman whitesmith, aged twenty-two years, related by M. Bourdin,§ the father had previously committed suicide. M. Falret‖ relates the following history of a family of suicides. A dyer, issue of healthy parents, but of a very silent disposition, married to a woman of good health, had by his marriage five sons and one daughter; the eldest son, who married and had children, made many attempts at suicide, and finally, when about forty years of age, threw himself one day from the third story of a house and was killed; the second son, also married, strangled himself at the age of thirty-five years; the third son, in trying, as he expressed it, to fly, threw himself from a window into the garden; the fourth son attempted to shoot himself, but was hindered; the fifth son, melancholic, had not as yet attempted suicide; the sister, who is married and has children, offers no sign which can lead to the suspicion that she shares the

* Op. cit., p. 442.

† De l'Influence du physique relativement au désordre des facultés intellectuelles, p. 14. 1830.

‡ Lancet, 1832–3, vol. i. p. 556.

§ Annales Medico-Psychologiques, tom. viii. 1846, pp. 312–13, note.

‖ Op. cit., pp. 296–8.

melancholy of her brothers; whilst a first cousin, of the male sex and married, has committed suicide by drowning himself in a river. In this case the inheritance, which was strictly limited to the male sex, was probably derived by atavic descent from the grandfather, or some preceding ancestor of the same sex. In another case recorded by Falret,* "an individual (of the male sex) having committed suicide in a house at Paris, his brother, who came to the funeral, exclaimed, on seeing the corpse—'What fatality! my father and my uncle killed themselves, my brother imitates them, and I have had twenty times the thought of throwing myself into the Seine during my voyage.'" "A similar confession (adds M. Falret†) has been made to me by a young officer who came to see his brother, suffering from melancholic aversion to life." Steinau‡ relates a case which came under his observation, in which a father and son both died by suicide. Whilst sometimes the desired information respecting the influence of sex in such cases, is incidentally afforded in cases recorded for another purpose—as, for example, the suicide of two brothers, in the curious case related by Falret (Obs. 20), of a woman aged thirty-five years, who suffered for a time from suicidal melancholy produced by a persuasion that she inherited the malady from her father and her paternal uncle, and which was afterwards cured when satisfactory proof was adduced by her mother that she was the offspring of another man.

With respect to hereditary suicide in the female sex, Moreau§ relates the case of Mdlle. B——, who essayed three times to destroy herself; the first time by throwing herself down a well, and the other two times by hanging herself; her mother, mad like herself, had recourse successively to the same means of suicide. In a case recorded in the 'Annales Medico-Psychologiques' for 1847 (tom. x. p. 447), a married woman committed suicide by hanging: she had two daughters and one son; one daughter poisoned herself in September, 1837, and the other daughter also poisoned herself in September, 1847, being exactly ten years later. Falret‖ saw, at the Salpêtrière, a girl who had made three attempts to drown herself, and whose sister had drowned herself three years previously. In another case recorded by Falret,¶ a grandmother, mother, and daughter were the subjects of suicidal madness. So also in another case of suicidal dementia recorded by Falret,** affecting C. R. B——, aged sixty-three years; her daughter had had many attacks of mania, and her grand-daughter had experienced an attack of mania at the age of fourteen years, and had made many attempts at suicide. And in Observation 19 of the same author, is the history of a case of suicidal madness in a young woman, the offspring of a mother who was mad. Whilst in the *Times* of September 18th, 1862, there is a notice of an inquest held on the body of Sarah Goble, aged seventy-one years, a widow, of the parish of Catsfield, near Hastings, who cut her throat; a sister of the deceased had previously committed suicide at Hayward's Heath Lunatic Asylum.

* Op. cit., p. 7. † Ibid. ‡ Op. cit., pp. 46–48.
§ L'Union Médicale, Jan. 12th, 1850, p. 22.
‖ Op. cit., p. 6. ¶ Ibid. ** Op. cit., p. 293.

Lastly, the two following illustrations will show how involved the heritage in such cases may become when both parents are descended from families in which the suicidal monomania is hereditary. In a case of this description related by Cazauvieilh,* a man who was the son and nephew of kindred dead by suicide, took a wife who was the daughter and niece of kindred dead also by suicide; the husband hanged himself, and his wife married, a second time, a man whose mother, aunt, and first cousin all committed suicide. And a somewhat similar case occurred lately at Neuilly-en-Thelle, in France,† in which a woman whose father, paternal uncle, and first husband (Firmin Vacquez) had all committed suicide by hanging themselves, married a widower named Cadet Bouché, whose only daughter committed suicide by throwing herself down a well; the second husband, through, it is said, jealousy, committed suicide in the second year after his marriage, in the very same barn as that in which the first husband had hanged himself. In this last case it is possible that imitation partly led to the form of suicide selected by the second husband, although the suicidal monomania in him was undoubtedly hereditary, for the previous suicide of a child by his former marriage proved this.

The development of hereditary insanity and suicide is liable, as many other forms of disease are, to be limited by age as well as sex, and Esquirol,‡ in drawing special attention to this fact, states that "hereditary mania shows itself in the fathers and the children, often at the same periods of life; it is excited by the same causes, it affects the same character." The following cases will serve to illustrate the extent to which this conjoined influence may prevail. Dr. Rud. Leubuscher§ records a case observed by himself at Halle, of a peasant who became mad in his twentieth year, in consequence of his taking too much to heart an expression made use of by a preacher, that "all men are sinners;" the father had been seized with mania at the same age. Herman Grube|| relates a case showing the atavic inheritance of insanity at the same age of twenty years, "of a father attacked with mental derangement, who had clever and even distinguished sons, who filled with talent public employments; their children (sex not stated) appeared at first to have sound judgment, but at the age of twenty years they gave signs of madness." Esquirol¶ relates the case of "a Swiss merchant's two sons, who died mad at the age of twenty-five years." Falret** quotes a case from Voltaire's 'Questions Philosophiques,' of a man of mature age who committed suicide; his father and his brother had both killed themselves at the same age as himself. Prosper-Lucas records the case of a monomaniac who committed suicide at the age of thirty years; his son, having scarcely attained

* Op. cit., p. 321.

† Annales Medico-Psychologiques, pp. 177–8. 1855.

‡ Op. cit., tom. i. p. 65.

§ Remarks on the Hereditary Transmission of Insanity: Journal of Psychological Medicine, vol. i. pp. 274–5. 1848.

|| De Morborum transplantatione, sect. 6, c. 1: Dissert. de Zeller, p. 10.

¶ Op. cit., tom. i. p. 66.

** Op. cit., tom. ii. p. 728.

his thirtieth year, became like his father a monomaniac, and made two attempts at suicide. Marc* quotes from Muller the case of a man in the flower of his age, who became melancholic, consequent on the suppression of a hæmorrhoïdal flux, and drowned himself; his son terminated his existence at the same age by the same mode of suicide. A case is related also by Marc† of a man aged forty years, who attempted drowning and was rescued, but who subsequently succeeded in committing suicide; "his father and one of his brothers had terminated their existence at the same age and in the same manner as himself." Prosper-Lucas‡ relates the following well-known case observed by Michaelis: "Every one of the *male* posterity of a noble family at Hamburgh, dating back to the great-grandfather, and remarkable for their military talents, was at the age of forty years attacked with madness; there remained only a single descendant, an officer like his fathers, who was forbidden by the senate of the town to marry; the critical age arrived, and he lost his reason." Dr. Rush§ relates the case of twin brothers who did not on the occasion dwell in the same place, and who yet committed suicide about the same time. In the case of a family observed by Esquirol.‖ the father, the son, and the grandson committed suicide about the fiftieth year of their life. Lastly, with respect to the female sex,¶ Esquirol relates the case of a lady who became insane at the age of twenty five years, after her accouchement, and whose daughter became mad at the same age from the same cause; and there are many similar illustrations of puerperal insanity being in like manner hereditarily limited by age.

Closely allied with the foregoing cases of hereditary insanity are those resulting from hereditary intemperance in drink, which, especially in Scotland and other countries far north, where the average consumption of spirits is very great, produces a common form of mental disease known by the name of dipsomania, and which is often limited to the members of one sex in a family. Dr. Inman** states that "drunkenness is often hereditary in a family for centuries, and this quite irrespective of education and example; I have repeatedly (he remarks) known it to occur where the fathers have died when the children were in infancy, and where the training of their minds had been most carefully attended to." Such occurred in the remarkable case of the Russian family recorded by Gall,†† in which the father and the grandfather had been early the victims of their over-indulgence in fermented drinks; and the grandson, from the age of five years, showed a marked taste for strong drinks. Dr. Fuchs‡‡ has related a case of dipsomania affecting a father and his three sons; the only daughter in the family escaped. In a case of confirmed dipsomania affecting a gentleman

* Op. cit., tom. i. p. 287. † Op. cit., pp. 286–7.
‡ Op. cit., tom. i. p. 759. § Gazette Médicale, 1837, p. 559.
‖ Op. cit., tom. i. p. 66. ¶ Ibid.
** Foundation for a New Theory and Practice of Medicine, 1860, p. 5, note.
†† Quoted by Esquirol, op. cit., tom. ii. p. 73.
‡‡ Henke, Zeitschrift, 1837, 3e Heft, p. 57: quoted by Ch. Rœsch, De l'Abus des boissons spiritueuses, Ann. d'Hygiène Pub., tom. xx. p. 53.

belonging to a Scotch family, which has come under my own observation, a first cousin of the male sex on the father's side died from intemperance in drink. In another case of dipsomania in a man aged forty-nine years, which is at present under treatment, a twin brother has been confined for more than twelve months in a lunatic asylum for the same disease; they have three brothers and one sister; the sister is sober in her habits, but one of the brothers gives way occasionally to excess in drink. In the case of a journeyman mechanic, aged fifty-six years, lately under my observation, intemperance in drink not resulting in dipsomania, was associated with asthma, and three brothers also suffered in the same way from intemperance in drink and asthma, whilst their two sisters, one aged fifty-seven, and the other seventy-one years, were both sober and also free from chest affection; the father, who died of paralysis at the age of fifty-one years, and the mother, of some abdominal disease, at the age of sixty-one years, were both sober and free from asthma, but the maternal grandfather was an habitual drunkard. Lastly, as illustrations of an hereditary tendency to suicide developed in connexion with intemperance in drink, may be cited a case which occurred some years ago in France,* of four brothers who abandoned themselves to unbridled drunkenness, which resulted in the eldest brother committing suicide by drowning, the second by hanging, the third by cutting his throat with a razor, whilst the fourth threw himself from the third floor of a house, but survived; and Esquirol† relates the particulars of a case under his treatment at the Salpêtrière, in which a prostitute, under the influence of drink, had three times attempted suicide by throwing herself into the river Seine, and her sister had previously drowned herself whilst overcome with wine.

In like manner the propensity to crime is occasionally observed to be hereditarily limited to one sex, as in the case of kleptomania related by Steinau,‡ of an old man whose propensity to steal was so strong that he was popularly known as "the thief," and whose son and grandson were both incorrigible thieves; the propensity to steal having shown itself in the grandson at the age of three years.

So also in other abnormal conditions of the brain and nervous system generally, the same influence of sex will be found to prevail in a large proportion of those cases in which a more or less decided tendency to hereditariness has been observed. Excluding such cases as are almost necessarily limited to one sex, whether they occur hereditarily or not—as, for example, hysteria—there remain many cases in which the same limitation by sex, and sometimes also by age, prevail. Haller§ records a case of somnambulism developed in three brothers at the same epoch of their lives. Horstius‖ observed a case also of three brothers who were somnambulists; in a case observed by Willis,¶

* Gazette des Tribunaux, Avril 13, 1845. † Op. cit., tom. i. p. 66.
‡ Op. cit., pp. 48-50. § Biblioth. Medico-Practica, tom. ii. p. 216.
‖ De Natura differ. et causis eorum qui dormientes ambulant, &c. Lipsæ, 1593. Haller: op. cit., p. 216.
¶ De Anima Brutorum, pars 1, cap. 1, p. 66.

a father and his children (sex not stated) were all somnambulists; Dr. Pochon* was acquainted with the case of a medical pupil and his father, both somnambulists; and Prosper-Lucas† refers to the case of two sisters, somnambulists, who talked and sustained a continued conversation in their sleep. Whilst in a case of catalepsy observed by Desperrières,‡ two sisters were successively cataleptic, and their mother had for a long time suffered from nervous affections; and G. Eloch§ refers to the direct transmission of catalepsy from father to son, and also relates a case in which it was transmitted from grandfather to grandson by atavic descent.

Epilepsy furnishes, in like manner, many illustrations of the same influence of sex; and although some difference of opinion has prevailed respecting the extent to which this disease may occur hereditarily, there is sufficient evidence to prove that it does so to an extent greater, perhaps, than many writers appear to be willing to admit; for, in a paper communicated to the Royal Society in 1860, Dr. Brown-Séquard announced his discovery that epilepsy artificially produced in guinea-pigs is transmitted to their offspring; and as it is well known that artificially acquired diseases or defects are not transmitted so readily as those which occur, as it were, naturally, it may be inferred from this that epilepsy is a disease naturally liable to be transmitted hereditarily; and the following cases have been selected to show the extent to which the influence of sex prevails in the different forms of its hereditary descent, whether direct, atavic, or collateral. Gintrac‖ relates the case of the Marquis Ant. Jules Brignole, attacked with epilepsy, who had a family of four sons and two daughters; the second and third sons had epilepsy, but not the other children. Dr. Hamilton¶ relates a case of epilepsy in father and son. Dr. Russell** (of Birmingham) records the case of a mother and her daughter, both epileptic; and another case in which a gunsmith became epileptic at the age of eighteen years, his father and his maternal uncle having both been epileptic; it is to be noted that the inheritance in this case was double, being direct on the father's side, and collateral on the side of the mother. Moreau†† relates the case of a woman named Martin, aged fifty-three years, and the mother of eight children; she had been epileptic since the age of seven years, and her mother also was epileptic; of Mrs. Martin's eight children, three died from convulsions (sex not stated), and of the five remaining, one daughter is hysterical, and another (younger) daughter is epileptic. It is to be further noted in this case, that whilst epilepsy was hereditary in the females of the family for three generations, both the father and the paternal grandfather of Mrs. Martin were insane, affording an illustration of insanity

* Arch. Gén. de Méd., tom. xiv. p. 539.
† Op. cit., tom. ii. p. 790 (from Casimir Medicus, Maladies Périodiques, p. 27).
‡ Histoire de la Soc. Royale de Méd., tom. v. p. 251.
§ Catalepsis Epileptica: quoted by Prosper-Lucas, op. cit., tom. ii. p. 735.
‖ Op. cit., p. 319. ¶ Medical Commentaries, vol. vii. p. 336.
** Medical Times and Gazette, Feb. 22nd, 1862, pp. 187–8.
†† La Psychologie Morbide, p. 139. 1859.

being hereditarily limited to one sex, and epilepsy to the other, in the same family. Maisonneuve* relates an interesting and well-marked case of the atavic occurrence of epilepsy in a man, a native of Versailles, in whom epilepsy commenced immediately after birth; the father and mother had never been subject to epilepsy, but the maternal grandfather was epileptic: and Dr. Sieveking informs me that he has under treatment a case of epilepsy in a little boy aged five years, whose maternal grandfather, aged sixty-nine years, has recently had two or three epileptic seizures; in both of these cases the transmission of the disease through the mother agreed with the most common form of atavic descent. Sir Henry Holland† observed a case in which epilepsy affected three sisters; Gintrac‡ records a case of epilepsy occurring in two brothers; and I have at present under observation a case of epilepsy occurring in two brothers, which began at the age of fourteen years in each, their two sisters, one aged twenty-one and the other eighteen years, being free from the disease. In the case of a dressmaker, aged twenty-eight years, married and the mother of two children, which has lately been under my observation, epilepsy began at the age of sixteen years, and two of her maternal aunts, being the second and seventeenth children of a family of six sons and twelve daughters, have suffered from the disease, which began in them also at the age of sixteen years; it is to be noted in this case, that the maternal grandmother had a family of two sons and eleven daughters, showing an hereditary tendency on the female side to large families, consisting chiefly of daughters. In the following case, which has likewise come under my own observation, the development of the disease was also limited by age as well as sex: a married couple, in whom no previous history of epilepsy could be traced, had ten children, of whom the second, third, fourth, fifth, sixth, and ninth were boys, in all of whom epilepsy was developed between the ages of twelve and eighteen months; whilst the first (now aged seventeen years), seventh, eighth (dead soon after birth), and tenth were girls free from the disease. In the well-known case of Peter the Great, of Russia,§ in whom hereditary epilepsy showed itself at the age of five years, the females of the family seem to have been exempt from the disease; respecting the father of Peter the Great, Alexis Michaelowitz, little appears to be known of his medical history, beyond the fact of his being carried off by a premature death at the age of forty-six years. This prince was twice married; by his first wife he had two sons and six daughters; the eldest son, Feodor, who mounted the throne at the age of fifteen years, was of a feeble temperament—the second son, Ivan, nearly deprived of sight and speech, was often attacked with epileptic convulsions; whilst of the six daughters, one, the Princess Sophia, was distinguished for her talents, and the others are not specially mentioned. By his second marriage Alexis left two children, Peter the Great and

* Recherches et Observations sur l'Epilepsie, p. 68.

† Op. cit., p. 43.

‡ Op. cit., quoted from Revue Médicale, 1828, tom. iv. p. 102.

§ Moreau: op. cit., part 3, Faits Biographiques, pp. 520–1.

the Princess Nathalie. Respecting the family of Peter the Great, which consisted of six sons and two daughters, one son, Alexis, was so headstrong and vicious that he was put to death by his father, and the five other sons died in infancy or soon afterwards; a grandson of Peter the Great, Paul I., suffered from hallucinations, and on one occasion was to be seen rushing through the streets of St. Petersburg, pursued, as he fancied, by the spectre of his grandfather. In this case the epilepsy of the half-brothers, Peter and Ivan, sons by different marriages, was probably derived from a paternal ancestor by atavic descent. Whilst the following case, recorded by G. L. Durius,* may be cited to illustrate Dr. Brown-Séquard's observations respecting the hereditary transmission of acquired epilepsy; a man, who was not born epileptic, shattered the dorsal vertebræ in falling from the top of an oak; the result of this accident was a spasmodic contraction of the limbs, which lasted for years, and was not perfectly cured when he married; his son, on attaining the age of puberty, became epileptic.

The same influence of sex may also be observed in many cases of hereditary headaches, affecting either one or the other sex; and as an illustration of its occurrence in the female sex, may be mentioned the case of a lady, lately under my observation, whose hair became quite grey at a comparatively early age, from frequent paroxysms of intense headache, for which there seemed to be no means of relief; her daughter suffered in the same way, though to a less extent, whilst her two sons were exempt. Piorry† speaks of a hospital practitioner in whose family exist, from father to son, headaches in connexion with a nervous disturbance of the stomach. Prosper Lucas‡ relates the case of a gamekeeper afflicted, like his father and paternal grandfather, with the same malady (headache), which continues in each of them up to the age of forty years, when it changes into a sensation of weight on the top of the head, unaccompanied by cephalalgia, nausea, or vomiting. And Dr Henry Stewart has furnished me with a still more complete illustration of this associated influence of age and sex, in the case of a married man, aged forty years, without children, who suffers from severe paroxysms of headache, which are only relieved by the recumbent posture in a dark room; repeated change of climate has been tried, and many medical practitioners have been consulted without benefit; tonics give most relief, but under all kinds of treatment the headaches come on once and often twice a week, and have recurred in this way ever since the age of twelve years, when they first commenced; his three brothers suffer in the same way, but not his sisters; in his father they began during childhood, and continued till the age of fifty-five years, when they entirely ceased; his paternal uncles, paternal grandfather, and paternal granduncles have all suffered from severe headaches in the same way, which in like manner ceased in those who lived to the age of fifty-four or fifty-five years; none of the females of the family have ever suffered from these headaches.

Lastly, in cases which may be directly referred to some structural

* Ephém. d'Allem., Déc. 3rd, an. 9-10, obs. 126.

† Op. cit. p. 116. ‡ Op. cit. tom. ii. p. 702.

lesion of the brain, the same influence of sex has not unfrequently been observed. For example, in cases of hydrocephalus, in addition to the well-marked illustration already referred to,* may be cited the following cases recorded by Otto:†—a case observed by P. Frank, in which five sisters died in their first year of acute hydrocephalus; one family in which three, and another in which seven sisters had water in the head, observed by Goelis; and a case observed by Rolph, in which seven sisters were affected with this disease, of whom only the youngest was cured. It may moreover be remarked that in the same way that a double heritage has in other forms of hereditary disease caused both the male and the female offspring to be similarly affected, so likewise in a case of hydrocephalus related by Prosper Lucas,‡ in which seventeen children in one family were attacked, and only one recovered; the mother was so affected in the head that she could never be taught to read, and the father had been affected since his youth with incurable deafness, and was moreover very eccentric; whilst his first cousin, on the day of his marriage, dropped dead at table from a stroke of apoplexy; and Piorry§ relates a case of encephalitis which was fatal to a father, mother, and sister in one family. The influence of age combined with sex is well shown in the case observed by Sir Henry Holland,‖ of hemiplegia occurring in three brothers at the same age; and, in connexion with this division of our subject, may be cited the case recorded by J. F. Meckel,¶ of hernia cerebri occurring in two sisters as a congenital defect.

(To be concluded.)

Art. II.

Researches on the Treatment of Suspended Animation. By Benjamin W. Richardson, M.A., M.D., Senior Physician to the Royal Infirmary for Diseases of the Chest.

In commencing this history of my researches on re-animation, I must beg that the opinions and views expressed may be received apart from the experimental details. The experimental portions are mere matters of fact, and as such they remain; on them other minds may freely and fairly draw conclusions different from my own. Offering candidly this preliminary statement, I must ask, on my part, that the views I have expressed may be received with equal consideration. That these views may differ from received doctrine, is quite in accordance with my expectations; but as I put them forward *sub judice* and with moderation, I cannot but hope that their faults and shortcomings may, by exciting attention to the all-important topic on which they treat, be of service to science and humanity.

That no misunderstanding may hereafter occur, it is necessary at the outset to define rigidly the class of cases to which the term sus-

* British and Foreign Medico-Chirurgical Review, July, 1861, p. 209.
† Op. cit., p. 379. ‡ Op. cit., tom. ii. p. 741. § Op. cit.
‖ Op. cit., p. 43. ¶ D. Archiv f. d. Physiol., vol. vii. p. 99, ff.

pended animation is applied in this paper. I include, then, under this head, cases only where life has been arrested by the suspension of that process of combination between oxygen and blood on which the calorification, and thereupon the animation, of the animal depends; whenever any serious mechanical injury has been inflicted, whenever the blood has been disorganized, whenever any important organ has been subjected to antecedent morbid change, the case is excluded.

The proposition, in plain terms, stands as follows—

Given a healthy body in which, without structural injury or change in any part or organ, life has been arrested by suppression of the chemical process of oxydation: how can such a body be restored?

The cases included under this proposition are much more numerous than might at first sight be expected. They are—

I. *Cases where the air has been directly cut off from the lungs*, including simple occlusion of the windpipe, as by the entrance of a foreign substance solid in kind, external pressure, strangulation, and entrance of water.

II. *Cases of poisoning by the inhalation of a body which has the power of temporarily arresting oxydation*, including death by inhalation of carbonic acid, chloroform vapour, amylene vapour, hydrocyanic acid vapours, and similar volatile compounds.

III. *Cases where active and diffusible poisons, possessing the power of suspending oxygenation, without destroying tissue, are taken into the system by the alimentary canal*, including cases of poison by swallowing chloroform, opium, alcohol, ether, hydrocyanic acid, and substances of the same class.

IV. *Cases where the chemistry of respiration has been indirectly stopped by the infliction of shock, without structural injury*, including cases of simple stun from a fall or blow, blow on the stomach, lightning stroke.

V. *Cases where the blood has been removed from the air*, including rapid hæmorrhage, as from a divided artery within reach of ligature.

VI. *Cases where oxygenation is suppressed by the indirect action of extreme cold.*

On the present occasion it would, I feel, be impossible to deal with all these classes of cases; and, indeed, to attempt to deal with them would be simply to anticipate a volume which is now far in advancement towards completion. I shall therefore confine myself here to the two first-named divisions—i.e., to examples where death has occurred either from obstructed respiration, *or from inhalation* of a narcotic vapour.

In considering the treatment of suspended animation in the classes of cases thus stated, it is requisite to proceed in the inquiry step by step; to compare the conditions presented in one class with those presented in another; to see if there is any condition which is of necessity opposed to recovery; to determine if there are any common points of relationship, or if each case is separated by broad and distinct lines; these matters cleared up, it will be possible, perhaps, to discern

whether any one particular and common line of treatment is applicable, or whether for each form of suspected death different measures are to be applied.

I shall proceed, therefore, by discussing—

1. The morbid conditions presented by these different forms of suspended life.
2. The pathology, general and special, of these forms.
3. The modes of treatment.

I. THE MORBID ANATOMY IN CASES OF SUSPENDED ANIMATION ARISING FROM MECHANICAL OBSTRUCTION OF THE RESPIRATION, OR FROM INHALATION OF NARCOTIC VAPOURS.

The morbid states to be considered have relation to the following structures and parts—

The blood.
The heart.
The lungs.
The brain.
The secerning viscera.

Cases arising from Mechanical Obstruction of the Trachea.

In instances of obstruction of the windpipe by internal plugging or external pressure, the morbid phenomena are naturally the same. These phenomena are, nevertheless, very far from being alike in every case; they vary according to the rapidity of the death and the perfection of the occlusion.

The Blood.—In all cases of death from these forms of occlusion, where the period of dying has not been extended over eight minutes, the condition of the blood is the same; the corpuscles remain unchanged, the fibrine unseparated; the coagulating power of the blood is also unchanged, but if the vessels of the body in these cases are unopened, the period of coagulation in the vessels is very slow. I have observed the blood of different animals after death from obstruction of the trachea in twenty-three examples. I found it invariably fluid for the first twenty minutes after death; in a dog which was hanged in 1854, and brought to the Grosvenor Place School three hours afterwards, I found the blood still fluid; and in a case of hanging in the human subject where death had taken place three-quarters of an hour before my arrival, I plunged a lancet into an engorged jugular vein and drew off an ounce of perfectly fluid blood.

At the same time it is not to be assumed that this fluidity indicates any chemical change in the blood as the result of the mode of death; such blood, on being set free, undergoes coagulation normally, according to the animal to which it may have belonged. It is susceptible of oxydation, and it is capable of restoring muscular irritability to the muscles after such oxydation, by injection into them.

The Heart.—The condition of the heart varies with the length of time during which the death is taking place; this is very important to re-

member. If the death is extremely rapid, from the occlusion having been sudden and complete, then one condition is always presented. The right side of the heart is engorged with blood, the auricle being enormously distended; while the left side is firmly contracted and empty. In determining this point I have used a tube shaped like the letter T. The windpipe of a dog having been laid open, the horizontal portion of the tube is inserted and firmly tied. If now the openings of the cross are immediately and securely closed, and the exchange of air is stopped at once, there is perfect asphyxia, and in such examples the heart is left as I have described it: full on the right side, contracted and empty on the left.

If, however, death is less sudden, if the cross tube is closed only at one extremity, so that a partial respiration can be carried on, then the condition is different after death; in such case the right side is full as before, but the left side contains more or less of blood, and is much more relaxed. I have even seen the left side as engorged as the right in an example of this nature; in a case of somewhat prolonged suffocation in the human subject which I inspected in Oct. 1861, I found this state to obtain; the blood in the left cavities was as large in amount as that in the right. The blood on the right side is always dark in colour.

There is one other phenomenon in regard to the heart in these examples. If, during the period of death, the stethoscope be kept over the cardiac region, the sounds of the heart may be heard until a period of from three to nine seconds after the last attempt at respiration; then the diastolic sound ceases, while the systolic keeps for a few seconds feebly clicking on; the cessation of the systolic sound marks the period of what may be virtually considered in the present state of our knowledge, the period of death; there may then follow a slight convulsive start and rapid quiver of the heart, and immediately all is quiet.

Under these circumstances, it might be assumed by the observer that the heart has entirely stopped; and the observation would be true were the body of the animal left alone unopened. If, however, the body is opened and the heart is exposed to the air, there is reaction; within a few seconds after the exposure there is contraction of the right auricle, then of the right ventricle; if any blood remain in the left cavities, their walls also follow, and the whole organ may appear in active play.

These contractions of the heart, on its exposure to the air, after asphyxia, have been a source of strange but natural perplexity to experimentalists. It has been assumed from the fact of witnessing these contractions, that the action of the heart has been continuous; it has been further assumed that these contractions indicate on the part of the heart an ability to perform its functions if the respiration were but adequately assisted. Let me, then, remove these errors. The contraction of the heart observed on exposure, is a re-excitement consequent on the admission of air to its surface, and is due to a feeble combination of the oxygen of the air with the blood still remaining in the muscular walls. A little chloroform vapour blown over the

organ will stop the briskest action temporarily, by stopping the oxydation; and a breath of chilled air will do the same thing; on the other hand, a current of warm air will often recall the organ into motion.

Again, the contraction observed, vigorous though it may seem, is not propulsive contraction; it never suffices to drive on a pulmonic circuit; it excites no dilatation of arteries; hence it is an useless exhibition of force, having as little power in re-starting a circulatory movement, as the jactitations of the muscles of the limbs in the typhus patient have power to make the patient rise and walk about.

The Lungs.—The condition of the lungs in the forms of suspended animation now under consideration varies according to the time of dying. The lungs in this respect go with the left side of the heart. If the occlusion is sudden and complete, the lungs present no unnatural appearance; if the occlusion is imperfect, and the struggle is prolonged, the lungs will be found containing blood in the pulmonary artery, and in the pulmonary veins; while if the struggle is greatly prolonged, they are intensely congested.

It is not difficult to explain why there are these gradations of pulmonary congestion in different forms of asphyxia. In health there is always an accurately-maintained balance between the pressure of the air on the air-vesicles of the lungs, and the pressure of the column of blood derived through the pulmonary or right side of the heart. When, then, the column of air in the lungs is suddenly and entirely cut off, the weight of the column remains the same; the oxygen retained in the air is gradually absorbed by the current of blood passing over the lungs: the heart is kept in motion so long as the blood is in receipt of the oxygen, and the conditions are for a short time the same as during life; but as the blood ceases to be oxygenated, the heart ceases to offer its propelling power: death commences at the heart, and the lungs are left free of engorgement.

When, again, the column of air to the lungs is not absolutely cut off, but is partially arrested, there is instituted a spasmodic respiration in which the expiratory efforts far exceed the inspiratory in effect; the diaphragm becomes spasmodically fixed, and the external chest muscles contracted; still there is admission into the chest of some air, on which the heart survives, retaining its action and forcing its blood into lungs nearly passive; the lungs consequently become engorged, and in proportion to the duration of the struggle so is the engorgement: the animal near to death, the muscles of the chest rigid, and the chest contracted, makes a sudden gasp; a little air is thus conveyed into the air-vesicles, and is caught up by the blood; then the chest is again fixed, but that breath of air has reinvigorated the heart, and the right side again pours blood into the helpless and partly venous lungs, until at last the engorgement is such that the mechanical obstacle is too great to be overcome, and both circulation and respiration are at rest.

The Brain.—The condition of the brain, after fatal obstruction of the trachea, is various; if the death is very rapid the venous system of the brain is found in the same condition as the right side of the heart; the sinuses are charged with blood. If the death is prolonged there will again

be congestion, and even a little serous effusion; these appearances are much intensified in cases where the tracheal obstruction is from without, and where there has been pressure at the same time on the jugular veins. Indeed, I once saw a case, which has been recorded in my work on 'Fibrinous Deposition in the Heart,' in which, after suspension by the neck in the human subject, the trachea escaped pressure altogether, and the symptoms set up were those of extreme congestion of brain, and serous exudation beneath the arachnoïd.

Taking, however, the general run of cases of asphyxia, the brain is not often injured beyond recovery; neither can the brain be considered as primarily opposed to the recovery, presuming always that it was previously in a healthy condition.

The same observations as are applicable to the brain, are equally applicable to the spinal column. In all the cases of obstruction which I investigated, the cord was examined; but in none was there any obvious sign of organic lesion.

The Glands.—The glandular viscera, the liver, the kidneys, the spleen, are all more or less congested after tracheal obstruction; and there is commonly some congestion of the alimentary canal; but I have never seen any sign of rupture of vessel in these parts, nor of exudation of serum.

Cases arising from Obstruction from Water—Drowning.

In cases where the respiration is stopped by the entrance of water into the lungs, or I had better have said by immersion in water, the conditions vary according to circumstances, and one case of drowning must not therefore be taken as absolutely representing another.

If an animal be drowned in a narrow vessel, for instance, in which it cannot turn, and with its head downwards, the conditions are identical with those which result from sudden stoppage of the trachea with a solid body; if, again, a warm-blooded animal is drowned in water just below freezing-point, the same condition is met with whatever the position of the body; but if it is drowned in water at 96°, the conditions are the same as when the air is slowly suppressed—that is to say, there is blood both on the right and on the left side of the heart, and great congestion of the lungs.

Omitting minutiæ, however, on these rarer forms of drowning, let me present an analysis of the appearances met with in ordinary cases; where the body is plunged into water haphazard, as we may say, at common temperatures, not under 45°, nor over 60°.

I take these observations from the post-mortems in the human subject accidentally drowned, from three experimental drownings in dogs, four in rabbits, and sixteen in kittens.

The Blood.—The corpuscles of the blood remain unchanged, and the fluid remains long uncoagulated if the body is unopened; in one instance, in the human subject it was fluid twelve hours after death; it coagulates, however, on exposure to air and warmth.

The blood is dark wherever it may be found; but subjected to oxygen and warmth it oxydises, and injected into muscles of animals

recently dead it restores irritability. We may conclude, therefore, that previously to putrefaction or coagulation it retains its natural properties.

The Heart.—The heart is congested on the right side, but it also contains blood on the left.

From the impossibility of conducting the inquiry, I cannot say positively whether the heart outlives the respiration.

The Lungs.—The lungs are engorged, and the bronchial tubes contain a little watery, sanguineous fluid.

The Brain.—The brain is congested, and I have seen a slight effusion of serum derived from the superficial vessels, but there is no observable organic lesion either in the vessels themselves or in the nervous structure.

The Glands.—The vascular organs are congested, especially the *spleen* and *kidneys*, but these are not structurally injured.

Cases arising from Inhalation of Narcotic Vapours.

In cases of poisoning by the inhalation of gases which have the power of suspending oxydation, the morbid conditions are not widely different from those given above.

There are, nevertheless, certain distinctions arising from the nature and action of the poisonous agent. These distinctions merit specification. Gases which, by inhalation, destroy life without acting violently on the tissues, produce their effects not always in the same manner. One class of them kill by an affirmative process, the other by simple negation. We have illustrations of these two forms in chloroform and carbonic acid. Chloroform destroys by virtue of the physical property which it possesses of arresting oxydation by its mere presence—a body, that is to say, will not oxydize in the presence of chloroform, although oxygen be present also in abundance. I diffuse chloroform through a jar of oxygen, and on immersion of a taper alight, instead of brilliant combustion there is extinction. For this reason chloroform is preservative of organic substances; for this reason it is an anæsthetic; for this reason it sometimes destroys life. Carbonic acid, as the type of the second class of body to which I have referred, does no affirmative act; it kills truly, but by negation, or, better to say, by displacement of air; incapable itself of supporting life, it can no more replace air than can water; and an animal immersed to the death in carbonic acid is as simply drowned as it would be drowned under water.

Chloroform.

The morbid appearances after death by chloroform are exceedingly definite when they are observed in their pure state. The appearances described as following death by chloroform in the human subject are not fair specimens of the reality, for in these cases there has usually been some pre-existent organic change in the body, as in the heart, or lungs, or kidneys; and there have been long-continued attempts at resuscitation, and not unfrequently loss of blood. We have, therefore, to derive all our exact information from comparative experiment, for which comparison we have now abundant materials.

I have myself examined the bodies of ninety-three animals after death by chloroform inhalation. These animals included fifteen guinea-pigs, nine cats, twenty-five dogs, one pig, and forty-three rabbits. In these observations the pure effects of the chloroform were noted, and as in no given case was there any material difference in results, I think we may consider that the morbid formula of death by chloroform is in our hands.

In all these cases the animals were quickly narcotized, insensibility being completed within seven minutes. After narcotization was perfect, however, various points of modification were adopted; for instance, the animal was in some examples allowed to sleep for a quarter of an hour before the larger and fatal dose was administered. In six cases, again, the death was rendered instantaneous by injecting a drachm of chloroform into the trachea; in this way sudden and slow death was accomplished.

The Blood.—The blood in none of the examples which I observed presented organic change; the corpuscles were natural in size and in shape. This, however, is worthy of observation, that the corpuscles, after they had been exposed on the glass, had a tendency to become crenate at the edge. I attribute this to a rapid drying of the blood, owing to escape of chloroform from the blood and its conveyance of water. I observed the same appearances in a little blood taken at the period of perfect insensibility from the human subject. I have also seen the same phenomenon in blood to which a little chloroform has been added. These crenate corpuscles must be carefully designated from those occurring in blood as it is drawn from the body in disease; otherwise it might be assumed that the chloroform by its presence exerted a chemical influence on the blood-corpuscles within the body at every inhalation, which is not the fact.

The coagulating power of the blood is not in any degree modified by chloroform: general surgical experience proves this; experiment makes the general experience absolute. In twenty of the animals subjected to experiment, blood was drawn from a small vein before narcotization, during narcotization, and after death; the period of coagulation remained so closely the same that the difference of a second could not be defined.

The same law obtains after death by chloroform as after death by asphyxia, if the vessels of the body are unopened—that is to say, if the circulatory canals remain closed, coagulation is a slow process. I have seen the blood remain fluid for two days in large animals; but in small animals, such as mice, it usually coagulates in one or two hours, according to the temperature of the day. This result, as Dr. Snow has shown, is due to the more rapid evaporation from the small animal. The colour of the blood is not much changed by chloroform; any arterial blood present in the left side of the circulation may have a slight tinge of purple, but the darkness is very faintly marked.

There is always a small quantity of chloroform in the blood immediately after death, but the amount is variable, and the presence of it altogether is transitory. By measure, the amount can never be more

than the sixteen-thousandth part of any obtainable quantity of blood; and there are so many agencies at work—even in the dead body—for its removal, that this minute portion can never be obtained after the lapse of a few hours.

The Heart.—The condition of the heart after death by chloroform, when the organ itself is healthy, is invariable. During the act of dying an apparent paradox is presented: *death commences at the heart, and yet the heart outlives the respiration.* The facts are these. If the stethoscope be placed over the region of the heart, the organ will be heard to beat, and both sounds will be distinguishable so long as there is any respiration. When the respiration has entirely ceased, there will be a few seconds of time in which both sounds may be heard very feebly; then a second, in which the first sound is heard alone; then an irregular motion; then silence. But during the whole of the last period of life, although the heart-sounds are heard, there is no arterial pulsation. In three experiments on large dogs, after they were quite insensible, I made a small opening in the abdominal wall, which enabled me to insert my finger, place it over the aorta, and take the arterial pulsations with my finger, while I took also the cardiac action by the ear. In one of these cases the arterial pulsation ceased two minutes before the cessation of either sound; in another, one minute and forty seconds; and in another, one minute and a half.

It is clear from this that the cardiac action, attended as it is with pulselessness, is action developed feebly on one side—viz., on the right side, and that there is in truth no paradox.

On examination after death from chloroform purely, the condition of the heart is uniformly the same: the right side is filled with blood, both in the auricle and ventricle, and the left side is contracted and empty. The arteries are empty, or at most contain a thin line of blood.

On exposure of the heart to the air, if the death has not exceeded half an hour, there occurs after a short pause active motion of the auricle and of the ventricle of the right side. This may continue for an hour, if the temperature of the air surrounding is above sixty and not above eighty. But the action is utterly futile as a propulsive action; it never injects the lungs; it is neither attended with sounds nor with evidences of valvular tension. If the pulmonary artery be laid open, there is no jet; if air be removed, the action ceases: the motion is due, in fact, to a feeble oxydation of the blood in the parietes of the heart.

The Lungs.—The lungs are invariably free from congestion after pure death by chloroform. At all events, that is my experience. Usually, too, their structure presents a colour entirely natural; in a few instances the colour has been a little more red than natural, and occasionally a little more pale; but I am not sure that in either of these variations the chloroform deserves the credit of producing these conditions.

The reason why the lungs are free of congestion is sufficiently clear, the effect of the chloroform being primarily upon the heart through the blood, the first indications of dissolution are seen in the circula-

tion. The right side, instead of affording a correct supply, transmits a current gradually decreasing in power and in volume. To this current, however, no opposition is offered in the pulmonic circuit; it makes its way therefore to the left side, which propels it forward with a force steadily declining. Thus the circulation dies step by step, and with it the muscular power generally. At last a time arrives when the right side of the heart, feebly stimulated by the presence of blood, alone contracts, not with sufficient power to sustain its circuit or engorge the lungs, but yet with sufficient power to convey to the observer that there is some remaining motion of the heart, even when the respiration has finished play.

The Brain.—The brain and nervous centres after death by chloroform receive, according to my observations, no serious organic injury. I have seen venous congestion of the vessels, but never, even after prolonged death, effusion or rupture of vessel.

The Glands.—The same observations hold good in respect to the vascular organs; the liver is usually a little engorged, the spleen more so; the kidneys are scarcely affected. I have traced redness in the mucous membrane of the stomach in many cases: this is due to the actual presence of chloroform, which seeks the mucous alimentary tract as one of its points of elimination; for this reason chloroform produces frequent vomiting after its inhalation.

Carbonic Acid Gas.

After death by carbonic acid, the effects are greatly different in many instances from those which follow chloroform. I performed twenty experiments with this gas to determine its effects. Rabbits were employed in ten of these inquiries, and guinea-pigs in ten. The results derived from analogous experiments in both classes of animals were found to depend entirely on the method of administering the gas. When a vat was used which was perfectly air-tight, when the vat was filled with carbonic acid, and when the animal was let into the vat without any possible admission of common air, the result was, that in every case the animal was rendered insensible within the first minute, and was dead, with but little convulsion, in three minutes and thirty seconds. If the vat contained half its volume of air and half its volume of carbonic acid, the animal would live five minutes, and the convulsion would be well marked, although the period of insensibility was but little changed.

The Blood.—Carbonic acid exerts no appreciable change on the *blood*-corpuscles; they remain unaltered. There is neither shrinking nor crenation. If there is any remark in respect to them, it is that they run together rather slowly, and that the arterial corpuscles have a dull cast: the blood is capable of oxygenation. The coagulation of the blood is slightly retarded, but, once commenced, it is as marked as in health. The dark colour is deepened, and the arterial assumes a venous tint, but not to the extent that is usually assumed. Within the body the coagulation of the blood is very slow; I have found the blood fluid ten hours after death.

The Heart.—In all cases the right side of the heart is surcharged with blood. If the death has been rapid, the left side is contracted and empty. If the death has been slow, the left side contains blood which is dark.

If before the animal is dead it is removed from the vat, and made to breathe the acid from a nostril-tube, then, when the stethoscope is applied over the region of the heart, the respiration and the circulation are found to fail almost at the same moment. Commonly a movement of the heart is heard after the last respiration, but unaccompanied by either the systolic or diastolic sounds.

When the heart is exposed to the air after death, the reaction, though always presented on the right side, is very feeble, and of extremely short duration; it rarely lasts five minutes, and in four of my observations it did not occur at all.

The Lungs.—The state of the lungs varies with the mode of dying. When the death is very quick, the lungs are scarcely congested at all; they might pass as natural. But when the death is prolonged, the lungs become intensely engorged, and, owing to the colour of the blood, very dark in appearance.

To show how little reliance can be placed on morbid presentations after attempts at resuscitation have been made, I may mention the following fact:—A rabbit had been killed by inhaling carbonic acid. The thorax was laid open, and the lungs, intensely congested and dark, were exposed. I left the laboratory for a few minutes to attend a call, and on my return found the lungs of bright colour and scarcely congested. On inquiry, I learned as a cause of this change that a pupil whom I had left in the laboratory had amused himself by injecting air into the windpipe with some degree of force; the blood throughout was thus struck of a red colour, and the morbid state was entirely modified.

The Brain.—The brain is always congested after death by carbonic acid, and where the struggle is prolonged there is, in the majority of cases, an effusion of serum. I have never met with rupture of vessel.

The Glands.—The *liver*, the *spleen*, and the *kidneys* are all congested, the degree of congestion varying with the period of death. But in these organs I have never seen more than congestion—no direct transudation, no mechanical lesion.

OF THE PATHOLOGY OF THE VARIOUS FORMS OF SUSPENDED ANIMATION.

Surveyed in respect to details, the pathology of the various forms of suspended life above described are apparently varied; surveyed integrally they resolve themselves into one. We have learned terms which divide, or would divide, these forms of death; we must relearn or unlearn these terms before we arrive at the truth.

In common language we should say, that some of the conditions which have been defined were classifiable under the term syncope, others under the term asphyxia; but as one progresses in research, the terms become cumbersome and even meaningless. Syncope resolves itself into removal of blood from the air, asphyxia into removal of

air from blood; the terms therefore define, after all, but one act—viz., the extinction of that process by which air and blood came together to combine and produce motion.

It may be said that the terms are useful, as designating the mode by which the final result was inaugurated, and in some sense this idea is true, but as it expresses only half a truth, and does not account for every phenomenon, it is not logically admissible.

The truth is this, that between what is called pure asphyxia and pure syncope there is a borderland, which, in the presence of the extreme definition, belongs to both, or to neither. When we draw off air from the lungs we produce asphyxia; truly! but we may allow the air free entrance to the blood, and we may charge that blood with a third body which, standing in the way, forbids the oxygen of the air from entering into combination with the blood. Is that asphyxia? No, for it begins in the blood. Is it syncope? No, for it implies no derivation of blood, and not necessarily any primary fault in the circulatory organs. Here, then, is a condition for which a new term must be invented, if we retain old terms. Better far, simpler far, as I think, to admit the fact, that in every form of death the elementary cause, however it may commence, lies in a simple variation from the natural act of the combination of oxygen with blood.

The pathology, therefore, of all the cases I have described is included in this one deviation from natural life. The morbid phenomena are mere accidents; they, in themselves, would never lead to a correct appreciation of the nature of that process by which death was produced; the process may be the same, the morbid appearances may be different, their characters determined merely by time, and that time limited to a few minutes at most.

Obstacles to Recovery in Suspended Animation.

The pathological formula of the cases cited leads me to consider briefly the obstacles which stand in the way of recovery in suspended animation. Without a correct knowledge of these obstacles, all treatment is empirical and of little worth.

There are four obstacles to recovery in suspended animation—

Coagulation of the blood.

Blockage of the respiratory tract.

Suspended oxydation.

Broken blood column.

Coagulation.—Whenever the blood has coagulated in the vessels, an obstacle decidedly fatal to success in recovery is presented; but it is to be observed, that this obstacle is not one of immediate moment. I have shown that it does not occur within twenty minutes after the cessation of the circulation, and it is often delayed many hours; the existence of the obstacle may be determined, moreover, by the operation of puncturing a vein, and observing if there is a coagulum.

Blockage of respiratory tract.—Any kind of blockage of the respiratory tract is remediable. Foreign bodies are of course removable by

operation, and water is readily evaporated off by the artificial respiration of warm and dry air.

Suspension of oxydation.—The suspension of oxydation of the blood is removable easily enough if the blood can be brought into contact with air. We need have no anxiety on this score within the first hour after the assumed death.

Broken blood column.—The break in the blood column is the grand obstacle to reanimation, and until we discover a method for bridging over this break, all our efforts are of little avail. The break occurs in the pulmonic circuit, and is simply explained. Whenever, in any given case, the right side of the heart fails to propel its column of blood, or the lungs refuse to accept the column, the break occurs. Then the left side of the heart, having no change of blood, closes in permanent systole; then the arteries contract in their systole; then the right side of the heart, unable from the first to propel blood along empty vessels, and force open the contracted left heart, fails, moment upon moment, its own supply of sustaining blood through the coronary arteries being reduced; for a time it lives, supported by the blood which it contains in its own cavities, but the life is imperfect and the required labour enormous. When the current of blood from the right to the left side is unbroken, it is as a syphon stream flowing under the gentlest pressure from behind; but the syphon stream divided, a force is required equivalent to three times that of the health acting ventricle, to drive into the arterial scale the blood which is essential to every act of life.

All the obstacles named above apply with greater or lesser force in every case. There are, at the same time, certain differences, dependent on the degree of muscular irritability remaining after the different forms of death.

The muscular irritability stands as follows—

It remains longest after death by chloroform, the average duration being one hour and eleven minutes.

Next, after sudden strangulation, the average being forty-six minutes.

Next, after death by rapid suffocation in carbonic acid, the average duration being twenty-nine minutes.

Next, after slow suffocation, either by obstruction or inhalation of carbonic acid, the average duration being from fifteen to twenty minutes.

Next, after death by drowning, the average duration at common temperature in adult animals being from five minutes to fifteen.

Means for Restoring Animation.

I proceed from this point to consider the means for restoring animation. Let us review the proposition as a first step.

A healthy man has been subjected to one of the forms of death to which reference has been made. His breathing has stopped; we listen to the heart, it is silent; the animal fire is declining; we know, as if we could see it, the condition of the internal organs of that man, for we have the formulæ for reading that condition; what, then, shall we do?

Suppose we inflate his chest with air?

Presuming that there is still a small column of blood extending from the right side of the heart to the left; presuming that there is some remaining action of the heart on both sides, we may by gentle insufflation fan that action into more perfect action, but by rude shock we may also fan it out altogether; artificial respiration has done both these acts; the credit that attaches to it rests with the first of these, the discredit is hidden in the last. If the column of blood from the right to the left side is broken the inflation of the chest is useless; as well blow a coalless fire-grate as bloodless lungs. Yet, as it may happen that the column of blood is not absolutely broken, nor the action of the heart actually stopped, even though the respiration shall have failed, artificial respiration does sometimes do strange things. Here is an experiment in point.

On December 12th, 1859, I narcotized a large dog with chloroform, to complete insensibility. The windpipe was now opened, and a T-shaped tracheal tube was inserted. The animal was allowed to breathe through the tube air charged with ten per cent. of chloroform vapour. The respiration having stopped, and the heart having nearly ceased to beat, artificial respiration was established, the air driven in being charged with chloroform as before. On the establishment of this respiration, the heart again resumed play; but as often as the bellows were withdrawn, no natural respiration being presented, the heart went steadily down. The chloroform being now removed and pure air thrown in, the heart went on again; after ten minutes the muscles of respiration recommenced play, and independent life was re-established. Once more the chloroform was re-introduced; and again, when the respiration had stopped and the heart was vibrating its last, inflation of the lungs with air even charged with chloroform re-started the pulsations of the circulating organ so perfectly that both sounds were distinguishable. After this process had been carried on for twenty minutes, the bellows were withdrawn; the heart now gradually sank, but for four minutes continued to act so completely that both sounds could be heard. Dr. Halford, who lent me his valuable assistance in this experiment, determined that the second sound was the one first lost; a fact indicating that the contraction of the great arteries ceased prior to that of the muscular walls of the ventricles.

Unfortunately, however, it is very rare that the column of blood is continuous, and so it is rare that artificial respiration succeeds; and I am bound to say that whenever the action of the heart is utterly lost to the ear, the evidence is well-nigh conclusive that the column is broken. Thus the application of artificial respiration becomes extremely limited: it is of use only where there is still some circulation; it must be secondary to circulation, because natural respiration is so.

In seventy-eight experiments in which the action of the heart of the animal operated on had positively stopped, I applied artificial respiration, but without the faintest result.

Let me give a summary of these inquiries.

The modes of death were various: by chloroform; by carbonic acid; by drowning; by strangulation.

The methods adopted for modifying the experiments were different.

In twenty-seven experiments, simple air was used for inhalation: the temperature being changed in series from 60° Fahr. to 110°. This change was effected by means of a tubular warm bath. The experiment was commenced in every case within five minutes after the cessation of the circulation; in nineteen cases, within one minute after the last contraction; in three cases, two minutes afterwards; in three cases, three minutes afterwards; in one case, four minutes afterwards; in one case, full five minutes afterwards.

The respiration was made in every case with double-acting bellows: these on one side removed air from the lungs; on the other side they filled from the air on expansion. In closure they charged the lungs with pure air, and cast the impure air, which they had removed, into space. They were always applied gently, so as to imitate as nearly as possible the natural respiration of the animal.

And the result in every one of these cases was that no indication of re-animation was ever presented.

On opening the bodies of the animals, however, certain mischiefs were discernible, which are almost unavoidable.

The lungs in more than half the cases were emphysematous.

The blood on the right side of the heart was coagulated.

Hence artificial respiration, if it fails at first, if it does not catch the column of blood which may be crossing the pulmonic circuit, instead of being a means of restoring life, clenches death.

I thought it would be advisable to *see* the effect of artificial respiration on the heart.

In twenty-six instances, therefore, as soon as the artificial respiration was fairly set up, the chest-wall was neatly removed, and the effects of the insufflation on the heart were carefully observed. It is true that, in every instance where this proceeding was adopted, the right auricle of the heart was seen pulsating, and often the ventricle: but such contraction was never sufficient to fill the pulmonic circuit; and I have proved by further observation, that the contraction was determined by the mere exposure of the heart to the air, which, at a temperature of 60°, is competent to keep up a moderately active contraction for even forty minutes, if the pericardium be removed.

I notice this, because the contractions of the heart seen after the chest is laid open, are often thought to depend on artificial respiration employed at the same time. It is worthy of observation, nevertheless, that whenever the air thrown into the lungs is warmed above 96°, there is an excess in the cardiac action, which excess is very great at a temperature of 120°, but even then the action is insufficient to cause a pulmonic current. The increased action is due to the diffused caloric; or it may be excited by simple exposure of the heart to external heated air. The influence of heated air on the dead heart deserves faithful record and remembrance.

From the use of simple air in artificial respiration, I moved to other

gases. Commencing with oxygen, I moved to oxyhydrogen, chlorine air, and ozonized air.

The effects of artificial respiration with oxygen gas were equally negative with those observed in respect to common air. In 1853 I narcotized a full-grown pig with chloroform until death took place. Immediately I opened the windpipe; and fixing in it a large tube, I connected the tube with the bellows, and commenced to inflate with oxygen. The gas had been made six hours, was quite pure, and well washed. As it passed from the gas-holder, it was drawn through a tubular bath, so as to heat it up to 75°. The artificial respiration was very perfect, and was kept up without intermission until three thousand cubic inches of the gas had been used. There was never any attempt at pulsation of the heart, nor at natural respiration. After death, the lungs were found to be unusually red; the left side of the heart was contracted, and the right side full of coagulated blood.

The experiments with oxyhydrogen were made on rabbits. The mixed gases were used in equal proportions. The animals were destroyed with chloroform, and the gaseous compound was drawn by the bellows from a balloon, and injected into the air-passages. Two experiments were made in this way with animals that had ceased to respire and to pulsate. The effects were the same as when oxygen alone was used. By another experiment made specially to determine the fact, I found that an animal on the point of death from chloroform would recover on simple inhalation of the oxyhydrogen mixture, but not more quickly than from inhalation of common air.

In 1854, I observed that by introducing ten cubic inches of chlorine into a chamber of three thousand cubic inches capacity, in which an animal was lying at the last extremity, breathing chloroform vapour, an immediate and singular effect was produced. The animal, I found, would spring up, and appear almost immediately to regain consciousness and muscular power. Sometimes, however, it died an hour or two later, from the obstruction in the trachea and larynx produced by the chlorine and collection of mucus. On April 24th, 1854, I showed an experiment of this kind on a cat to my friend Dr. Henry, who noted down the facts as he observed them. The animal had been narcotized eight minutes when the chlorine was introduced; it then made one or two deep gasps; and, as if freed from the deadening influence of the narcotic, sprang to the side of the chamber, and on the chamber being raised, leaped to the floor. She was conscious, sensitive, and full of power; to use the words written by Dr. Henry at the time, "the chlorine produced an immediate effect. It appeared to produce complete return of sensibility." After a few seconds, there was a degree of anxiety and difficult respiration; but recovery took place.

These observations naturally led me to think that the artificial respiration of a very dilute chlorine air might be useful. I therefore made an atmosphere containing 3 cubic inches of chlorine to 1000 of common air. This quantity of chlorine did not become represented, however, in the air inspired; some little being lost by combination with water. Suffice it to say, in relation to these experiments, six in

number, that, the action of the heart having ceased, no better effect resulted from the inhalation of the mixture, than from the inhalation of common air. The lungs were always found pale and blanched.

In ten experiments, the air, before introduction into the lungs, was ozonized. The ozone was made by the phosphorus method, and the air was so charged with it as to change Moffat's test-papers to the highest tint in the ozone scale. There was no further effect produced by this air than by common air, after the action of the heart had stopped. But in animals on the point of dissolution from chloroform, the heart still beating, recovery was unquestionably expedited by the ozone; in this respect ozone acts like chlorine, but not so powerfully; and I infer that the respiration of ozonized air in cases of slow poisoning by the more fixed narcotics, such as opium, would be of essential service.

From all these experiments, it is obvious that attempts to restore life by artificial respiration all fail whenever the action of the heart has ceased. We learn as a second fact, that, whenever the action of the heart has not stopped, and a breath of new air restores the heart, respiratory acts will follow as the muscles of respiration receive a new charge of renovated blood. Hence the respiratory act is an act second to the circulatory; and artificial respiration, stripped of its pretensions, is really a remedy acting primarily on the heart.

After the above expression of opinion, it will not be expected of me to enter into any lengthy description of the methods of performing artificial respiration. I shall not do so. I look upon all disputation on this point as so much lost time. Artificial respiration does not depend for success in any case on the amount of air which, by some particular plan, can be supplied by it; artificial respiration cannot at any time supplement the worst attempt at natural respiration; artificial respiration performed by any method that disturbs the body is injurious to the feebly-acting heart; artificial respiration, if it is to be of service, is amply provided for when by any method from ten to fifteen cubic inches of air can be gently driven or drawn into the chest.

Let me be saved, therefore, from hurting any inventor's feelings by an opinion on a point which is entirely secondary in its meaning. I prefer those simple double-acting bellows, first made by John Hunter, to anything and everything; they are portable, they are easily applied, they admit of graduation, and they are certain. If I wish to throw fifteen cubic inches of air into the chest, I can make sure of doing it, so I prefer the bellows for their certainty; but I am not prejudiced, and if in any given case I had no bellows, I should have recourse to the next readiest means—Dr. Silvester's method.

Returning to the man whose animation is suspended. Seeing from what has been said that artificial respiration, tried as a preliminary for a brief period, has failed, what more shall we do?

Shall we resort to Electricity or Galvanism?

If we wish to create a semblance of life without a reality, we may use galvanism. If the body is yet warm, we may, for a few minutes,

excite any amount of muscular contraction. We may excite on the dead face a sardonic smile, or make the index finger point to any quarter of the compass. We may extort a deep gasp or startling sigh; but we are doing nothing, or if we are doing anything, it is an act which is unpardonable in its horror: we are restoring a momentary intelligence which we cannot sustain, and are enabling the prostrate body to look into life only to sink again into cold oblivion.

As yet, galvanism, when it has been applied, has in the majority of cases been used empirically. To fetch a battery, set it in action, place one pole over the nape of the neck, another over the stomach, and keep on the intermittent current; this has become the orthodox practice. What is expected of such proceeding, it is impossible to divine. I can find no instance of any one having been restored by this plan; I have followed it out six or seven times myself with no results, and I suppose nearly every practitioner living has done the same. It is time really that we gave it up, or learned more about it. But can galvanism be made to do anything less empirical and more effective? It can be used rationally, but not effectively.

It can be tried as a means to excite the respiration.

It can be tried as a means to excite the heart.

If the intermittent galvanic shock, which, by the way, is the best, be used to excite the respiration, it must be employed in such way that the shocks shall be broken as many times as there are respirations. Then two points must be found that shall yield the most decided action on the muscles of respiration, at which points the poles of the battery must be inserted.

I have succeeded in both these attempts, experimentally, in making galvanism cause artificial respiration.

I took a common metronome, and modified it to my purpose. I made its balance strike against a spring on either side in perfect time and order. I connected two rods with this to which the poles of a battery might be attached; when the battery was in action, and its poles connected with the metronome, I set the instrument so that twenty, thirty, forty, or any number of shocks, could be given per minute.

This arranged, I experimented to find in what positions to place the poles in the lifeless animal, and after numerous changes discovered that the insertion of one pole through the larynx and the other through a floating rib, including a few lines of the diaphragm, was the best position. Inserting the poles in this way, and setting the battery at work under the governance of the metronome, I was enabled to excite an artificial respiration singularly natural in its appearance. I repeated with this all the experiments that had been made with the bellows. The results were all equally negative.

From the respiratory mechanism I moved to the cardiac, and endeavoured to find whether any two points could be selected into which, the poles being inserted, rhythmical action could be exerted by the battery. I used no metronome in the first series of these inquiries.

In different experiments I placed the poles, directly after the circu-

lation and respiration had ceased, in the following positions, setting up the current so as to excite contraction.

The positive pole, insulated everywhere, except at its extreme point, into the apex of the heart; the negative pole into the external jugular vein.

The negative pole to the heart externally at the apex; the positive through the jugular vein into the right auricle.

The negative pole to the heart externally; the positive pole through the right carotid into the heart on the left side.

Both poles through the thoracic walls into the structure of the heart—one into the left, the other into the right ventricle.

One pole, negative, into the apex of the heart; the positive into the trunk of the vagus.

The same experiment on another animal, but with the poles reversed.

One pole, negative, into the apex; the other into the sympathetic in the neck.

The same experiment with poles reversed. Three experiments.

One pole, negative, into the apex; the other into the medulla.

The same experiment with poles reversed.

Galvanization of the medulla only.

In all these experiments, artificial respiration with the bellows was sustained at the same time.

The experiments were afterwards repeated with the metronome, the shocks being measured.

The summary of all these researches may be included in the following remarks:

In only one case was there any indication of re-animation; the history of that case was as follows:

On December 5th, 1858, I narcotized a rabbit with chloroform until all action ceased, both in the respiration and in the circulation. The double-acting bellows were applied to the nostril, and artificial respiration was set up. I now laid bare the external jugular vein on the right side, and tried to pass through it into the right ventricle the positive pole of an electro-magnetic apparatus, the pole being insulated, except at its extreme point. Failing to get the pole fairly along the vein, I at once laid open the thorax; and, passing the pole into the right side of the heart by the inferior cava, I placed the opposite pole over the heart externally by moistened sponge, artificial respiration being continued. The heart at once responded to the galvanism; the ventricles acted vigorously; the aorta pulsated; blood made its way round the system; and the fore limbs of the animal took on active motion; re-animation was in fact established, and continued for several minutes. In removing the pericardium to watch the action of the heart better, I penetrated by accident the wall of the ventricle, and blood flowed out quite fluid, which brought the experiment to an end. This blood did not coagulate for eight minutes, and auricular contraction was sustained for half an hour.

In this example I infer that the column of blood from the right to the left side not having been actually broken, the galvanism excited the

right side to the propulsion of a current of larger calibre, and the artificial respiration feeding this, the whole circulation was re-established.

I afterwards endeavoured to include the heart and diaphragm in the same coil, and connecting that with the negative pole of the battery, with the positive pole through the larynx, I tried to excite by the same shocks the heart and the muscles of respiration together, but the attempt did not succeed.

The results derivable from galvanism are, then, negative in kind, but unhappily they are more than that. If they sometimes excite muscle to contraction, they also not infrequently paralyze it at once, while they always exhaust its power with great rapidity. If, in an animal just dead, galvanism be applied to muscle after muscle, each muscle may be paralyzed separately; all the muscles on one side of the body may thus be bereft of their irritability, while the muscles of the other side, which have not been galvanized, retain theirs.

These phenomena, applicable to all muscles, are specially applicable to the heart. The heart, of all organs, loses most quickly its response to galvanism, or responding to the current, is most quickly overpowered by it. These facts, first observed by Aldini, but not understood by him physiologically, I have confirmed by forty observations specially conducted.

I can stop the heart that is pulsating by the galvanic force, as readily as I can excite it by the same agent—aye, even more readily. I can wear out the excitability of the heart of one animal by gentle galvanism more quickly than the heart of another animal similarly placed shall wear out its own irritability by its own contractions. Hence galvanism is a delicate remedy as applied to the heart.

It must be so; not because of the peculiarity of the fibre of the heart, nor of the nerve-supply, but because the organ depends on itself for blood, and in its final contractions uses up to the last drain the animating force on which it lives. When another muscle dies it may die, and under most conditions it does die, relaxed and full of blood, on which it can for a time subsist, and under stimulation react. Not so the heart.

Throwing aside galvanism, then, in regard to the subject under consideration—What, we are led again to ask, what shall we do?

Shall we transfuse?

As it is essential to rouse into action the heart, as galvanism fails in this intention, can it be done by throwing into the chambers of the circulation some substance which possesses the power of exciting the muscular contraction?

The experiments of transfusion of blood for restoring the prostrate body, first brought into practice by Lower, and recently carried into such remarkable effect in the restoration of muscular irritability by Brown-Séquard, point out the possibility of restoring animation in all forms of death by transfusion.

In 1857, I tried to restore muscular action generally, in a dog

which had been rapidly destroyed by chloroform, by injecting the carotid artery in the direction of the heart with blood that had been exposed to oxygen. The blood ran freely into the vessels and filled them, but no sign of re-animation took place.

At various times since that period I have employed other agents than blood with the same intention, and have met with many bodies which excite muscular contraction. These divide themselves into two families.

There are certain agents which, being simple, and warmed to blood temperature, have the property, on injection into the tissues, of evolving caloric, and of placing the muscles in the condition to contract for a time, and afterwards for a much longer time under the application of the stimulus of electricity. There is, again, another class of fluids which, injected into muscles, produce in them the same effects as powerful electrical excitation, so long as they retain caloric. Ammonia is the grand representative of this latter class of substances.

Amongst the first class, none is more effectual than simple water; the effects which can be produced by warm water on its injection into the arteries are not less remarkable than those of electricity. My first observation in this direction was made on the 16th of January, 1860.

A large healthy dog was killed by chloroform. After death, the heart being perfectly quiet, artificial respiration was set up with warm air; on which the right auricle, followed by the ventricle, resumed contraction; the intercostals and the diaphragm also contracted after a short time. These contractions were readily stopped on the application of cold; but were renewed time after time by the re-application of heat. At one A.M. on January 17th, all action having ceased, a tube was put into the aorta through the heart, and a pint of water at 120° Fahr. was gently injected by a double acting syringe. As the fluid permeated the tissues, every muscle in the body commenced more or less to contract; the chest heaved; the limbs moved vigorously; the mouth moved; and the animal seemed virtually to re-live. I kept this up by repetition of injection until 1·30; and ultimately, when I and my assistant, Mr. Schofield, ceased from the lateness of the time, the left forefoot was moving. At two P.M. on January 17th, there was great rigidity in the muscles of this animal; the stiffness relaxed on re-injection with water at 120°, but without recontraction.

Since the observation above narrated, I have made several attempts to excite the heart by injection of warmed fluids.

I selected a goat for the subject of an experiment in this direction. The right common carotid artery was chosen as the vessel into which to inject. The current of the injected fluid was directed, not in the line of the arterial currents, but downwards towards the heart. By this plan I believed that I should be able to inject the coronary arteries with the warm fluid—an expectation which was realized.

The animal having respired chloroform died at 3.23 P.M. on February 22nd, 1861. The trachea was laid bare and opened; and the tracheal tube was inserted at 3.27 P.M. A metallic tube, connected

with a double-acting syringe, was then passed into the right common carotid artery; and at 4 P.M., artificial respiration having been set up, water at a temperature of 110° Fahr. was gently pumped into the artery. In one minute and a half I heard through the chest wall movements of the heart, and immediately on this there were active and frequent contractions of the limbs; with each injection of the warm water the force of the contractions was increased; the abdominal muscles also commenced to contract and relax, and the tail of the animal was actively moved. At 4 P.M., the venous system being distended, the external jugular vein was opened. This appeared for a moment to lessen the contractility of the muscles; but on re-injection of the warm water there was observed the same strong action of the muscles, which action continued until twelve minutes past four, when I opened the body of the animal. The heart was found tense and elongated, its muscular structure infiltrated with fluid. The right side of the heart, both in the auricle and ventricle, contained coagulated blood, of a pale watery aspect; in the left cavities there was a pale, almost granular clot. The pulmonary veins were full of fluid disorganized blood.

I have performed a similar experiment to the above many times, and with results even more striking; but restoration has never been perfected: in a little time the watery fluid infiltrates the tissues, and muscular force is suppressed by mechanical obstruction.

Intent on my project in this direction of experiment, I tried the effect of injecting moist oxygen into the arterial circuit. Thrown in in this way, even twenty degrees below the normal blood temperature, oxygen, on entering into combination with the blood left in the vessels, generates sufficient caloric to produce muscular action, especially on the application of the intermittent galvanic current. The effect thus produced may be long sustained; but it is at all times feeble, and bears no relation in the matter of intensity to the preceding experiments, where caloric was directly introduced by means of heated water.

On August 7th, 1858, I narcotized a young rabbit to death with chloroform, killing it by slow inhalation. It was quite dead at the end of fifteen minutes. Three minutes later I put a tube into the windpipe, and set up artificial respiration. Then I tried to insert a tube into the external jugular vein for the introduction of oxygen, but failed; so I laid open the chest and exposed the heart. The left side of this organ was collapsed and quiet, the right side was full and quiet. I now, still keeping on the artificial respiration, fixed the tube in the vena cava superior, and injected oxygen, heated to 76°, in its gaseous state. The right auricle and ventricle at once began to contract, and continued to contract for a full hour; but the contraction was not sufficient to enforce a pulmonic circuit. The lungs were free from congestion, and pale; the blood in the right heart was fluid, but quickly coagulated on removal from the cavities and on exposure to the air. On fixing the injection-tube into the aorta, and throwing into the arteries more oxygen, the muscles of the lower limbs, previously unimpressionable under galvanism, took on feeble contraction

when the poles of the battery were reapplied, and continued to act until my stock of oxygen was exhausted—a period of about half an hour.

In another experiment I narcotized a dog, by placing him in a chamber charged with carbonic acid. When all signs of life had ceased for three minutes, I laid bare the common carotid artery, inserted a tube firmly, and gently injected a little freshly made oxygen warmed to 76°. As the gas found its way into the heart, that organ made several convulsive starts; but the effect soon passed away, and there were no further signs of animation. After a little time I opened the body, and found that the left side of the heart was distended with gas. The lungs were congested. The right side of the heart was filled with fluid blood. The blood coagulated feebly after half an hour's exposure to the air.

I was at one time hopeful that by this simple experiment of injecting freshly-made oxygen into the arteries useful results might be brought out; but two obstacles, fatal, as far as I yet see, to success, were presented. The one is, that the whole of the gas injected is not absorbed, and therefore accumulates and obstructs the circulation. The second is, that the amount of oxygenation produced is insufficient to generate that degree of caloric which is necessary for the production of independent muscular action.

From the use of oxygen in the gaseous state, I passed to its application in solution, in that active condition in which it is presented to us as *peroxide of hydrogen.* The effects were identical with those produced by oxygen as gas; for the solution, on coming into contact with organic substances, at once gives up its oxygen as gas, and the same accumulation in the vessels, followed by obstruction, takes place.

From the injection of oxygen itself, I next moved to the use of oxydizable substances, with the idea, that if a fluid body greedy for oxygen could be carried with venous blood to the lungs, artificial respiration being sustained, the chemical action ensuing might set into motion a capillary current, and that in this way a column of blood might be transferred to the left side. I used in these experiments weak solutions of phosphorus in bisulphide of carbon; these solutions were thrown into the jugular vein; the fluid found its way into the lungs readily enough, and on artificial respiration the phosphorus underwent combination, but the lung-tissue suffered. I am yet in search of a solution in which some body, eager also for oxygen, but less hurtful to the tissues, should form the principal element. If carbon could be brought into play in the laboratory as it is in the blood, so that, in solution or combination, it would oxydize in the presence of the air, the desideratum would be obtained. I have made many experiments towards this, but I am not prepared with results.

I put forward all these researches in which the injection of agents containing oxygen, or of agents eager for oxygen, has been tried, not as exhaustive of the question, but as suggestive. It is a line of research which admits of much further elucidation; it has revealed many singular facts, and although it offers no immediate practical act, it points, indirectly, the way to new and important inquiries.

But apart from oxygen, there are other agents which excite muscular contraction by an opposite influence. Oxygen acts by generating caloric; the opposite agents produce contraction as if by neutralizing the oxydation. Ammonia and its analogues represent this series of bodies.

In performing some experiments on transfusion of blood, in which ammonia was used for holding the blood fluid, I was first specially struck with the wonderful influence of this alkali in producing muscular contraction. In my first experiment, made on a dog, an excess of ammonia was employed; upon which, as the ammoniated blood was injected, the action of the heart became so bounding and intense that it seemed to raise the chest-wall. Coincidently with this effect, general tetanic spasms seized the whole body; the muscles of respiration were fixed, and death occurred as from strychnine tetanus.

In some further experiments I reduced the quantity of ammonia, and then found that, while the injection of blood, charged with the alkali in a proportion not exceeding one minim and a half of strong liquor ammoniæ to the ounce of blood, produced still the effects of an excitant on the heart, yet the action carried so far and no farther was beneficial rather than hurtful.

I next investigated the influence of ammonia on the muscles of animals recently dead, by injecting it both into the veins and the arteries. The effects were not promising; for although the sudden injection of a stream of ammonia into the muscles, through the arterial system, is to produce an active, nay, violent contraction if the death be quite recent, the effect ends there, in permanent closure.

Another singular fact was elicited in this line of inquiry—viz., that while, on the one hand, ammonia added to warm oxygenated blood neutralized the relaxing properties of such blood on its injection into animals recently killed; on the other hand, the presence of oxygen neutralized the excitant power of the ammonia, by preventing the active contraction which we have seen to follow on the injection of ammonia in its simple state.

The injection of ammonia, then, into the vessels, while it excites a temporary action of muscle, is not likely to lead to any useful result, according to our present knowledge of its application in cases where the action of the heart has once ceased. This remark, applicable to ammonia, extends also to all other substances which excite muscular action by contact; for the *modus operandi* of them all is on the same general plan.

Returning a fourth time to him whose life we assume to be suspended, feeling that the injection of fluids into the vessels is not of much promise, we ask, can anything else be tried?

Shall we try artificial circulation?

If we can do no good by setting the lungs mechanically into play, can we do better by trying to set the circulation into action by mechanical means?

This is a point on which I have spent much labour. I call the endeavour *artificial circulation;* the method is based on the supposition whether it might not be possible, at a period between death and the coagulation of blood in the vessels, to set the blood still retained in those vessels into active circuit throughout the whole body; to make it sweep once more over the pulmonic surface, to be aërated there as rapidly as possible by heated air; and thence, as in its natural flow, to let it irrigate the systemic boundaries and return in circuit, as in life.

Theoretically, the perfect accomplishment of this simple mechanical problem should lead to a perfect practical result; indeed, every fraction of evidence we possess concentrates itself in this theorem. If warm blood, or even warm water, taken from an external source, will re-animate muscular fibre, as we know it will by merely pushing it into the system; surely the blood natural to the subject himself will do the same, if set properly in motion and aërated.

The difficulties of artificial circulation are, however, necessarily very great. I shall best point out these difficulties by describing what I have done in the way of experiment, and where and why I have failed.

I set forth with the idea that the circulation could be re-started by the veins on the forcing principle.

On December 4th, 1858, a full-grown dog was narcotized to death with chloroform. When the respiration and heart had entirely stopped, I inserted into the nostril the nozzle of the double-acting bellows. The bellows were at once set in motion by Mr. Gregson, who kindly assisted me throughout. I then cut down to the external jugular vein, and passed through it into the right ventricle a hollow tube, attached to a syringe with the piston close down. I now endeavoured by the action of the piston to supplement the right ventricle—that is to say, I tried by the ascent of the piston to fill the cylinder of the syringe with blood, and by the down-stroke to force on the current over the pulmonic circuit. After the first few strokes of the piston, artificial respiration being kept up all the time, the heart made several active movements; but there was no evidence of muscular action in the other parts of the body, nor yet of arterial pulsation. The experiment was brought to an end by the accident of admission of air into the piston. I found, on opening the chest, that the left side of the heart was charged with red blood, and was acting vigorously.

I made a modification of this experiment as follows:

A dog having been killed with chloroform, the jugular vein and common carotid artery were laid bare, a tube was inserted into each vessel, and these tubes having been connected with a double-acting syringe, a movement was given, by which one stroke of the piston filled the cylinder with blood from the vein, while the next stroke projected back the blood into the system by the artery. This truly established a circuit, and blood was sent into the limbs of the animal and excited feeble muscular movement on excitation. But the pro-

ceeding bore with it a mistake, in that it did not provide for the transition of a pulmonic current of blood.

By a third line of experiment, I have endeavoured to draw the blood over the pulmonic circuit, instead of forcing it over. A large rabbit having been killed with chloroform, and the tracheal tube connected with the artificial bellows having been inserted, I laid open the chest and fixed a tube into the thoracic aorta; the tube was firmly tied. The free end of this tube was now connected with a syringe, to which a small forcing-pump was attached. The whole of our arrangements made, my assistant, Dr. Schofield, set up artificial respiration, whilst I very gently worked the exhausting syringe. Previously to this, the right side of the heart was engorged with blood, and the left side was empty; but, as the syringe played, the blood at once made its way over the lungs. The blood was arterialized; the left heart was filled; the auricle contracted; and, as by an upward push of the piston of the syringe the blood that had been drawn into it was forced back upon the heart; the left ventricle, the right auricle and ventricle, the pulmonary artery, and the aorta, all started into vigorous action. The coagulation of the blood in the vessels and in the tube of the syringe stopped the progress of this experiment.

Of these modes of operation the last is by far the best, for, although one would assume that it was very easy to force the blood of a full right ventricle over the pulmonic circuit, in practice it is found that the force to be used is destructive of the lung-tissue; to draw the blood over the lung, however, is as easy as to draw fluid over the syphon. I have done it in a rabbit by simple suction of the mouth.

If any plan could be devised by which blood could be drawn over the pulmonic circuit without opening the bloodvessels, the difficulties of artificial respiration would be surmounted. Warmth to the surface, long continued, not intense, as in the hot-water bath, but gentle warmth—has this any power in the direction stated? It dilates the capillaries and the skin reddens, but is it ever sufficient? I confess that in animals I have seen effects so singular from long-continued warmth, that I do not know, if we could understand all its bearings, to what it might not lead.

Some kittens were drowned in my house, and lay at the bottom of the water for two hours. I took one of these out of the water, wrapped it in a portion of flannel oil-cloth, and put it in my pocket with the intention of taking it to lecture, to illustrate the foramen ovale. The day was hot, and I had some distance to go before reaching the lecture theatre. I thought nothing of the kitten till I wanted it; putting my hand into my pocket to find it, I was astounded to discover movement, and on taking it out, it was breathing; in the course of a few hours it recovered perfectly.

These occurrences, in the inferior animals, are not uncommon; in the London mews, I find the fact is generally known that animals drowned or strangled, and sent to the manure-heap for burial, often recover, even some hours after they have been placed there. Such an occurrence took place in a cat last year, in a livery-yard near my house.

Even while this paper was being completed, I received from Dr. Black, of Chesterfield, a history of a similar phenomenon, which occurred at the house of Mr. Thorpe, of Stavely. I will give Dr. Black's account.

"A short time ago he (Mr. Thorpe) ordered his groom to destroy a kitten a few days old. The man first nipped its neck tightly for a short time, and afterwards threw it into a bucket of water, in which it was immersed *two* hours.

"He then, believing the kitten to be dead, buried it in a manure-heap, and naturally expected to hear nothing more of it. Two days afterwards, Mr. Thorpe was passing the manure-heap when his attention was arrested by the mewing of a kitten apparently proceeding from the heap. The groom was fetched and questioned upon the *death* and *burial* of the kitten. He stated the above-related facts, declared that the kitten was *quite dead* when he took it out of the water, and that he buried it in the manure-heap. He now uncovered the place whence the mew of a kitten proceeded, and found the one which he had buried there two days before, *living* and *able to walk!*"

Unfortunately, up to the present time, these isolated but valuable facts cannot be reduced to exact formulæ by experiment.

I have tried the exposure of animals to warmth in baths of different temperatures, in sand, in moist warm straw, in moist warm air, in dry warm air, but have never seen anything approaching to spontaneous recovery. Yet it deserves mention that in one instance in a rabbit which was laid in sand at 100° Fahr., the muscular irritability of the intercostal muscles was present thirteen hours after death. It is also worthy of remark, that in all these cases, on inspecting the body, the right side of the heart was always found free of engorgement, and the left side and the arteries containing blood; conditions indicating obviously the transit of a pulmonic current.

And now, to what summary do all these researches and observed phenomena lead? Do they tell anything positive? I will state what they tell.

1. They indicate that artificial respiration can prove of avail only while the heart is transmitting a pulmonic wave of blood, and that in the absence of this wave, artificial respiration is injurious; injurious to the lungs and fatal to the blood.

2. They indicate that if a current of blood can be made to traverse the arterial channels, the muscles of respiration, previously at rest, will resume their action; and that respiration will follow, as at birth.

3. They point out that the effect of gentle external warmth is to induce an arterial tide; and that in every inquiry in respect to re-animation, the most careful attention must be directed to the further elucidation of this one subject.

4. They point out that galvanism is a dangerous remedy in all cases; that its effects cannot be measured, and that while it may set up a temporary excitation, it wears out excitability.

But more than all, they indicate that between the time of so-called death and the period of the coagulation of the blood, re-animation is a

possible fact; that the same rule, being applied to the body at large, as is often applied to the finger or other part of the body removed by accident—namely, the re-establishment through it of a blood-current—the body would re-live as a whole as it does in part: in a word, they show that the old principle, however it may at present fall short of demonstration, is true; "that which is of the local is of the general."

Art. III.

Notes on the Post-Mortem Examination of a Man supposed to have been 106 *Years old.* By George Rolleston, M.D., F.R.S., F.R.C.P., Linacre Professor of Anatomy and Physiology, and Honorary Fellow of Pembroke College, Oxford.

A man, reputed to have been in his 107th year, died in Oxford, on Thursday, September 11th, 1862. By the kind offices of Mr. Tyerman, who has published an account of his life,* I was enabled to make a post-mortem examination of his body. From Mr. Tyerman's account of his life, I learn that he was born on the 5th of March, 1756; and that his father died at the age of 75, and his mother at 104, and his grandmother at 110.

Extra-anatomical discussion as to his age may be found in 'Notes and Queries,' April 12th, 1862, May 17th, 1862, June 17th, 1862; and a letter seriously impugning his claims to this lengthened term of years may be found in 'Jackson's Oxford Journal,' for September 27th, 1862. After making many inquiries myself, and after examining the evidence collected for me by my friend, A. B. Shepherd, Esq., of Brasenose College, upon the spots connected by tradition with the old man's early days, I have not been able to convince myself that one would be justified in rejecting as unfounded the statements as to his age which he himself uniformly and consistently made.

I am not clear that it is possible to bring conclusive evidence as to a single case, such as this, from the revelations of anatomical investigation. Sir Anthony Carlisle may not have been quite justified in saying that most aged persons die of actual disease in organs not worn out by the length of time they have been performing their functions; but his dictum was not so far from the truth as to need more than partial modification. In the history of the examination of the body of an American physician who died at the age of 100, and about whose age I shall show there can be no reasonable doubt, I find the following statement:—"The bodies of very many persons at 60 exhibit on dissection more of the appearances which are thought to result from age than did Dr. Holyoke's."†

* Notices of the Life of John Pratt (now in his 106th year). By Thomas F. Tyerman, Esq. Oxford, Slatter and Rose, 2 and 3, High-street. 1861.

† Memoir of Edward A. Holyoke, M.D., LL.D. Prepared in compliance with a vote of the Essex South District Medical Society, and published by their request. Boston (U.S.), 1829. p. 53.

An examination of the colossal tables given by Dr. Boyd in the 'Philosophical Transactions' for 1861, or of those reprinted by Dr. Peacock in the same year, will show how widely the weights and the measures of the same organs may vary within the same decennial period. And Dr. Geist,* in the latest work treating of the diseases of old age with which I am acquainted, speaks of weighing and measuring as giving more extraordinarily varying results in very advanced years than in those which man more commonly attains to. Neither do qualitative changes of tissue give a more certain verdict. Cartilages may ossify,† convolutions may waste,‡ vessels, large and small, central and peripheral, may degenerate in young persons of particular habit, and habits, as well as in older individuals. For other reasons, however, much interest must always attach to records of the post-mortem appearances in the bodies of centenarians. A notice of the post-mortem examination of a woman,§ currently held to have been of that age, is given us by Haller; Dr. James Keill‖ has in like manner, and somewhat more fully, reported on the structures of John Bayles, who was believed, on apparently good evidence, to have been 130 years old. The history of Thomas Parr, and of the state of his body after 152 years of life, is accessible to all English readers in the Sydenham Society's edition of the works of the famous Harvey.¶ Two similar, but less accessible, histories of the autopsies of persons whose more than centenarian term of years is very well nigh demonstrable, have been furnished to us by Dr. Luigi Berruti,** in Italy; and in America by a committee of medical men, in the already cited case of Dr. Holyoke. To the case recorded by Dr. Berruti I shall recur; the case of Dr. Holyoke deserves a few words in this place. Dr. Holyoke, the subject of a memoir drawn up by a committee of medical men, had been himself a physician; and in the year preceding that in which he died, he twice appeared at public dinners, in his capacity of centenarian, in the town in which he had spent his life. In this town he had settled, at the age of twenty-one, in the year 1749, and from that time up to the time of his death, March 31st, 1829, he scarcely ever left it—and, in point of fact, never was further than fifty miles from it. With such a history as this, it is difficult to be sceptical as to Dr. Holyoke's age; and as he lived in possession of what are called the comforts of life, his case furnishes an answer to one of the most popular objections to the belief in centenarianism. This objection takes the following form. All the cases of supposed centenarians (such, indeed, are four of those I have instanced,)

* Klinik der Griesenkrankheiten. Von Dr. Geist. Erlangen, 1860. p. 9. "Gewichte und Dimensionen der Organe sind in hohen, noch mehr in höchsten Alters so ausserordentlich verschiedene und ungewöhnliche dass die gewohnliche Beziechnungen, gross, klein, schwer, leicht, u. s. w. eine Anschauung nicht mehr begründen.

† Humphry on the Skeleton, p. 58. ‡ Reid's Anatomical Researches, p. 383.

§ Philosophical Transactions, vol. xliv. p. 528, May 7th, 1747.

‖ Ibid., vol. xxv. p. 2247, 1706. ¶ Harvey's Works, Sydenham Society, p. 589.

** Luigi Berruti. Cènni istorici sopra Anastasio Melis di Gastegli in Sardegna, morto in eta di anni 104 nella Spedale Mauriziano di Torino; con Osservazioni pathologiche e necroscopische. Gaz. Med. Ital. St. Sardi. N. 35, 36, 37.

are from the poorer classes, members of which often have a direct interest in making themselves out to be older than they really are. And it is exceedingly improbable, supposing such cases to be genuine, that the rich who die from the very same causes (climatic, epidemic, &c.) which the poor die from, should not furnish us with well-authenticated instances of such longevity as we are asked to believe is attained to by ill-clothed, ill-housed, hardly-fed labouring men. To this objection cases such as Dr. Holyoke's furnish a satisfactory reply, especially when we couple with them the consideration that the enormously larger numbers of the poor give Natural Selection an enormously larger chance of finding among them those "vigorous frames which promise a long life."

The details of the five cases I have here mentioned, I have kept in view whilst putting on record those observed by myself in the case of John Pratt.

Works on the diseases of age are by no means so numerous as works on the diseases of childhood. But one work on the subject, that by Dr. Geist already referred to, has appeared in Germany since the classical work of Canstatt,* which latter was published in the now, for medicine, far off times of 1839. France has shown equally little regard for the preservation and prolonging of waning lives; M. Durand-Fardel's work,† however, bearing in French the date of 1854, and that of 1857 in a German translation by Dr. Ullmann,‡ makes an honourable exception to the general neglect with which civilized, like savage, medicine seems to regard senile maladies. No work has appeared in England, so far as I can find, treating of this subject as a whole since Dr. Day's work in 1849.§

The habits of the subject of this notice fell, I am informed, some way short of being strictly temperate; Mr. Tyerman's pamphlet and my own conversations with the old man make me rank his intelligence as somewhat superior to that usually possessed by persons in his rank of life; his memory of persons whose acquaintance he had recently made was tolerable, and of events as of persons known to his early years it was, unlike that of Thomas Parr, even more accurate.

I am informed by Cyril Vincent, Esq., of Oxford, that this old man had been receiving medical attendance for seven years. For the last two and a half he has had the benefit of Mr. Vincent's personal attendance, his ailments being cough and the usual concomitants of hypertrophy and outgrowths of the prostate. An acute attack of pleurisy seems to have been the immediate cause of death, and the post-mortem examination will explain how cough had come to trouble

* Die Krankheiten des hoheren Alters und ihre Heilung. Von Dr. C. Canstatt. Erlangen, 1839.

† Traité Clinique et Pratique des Maladies des Vieillards. Par M. Durand-Fardel. Paris, 1854.

‡ Durand-Fardel. Handbuch der Krankheiten des Greisen Alters. Aus dem Französisch übertragen und mit Zusätzen versehen. Von Dr. Ullmann. Wurtzburg, 1857.

§ A Practical Treatise on the Domestic Management and most important Diseases of Advanced Life. By George E. Day, M.D. London, 1849.

him for a much longer period than this recent attack dated from. Like Cornaro in his enjoyment of a long term of vigorous healthy years, he resembled him also in sickness, by refractory and obstinate resistance to medical treatment.

Notes of Post-mortem Examination.

September 12th, 1862, 4·0 P.M., thirty-two hours after death; weather clear, not close.—The rigor mortis was tolerably well developed, the fingers being bent inwards upon the palmar surface. There was no hair in either axilla, there was darkish-coloured hair in no great abundance upon the mons martis, and grey hairs were thinly scattered over the scalp generally. The beard seemed to me the day after the post-mortem examination to have grown some little. The skin was generally dry and slightly furfuraceous; some ecchymoses, like the blotches of scorbutus, were to be seen upon the back of the right hand. There was only one tooth in the jaws, the right upper canine. The scalp separated easily, and the pericranium was likewise easily detached from the subjacent cranial bones in the form of a dry, little vascular, coherent membrane. The cranial bones had a smooth and somewhat glistening surface. Well-nigh continuous tracings on the skull marked the position of the coronal and sagittal sutures. A broad and shallow depression, such as is often seen in well-developed crania, not such as Virchow has given the name *sattelkopfe* to, crossed the skull in the line of the coronal suture. There was no exposure of Breschet's sinuses. There was an exostosis on the line of insertion of the temporal muscle upon the frontal bone. The skull bones were easy to be sawn through, the incisions being made, one parallel with and just in front of the coronal suture, and the other carried horizontally through the occipital protuberance, so as to meet the former just above, or in, the great ala of the sphenoïd. There was much difficulty in removing the skull-cap, on account of the close adhesion of the dura mater; and in the process of removing them both, bone and membrane together, a considerable quantity of yellowish fluid escaped. The double cap thus removed brought away with it a portion of the pia mater, exposing a deep fissure between two convolutions; the convolutions were rounded, not flattened. Some little force was necessary to separate the dura mater from the cranial vault, which, however, was smooth internally, and presented only two or three small Pacchionian pits along its middle line. The canals for the middle meningeal arteries had had deep banks deposited on either side of them, and in places they were all but arched over, showing that great additions had been made to the thickness of the cranium from within. The bone, when held up against the light did not show any thinning, except along the course of these canals, where it was translucent. The relation of diploë and external and internal tables was much as in an ordinary skull. The anterior part of the falx cerebri was rigid, but not ossified; no exostoses were observed in the interior of the skull. I did not observe any sutures on the interior of the cranium, but I have no positive note of this

absence, as I have of that of the exostoses not rarely found there in persons of advanced years. The foramen magnum was small, its antero-posterior diameter, when clothed with its membranes, admitted but the middle finger easily. The brain was tolerably firm; its weight, with the arachnoïd and pia mater adherent, was two pounds eleven ounces avoirdupois. The circumference of the skull, taken from the occipital protuberance round the supra-orbital ridges, was twenty and a half inches; its vertical arc, measured from one external auditory meatus to the other, was twelve inches and a half; these measurements were taken over the thin integuments of the cranium.

Some milkiness of colour was observable upon the arachnoïd where it crosses from one lateral lobe of the cerebellum to another, and upon the temporo-sphenoïdal lobe of the cerebrum. A small clot of blood was observed in the basilar artery, the coats of which vessel were free from disease.

The fissure of Rolando, and the fissure anterior to it, were considerably wider and deeper than is usual; atrophy of the convolutions was observable, but to a less extent, in the frontal lobes; in the occipital, and upon the internal aspect of the hemispheres, no alteration had taken place. M. Durand-Fardel (p. xii. *op. cit.*) gives this as the usual order in which atrophy of the convolutions and widening of the fissures takes place; and I have noticed a similar succession in the brain of a man beyond 70.

The application of M. Gratiolet's analysis of the convolutions to this brain enables us to speak of it as of no high morphological character. Though asymmetrical to a certain extent, it was yet less so than is usual in human brains, and in no part does it manifest any great complexity, as the hemispheres of men of marked intelligence ordinarily do. Mr. Tyerman's pamphlet, already alluded to, will enable a reader to form a tolerably fair estimate of the mental powers of the subject of this notice; from my own personal acquaintance with him, I came to consider him as a little more than equal in intelligence to most men in his class of life. The result, however, of a similar comparison of the brains in either case would be expressed by exactly reversing this conclusion.

The cavity of the lateral ventricle was somewhat enlarged; its lining membrane, however, was smooth and unthickened; numerous amylaceous bodies were to be seen in microscopic slides taken from the surface of the corpus striatum and of the eminentia collateralis.

Von Baer* has suggested that the transverse coronal depression in the skull, noticed above, corresponds to a great development of the anterior and posterior genu of the corpus callosum of the contained brain. This anticipation may be said to be verified by the examination of the brain of John Pratt, for both the anterior genu and the posterior bourrelet of that commissure appeared remarkably large when compared with the corresponding structures in other brains.

In the only other instance with which I am acquainted of a record

* Die Makrokephalen im Boden der Krym und Oesterreichs, p. 11.

having been taken of the weight of the brain in a centenarian, the weight amounted to 45 ozs., exceeding that of John Pratt's by two ounces. For a note of this case, that of a woman of 100 years, I have to thank R. Garner, Esq., of Stoke-upon-Trent. This weight, it may be added, corresponds very nearly with that (45·34 ozs.) given by Dr. Boyd* as the average of twenty-four brains from males above eighty years of age.

Though the body generally had the appearance of considerable, though not extreme, emaciation, there was yet a considerable layer of yellowish fat over the pectoral muscles and anterior body surface. The thoracic muscles looked thin and pale to the naked eye, but under the microscope their fibres showed the usual characters of striated muscle with very great clearness and distinctness; the same remarks apply to the diaphragm. The costal cartilages cut with the greatest ease, the line of demarcation between bone and cartilage was very well marked; the section of the cartilage presented a brownish-yellow colour, much like that of a decaying nut-kernel, to the naked eye; under the microscope the cartilage-cells, mostly containing large oil-drops in their interior, were very plain, and numerous, and normal. There was much fluid in the right pleura; the lung was not adherent, but its lower lobe had a fringe of yellowish lymph along its edge, and the diaphragm had a coating of similar material, which presented the coarsely villous appearance assumed by lymph exuded between two apposed and moving surfaces. The apex of the right lung had strata of lymph of different ages and vascularity capping it, and a mass of consolidated tissue of the size of the second joint of the thumb underlaid this portion of the pleura. This mass was of a dead white colour, a little variegated by the black pigment which abounded in both lungs; shreds of it sank in water, it had a small cavity with ragged walls in its interior, and it presented under the microscope the characters found in pneumonic consolidation. The black matter consisted of small granules of about the 12,000th of an inch, which were aggregated here and there into large masses. The left lung was universally adherent, the bands of attachment being old; there was a considerable amount of emphysema, as also in the right lung, along its anterior edge, but it was free from consolidation, and all, save pigmentary, deposit.

The heart was much loaded with fat, which concealed the colour of the muscular tissue, over the entire surface of the right ventricle, and took the form of large bosses at the apex and round the base of the two ventricles. There was a considerable quantity of fluid in the pericardium, and some vascular injection upon the intra-pericardial part of the aorta, as if from commencing inflammation. Its circumference there was four inches. White spots of thickened serous membrane were visible upon the aorta and pulmonary artery, as well as upon the usual places on the anterior surface of the right ventricle, and upon the back of the heart.

The valvula Thebesii in the right auricle and the remnant of the

† Philosophical Transactions for 1861, p. 253.

Eustachian valve were large and stout; and the difference between the colour of the two auricles was as sharp as usual. A linear aperture, guarded by a valvular flap, looked downwards from the fenestra ovalis into the right auricle; a moderate-sized probe passed easily through this into the left auricle, from under a flap of half an inch in length, attached at both ends, and looking downwards also. The cusps immediately next the conus arteriosus was considerably thickened; from the conus arteriosus, close to, but not connected with, one of the columnæ carneæ of this cusp, arose a moderator band, and passed to the anterior wall of the ventricle. In the apex of the right ventricle there was a very complex reticulation of columnæ carneæ unconnected with the valves; a similar but less complex arrangement existed in the apex of the left also. Of the pulmonary valves there is nothing to be said, and of the mitral and aortic, merely that there was a little atheromatous discoloration upon them, and that the latter seemed a little larger than usual. There was a good deal more atheroma arranged on the aorta in a line opposite the free edge of the aortic valves, and at one spot a considerable calcareous deposit was mixed up with it. But on the aorta beyond there was very little more of this deposit; but a single patch, in fact, in a length of vessel of as much as $2\frac{1}{2}''$ from the aortic valves. All the atheromatous and calcareous deposits alike were covered by the internal coat of the vessel, which was easily stripped off them in a continuous longitudinally fibrous sheet. There was no such deposit observable in the pulmonary artery; there was no clot in any of the cavities of the heart. Under the microscope the transverse striation, and even the branching of the heart fibres, was very clearly observable; but parallel with most or all the fibres, oil-drops of a yellowish colour, soluble in ether, were arranged in a moniliform fashion.

The liver was pale; hepatic congestion was observed. Some yellow bile was seen in the ductus choledochus communis, which did not seem smaller than usual. The weight of the liver was the same as that of the brain—viz., 2 lb. 11 oz. Under the microscope it was seen to be gorged with oil, every cell containing one or two large drops.

The spleen was very small, its weight two ounces, its capsule tuberculated.

The stomach and intestines presented little which was abnormal. There was no thinning of coats, or dilatation or narrowing of the calibre of any portion of the tube; the lowest part of the tract contained a quantity of well-elaborated fæcal matter.

There were no mesenteric glands to be seen in the layers of the mesentery; and Peyer's glands were represented to the naked eye by black specks merely. But these latter glands, on being placed under the microscope, presented just the same appearance of turgescence and roundness that they would have done in a younger subject. Though the nodes on the stem of the lymphatic or lacteal tree had shrivelled and disappeared, the spongioles on its roots were still active. The statement in Haller's 'Disputations,'* as to the total disappearance of

* Disp. Anat., vii. p. 77. Constat glandulas mesentericas maximas et pulcherrimas

the mesenteric system in advanced age, needs, therefore, certain qualifications which our modern knowledge of the true nature of the Peyerian glands enables us to make.

Both ureters were greatly dilated, and there was an abundance of reddish-yellow grains of uric acid in the pelvis and calices of the right kidney, as well as throughout the bladder. These concretions of uric acid were seen under an inch power to be multituberculate, or rather spinose, on their exterior; they were of the size of coarsish sand. The weight of the right kidney was $2\frac{3}{4}$ ounces; that of the left, which was somewhat deeply imbedded in fat, was $2\frac{1}{4}$ ounces. Exteriorly, both kidneys had indications of lobulation, and numerous small cysts, as in the case of Parr, scattered over their surface. Microscopically, the kidney tissues seemed normal. The bladder has risen so far out of the pelvis as nearly to abut upon the promontory of the sacrum. Its increase of size was due to the hypertrophy of its coats, and especially of its muscular coats. Everywhere, except over the trigonum vesicæ, the mucous membrane was bulged into sacculi prolonged between the muscular bundles for a depth of as much as the quarter of an inch, the orifices of communication between them and the general cavity of the bladder lying transversely to its vertical axis. Just at the commencement of the urethra, on the right side of the veru montanum, a pediculate growth, the size of a pea, projected into the urethra; on reflecting the mucous membrane, another similarly attached but smaller tumour was discovered close by the pedicle of the first; and on the left side of the veru montanum a broad and flat tumour, as large as both those of the right side taken together, was found, separable from, but, like the two pediculate tumours, possessing the same microscopic characters and prostatic corpuscles as the subjacent glandular isthmus, or "middle lobe." The orifices of the prostatic glands were large. The prostate figured by Sir Everard Home in the second plate of his second volume upon the diseases of this gland must have resembled the one just described very closely. The lateral lobes were large, and in the veins forming the prostatic plexus some little blood was observed, but by no means a large quantity.

A uterus masculinus of one-third of an inch was present; the vasa deferentia opening a little anterior to it, one on either side.

A semilunar fold of mucous membrane of three-eighths of an inch in length projected on either side of the veru montanum from the lateral lobe of the prostate, with its free edge towards the membranous part of the urethra.

Some yellowish fluid was contained in the spermatic vesicles and ends of the vasa deferentia; it contained a great number of free nuclei, but no spermatozoa.

The scrotum was not opened, but I could not detect any testes within it, though the epididymis was easily recognisable within either

in fœtu esse, sed imminui pro ætate crescente *ut in senio evanescant omnes.* Ita Ruyschius senex de se ipso scripsit per multos nunc annos nulla sibi superesse vasa lactea quod quidem non nisi ex experimentis et observationibus didicit quibus constat anno septuagesimo et prius glandulas mesentericas omnes evanuisse.

compartment. Dr. Davy was informed by the old man, in the summer of 1861, that it was not till the age of 100 that he lost virile power, and that it was then his health began to fail. This coincidence of failures seems in accordance with the conclusion come to by Dr. Davy, in his 'Anatomical and Physiological Researches,' vol. i. p. 337, to the effect that, with the exception of consumption, wasting diseases terminating in death have the effect of arresting the spermatic secretion. M. Duplay,* however, who examined the contents of the seminal vesicles in 51 cases of old men, and found spermatozoa in as many as 37 of these cases, these 37 being mostly above seventy years of age, remarks that nearly half of them died of chronic diseases, and that some modification of Dr. Davy's views seems necessitated by his statistics.

That Thomas Parr retained virile power to the age of 100 is only too well known; and in the 'Derby Mercury,' for November 12th, 1862, I find an account of a congratulatory dinner given to a centenarian, Mr. Foster, whose "first born child, if now living, would have attained her seventy-eighth year; and whose last, the only one left, had celebrated her tenth birthday but a few days before."

Dr. Luigi Berruti's recently published account of an Italian who died at the age of 104, besides furnishing a singularly close historical parallel to the case of Thomas Parr, shows us that the Sardinian lancet is employed with the same murderous impartiality against ecclesiastics, as we knew it to be against princes and statesmen. The case is to be found, somewhat abridged by Professor Kussmaul, in Canstatt's 'Jahresbericht' for 1857, Band ii., Allgemeine Pathologie, pp. 46, 47; and as, whether in the Italian original, or in the German report, it is not accessible to all English readers, there is the more reason for giving it *in extenso*.

A. Melis, born 1753, at Gastegli, in Sardinia, lived for forty years as a minor brother in Spain, till, in consequence of the political trouble there, he was expelled thence, with some other clergy, and returned to Sardinia. There he obtained a small benefice. He was of a very jovial temperament, and took pleasure in having his affairs go on after a fixed and settled plan. He was of middle size, strongly built, and of a good digestion; fond of the pleasures of the table and of good wine. Every now and then he complained of feeling himself full-blooded, languid (*eingenommen*), and of diminished appetite; and upon such occasions he betook himself to purgatives and bleeding. In his lifetime he had submitted himself to *some hundreds* of bleedings. He often made short journeys on foot or on horseback, and he loved hunting. Victor Emmanuel II. wished to see the old priest of 104. Melis made a journey of some days through Sardinia on horseback, then took ship for Genoa, and on arriving at Turin had an old woman of 107 introduced to him. He was much fêted there, in spite of the old man's adage—"Young man, if thou goest so fast, thou never wilt grow old;" and he surfeited himself, laughing and boasting about his iron

* Geist. Klinik der Greisenkrankheiten, vol. i. p. 147; Archiv Générales de Médecine, Dec. 1852, 1853; Schmidt's Jahrbucher, 1853, No. 4; 1856, No. 2.

constitution, on cheese, tunny, and wine. He was attacked by pneumonia, and *in spite of* three bleedings, of which one amounted to nearly nine ounces (250 grammes), purgatives, and so forth, he died sixteen days after his admission into the hospital.

The curly black hair of the head and the teeth were in perfect preservation; the body was very muscular and very fat. There was slight rigidity of the limbs twenty-four hours after death. The bones of the thorax were very fragile, the costal cartilages quite ossified, the diploë and sutures of the cranial bones had disappeared. The dura mater was beset here and there with bony plates. The basilar and vertebral arteries were ossified, and there were incrustations on the aortic valves, on the aorta itself, and on many of its branches. The heart was very fat, its muscular tissue firm; there were blood-clots in its interior. There was splenization of the lung and bronchitis (*sic*). In the other organs of the body there was nothing worthy of note. Melis's parents had, like himself, attained great ages.

The post-mortem appearances put on record by Dr. Berruti coincide in scarcely a single particular with those I have noticed in John Pratt. Ossification of the cartilages is noted in this case and in that of Dr. Holyoke; in the cases given by Haller, Dr. Keill, Harvey, and myself they were not thus altered. That the immoderate use of alcoholic drinks may lead to this change, even in young subjects,* cannot be doubted; still, as Dr. Holyoke led a life of the greatest temperance, the ossification of his costal cartilages must have been owing to some other cause. Old age causes very opposite changes to take place in bone; possibly it may act upon cartilages in equally differing ways.

The appearances noted in the case of John Pratt coincide with those recorded in the case of Thomas Parr, in the following particulars. In both, the stomach and intestine-walls were of normal firmness and thickness; in both, the spleen was very small; in both, the outer surface of the kidney was beset with serous cysts, and that of the heart with fat; and in both the costal cartilages retained their softness. In this last point, as well as in that of the dilatation of the aorta, Haller's and Dr. Keill's cases resemble that of John Pratt. Dr. Keill's case affords a yet more perfect parallel by the state of the right kidney, of the spleen, and of the pigment-spotted lungs. In this last point, as in that of the condition of the testes, Parr differed from Pratt.

Dr. Holyoke has left us a graphic account of the sensation of fluctuation within his head, which led him to suspect the existence of what has been called hydrocephalus *ex vacuo*. The post-mortem examination verified his diagnosis. In this point, as well as in that of pigmentary deposit in the lungs, in those of abundant deposit of fat round the heart, of bloodlessness of the scalp, of widened cerebral fissures, and of cysts upon the kidney's surface, the case I have here recorded coincides with that of Dr. Holyoke.

None of the appearances recorded in the post-mortem of John Pratt are inconsistent with the claim he made to the age of 106; the many

* Humphry on the Human Skeleton, p. 58.

points, indeed, in which they resemble the appearances noted in persons undoubtedly centenarian, may, by the very fact of their being many, lend some probability to it. Taken singly they have little weight, their evidence is cumulative. Perhaps even standing alone, the diminution of the mass of the blood and of the blood-making organs—the spleen and the mesenteric glands—may be considered as some proof of great age.

The dilatation of the aorta and the outgrowing of the prostate are frequently, yet not constantly nor exclusively, noticeable senile changes. The pathological alterations which the heart, lungs, liver, and kidneys had undergone impair any evidence which might possibly have been based upon their weights.

The pancreas I did not weigh, through inadvertence.* Many other omissions will be noted in my account of this examination; some, however, such as that of the weight of the body, were owing, not to inadvertence, but to other causes which I need not specify.

* I may say that M. Durand-Fardel is wrong in saying (l. c. p. xxi.) "Le pancreas est, suivant Canstatt, *de toutes les glandes* celle dont la metamorphose atrophique s'observe *le plus souvent* chez les vieillards." Canstatt's words are, "Atrophische Verwandlung in hohen Alter *nicht selten ist*." (Tome i. p. 69.) This correction may, I hope, save some one certain trouble, which M. Durand-Fardel's erroneous statement caused me to undertake.

PART FOURTH.

Chronicle of Medical Science

(CHIEFLY FOREIGN AND CONTEMPORARY).

HALF-YEARLY REPORT ON MICROLOGY.

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PART I.—PHYSIOLOGICAL MICROLOGY.

ON CELLS.

On the Embryological Foundation of the Cell Theory.—Professor Remak* complains that either his works have not been properly used, or quoted unsatisfactorily, but he has abstained from controversy. He makes an exception as to the essay of Professor Max Schultze, of Bonn, who has tried to shake the foundations of the prevailing doctrine of cells which Professor Remak assisted in laying. He says, "I will only observe that I think it hazardous to call the cells 'organisms,' inasmuch as this name should certainly be reserved for those organic existences which have a greater independence than has been proved to belong to the animal cells. In my opinion the cells are not *elementary organisms*, but *organized elements*, in which, in the first place, the germ arranges itself, and which then assume various organizations, by which they either keep the lower (vegetable) grade of cell form, or, by processes and wall substances, display higher (animal) organizations (nerve-fibres, muscular fibres, elastic fibres, connective tissue). As to time, the cells are primary, and fibre-formations secondary. According to physiological value, almost the reverse obtains, if we except the ganglion cells, whose reference to embryo cells is certainly at once deduced from my observations on the spinal ganglia of the tadpole, but still as yet wants direct proof. To deny to the processes and wall-formations of the cells all independence would be certainly too much to say. Kölliker has just shown ('Development of Connective Tissues,' Würzburg, 1861) that elastic fibres really develope themselves out of wall-substance, and I myself must observe emphatically, that the beautiful incasings, which we admire in the costal cartilages, for instance, are not at all observed in the apparently homogeneous wall-substance of young animals. All this rather inclines us to reduce the supremacy of the cells, than to consolidate it, as well as to direct attention to the unformed constituents of the body, among which the liquor sanguinis especially could hardly perhaps carry on a chemical life merely dependent on cells. In short, it would be time to return to a humoral physiology refined by the cell theory. If, on the other hand, the contest about the cell membrane really should lead us to discover the finer structures of the protoplasma and of the wall-substances in the different tissues, this would be a great gain. The nerve-fibres would require, indeed, our first attention. On this

* Archiv für Anat., Phys. und wissenchaft. Medicin, 1862, p. 230.

subject I would observe, that as long ago as in the year 1837 ('Anatomical Observations,' 1838), I observed in the axis cylinder, and later (in 1852, in the 'Reports of the Convention of Naturalists of Wiesbaden,' and in 1853, in the 'Reports of the Academy of Sciences in Berlin') in the ganglion cells also, a complicated fibrous structure which ought to be followed up."

NERVOUS SYSTEM.

Spinal Nerves.—In continuation of former papers, Professor E. Reissner, of Dorpat, now gives us* the results of his investigations "concerning the roots of the human spinal nerves. When I review my investigations, I find, in the first place, that the roots of the spinal nerves or their separate divisions, which appear disunited from the spinal cord, and only later unite into a root, enveloped in a common sheath of areolar tissue, are split into larger or smaller bundles by continuations proceeding from it, as in the case of the oculo-motor nerve. The secondary sheaths on the posterior roots are particularly strong, or, to express it differently, the divisions of the posterior roots do not in most cases unite so completely as those of the others, but they remain in part isolated. In the general and the secondary sheaths, we find here and there, but sparingly altogether, connective-tissue corpuscles, of the same kind as those which have been described, of the neurilemma of the fibres of the oculo-motor nerve.

"As to the *appearance* of the nerve-fibres, seen in section, I have little to add after what I have said of the oculo-motor nerve. Of no little interest, however, are the differences in the *diameters* of the fibres. Here it is not indifferent to which region of the spinal cord the roots of the nerves belong. Let us first consider the *cervical* and *lumbar* nerves. If we compare the section of an anterior root of these nerves with that of a posterior one, we shall, even with low powers, recognise a remarkable difference; the *anterior* roots in the disposition of their nerve-fibres cut across present a *uniform* aspect, whilst the *posterior* roots appear *spotted*. In preparations which have been treated with carmine, the spots, spread over a whole cross section in tolerably equal proportions, have an intensely red appearance. If we now employ a stronger power, it is seen that the spots are *bundles of fine fibres*—i.e., *nerve-fibres*. Such fibres are not wanting in the anterior roots, but in them they do not lie together in bundles, but are found only in an isolated manner, and are therefore quite overlooked with low powers. In the anterior roots, the diameter of the stoutest fibres, according to measurements of sections, amounts to 0·0200—0·0230 mm., but such fibres are on the whole few; most of the broad fibres have a diameter of 0·0152—0·0180 mm.; the finest fibres are in breadth 0·0020—0·0040 mm. . . . . In the *posterior* roots the broad fibres are neither generally nor in the most extreme case more delicate than the corresponding fibres of the anterior roots; indeed, here and there I have met with fibres which were even somewhat broader than the broadest fibres of the anterior roots, whilst their diameter rises up to 0·0250 mm. . . . . The *dorsal* nerves do not correspond to the circumstances just described, in that their anterior and posterior roots do not show the same differences. The anterior roots are much more like the posterior in their composition; the former then appear in sections, with weak powers, spotted like the latter, and, as higher powers undoubtedly show, contain just as many fine fibres as the posterior roots, perhaps sometimes even more.

"The following are the chief points shown by my considerations:—

"1. The broad fibres of the anterior and posterior roots of the spinal nerves have an equal diameter.

* Archiv für Anat., Phys. und wissenchaft. Medicin. 1862, p. 125.

"2. A greater number of fine fibres forms no general character of the posterior roots of the spinal nerves.

"3. The anterior roots of the dorsal nerves are distinguished from those of the other spinal nerves, by their possessing at least as many fine fibres as the posterior roots of the spinal nerves.

"4. The fine fibres appear in bundles, in an isolated manner, in both roots of the spinal nerves, in the posterior spinal and in the anterior roots of the dorsal nerves."

On the Gland-like Nature of the so-called Inter-carotid Ganglion.—Dr. Luschka,* of Tübingen, says of this structure that "it is its cavernous character, like that of gland, which in various number and size, principally makes up those little roundish lumps which, even with low magnifying powers, become visible in specimens thinly spread out. Most of them possess a thick *wall*, which has for its foundation a structureless membrane firmly connected with the contents, and which can be isolated only with difficulty. On its outside is extended a layer of finely-striated connective substance, in which are strewn numberless, oblong nuclei of a dark contour. It is this same accidental envelope which connects the groups of gland formations together into *granulations*, being bounded externally by the loose stroma. Respecting the *form* of the gland-like component parts, we may make out two types—that is to say, roundish vesicles and tubes. The *vesicles* are sometimes perfectly spherical, at others, of an elongated form, or they are shaped like a knot or contracted like an hour-glass, &c. The *tubes* also offer not less varying forms, being either cylindrical or indented here and there, divided quite simply or forked, and of very unequal lengths. They have very seldom a lengthened course, but are generally curved in various ways, and thrust between the vesicles without any determinate order. The *contents* of these hollow formations are tolerably consistent and firmly connected with the parietes. With this it is consonant that the hollow formations cannot easily be made to burst. On the other hand, one is always able, by pulling to pieces one of the specimens carefully with needles, to obtain them pretty much alone. However, it is much more worth while and to the purpose to view the contents *in situ*, which can be done very easily in thin slices of such preparations having been hardened a little by being put into thin chromic acid.

"In most of the hollow formations appear numerous formed elements. Many hold smaller vesicles, possessing very thin walls, enclosed, however, form-elements, not distinguished from those which freely appear by the side of them, or compose the entire contents of other hollow formations. These form-elements, however, are partly delicate *molecules*, among which many are distinguished by sharp dark contours, and by a fat-like brilliancy, partly naked nuclei as well as cells of various forms. The *nuclei* commonly have a roundish form; they are partly altogether homogeneous and bright, partly granulated, and generally furnished with a nucleolus. Of the *cells*, most of them are longish, round, many polygonal, or also of no regular shape. Sometimes I found cells in this or that vesicle, which had the greatest resemblance to those of cylinder epithelium, having shown also, especially at the free end, a kind of *Basalsaum*. Notwithstanding all my attempts, I have not hitherto been able to demonstrate any undoubted ciliated cells, but I must not omit to mention that in some chromic acid preparations, I have found conical cells, on the thick end of which there appeared accessories which reminded me of adherent cilia. In the cells is found, without exception, a distinct nucleus, by the side of which single larger, dark elementary granules frequently strike us; as for the rest, the cellular contents are finely granulated, more rarely so homogeneous, that it

* Archiv für Anat., Phys. und wissenschaft. Medicin, 1862, p. 405.

should give a hyaline appearance. With regard to the arrangement of the cells in general, one may say that it is everywhere without a rule. Nevertheless, we frequently meet with vesicles in which the cells most advanced towards the periphery are spread out in the manner of an epithelium. Such cell-elements and nuclei are, however, not exclusively found within the gland-like hollow formations, but are here and there also isolated, or lying in groups together, strewed freely in the stroma of the organ or between these hollow formations."

Of the bloodvessels the author says, "Hitherto I have not succeeded in bringing to view a capillary net which one might have ascribed to the hollow formations alone."

Concerning the nerves he says, "Hitherto, as far as my investigations extend, only those fibres descending from the uppermost cervical ganglion enter into connexion, from the plexus intercaroticus, with the mass of the so-called ganglion intercaroticum, which obtain their extension as 'rami vaso motorii' on the external carotid and its branches. In the substance of the organ, the small nerves are immediately expanded into a formal network, in which the hollow formations are partly in some measure sunk. The small nerves attain there such fineness that sometimes they consist only of one or of single primitive fibres. These fine nerves possess a strikingly thick appearance, actually broken up, interlaced with oblong nuclei, not rarely streaked lengthways, or even in band-like streaks, without doubt identical with the fibres of Remak so-called."

On the Peripheral Extremities of the Motor Nerves.—Kühne's investigations on the mode of termination of the nerves in the muscles led Kölliker* also for his part to investigate the matter; he arrived, however, at results differing considerably from those of Kühne. In the first place, he found that the dark-edged nerve-fibre, without laying aside its sheath, enters the muscle, so that the pale terminal fibres are not merely axis-cylinders, but prolongations both of the contents and of the envelope. Moreover, the pale terminal ramifications outwardly are furnished to the muscular fibres, that is, to the sarcolemma, and not, as Kühne finds, to the fibres; and the formations described by Kühne as terminal knobs in the interior of the muscle are said to be only the nuclei of the envelopes; the real termination of the pale terminal fibres takes place by free narrowed offsets. In the muscles, Kölliker also distinguishes the sensitive nerve-tubes as numerous pale nucleated fibres which arise in the fine dark-edged tubes of Reichert, extending themselves particularly on the free surfaces of the muscles in larger extent, and terminating freely with quite fine ends. The stem fibres of these sensitive fibres are tolerably broad, so that even here in the terminal expansion a considerable narrowing takes place. In winter, Kölliker found peculiar nerve-coils, in small number, in the muscles, which lie on slight enlargements of the muscle-fibres. In these enlargements the muscle-fibre is split into from three to seven fine fibres, which Kölliker, along with Weismann, considers as the results of a division lengthways for the multiplication of the muscle-fibres. At the same time, with the division lengthways of a muscle-fibre the nerve-terminations also increase, extending themselves on the same, so as, at the same time, to allow the part fibres to receive their nerve-ends; thus originate the nerve-coils in question. The nerve-tubes of the coil pass between the fine fibres of the enlargement of the apparently simple coarser fibre.

Nerves of the Cornea.—Kühne† has made microscopical and experimental observations on the nerve-fibres which pass into the cornea. The object was the frog. The observations are the following:—After the nerves have entered

* Medizinische Jahrbücher, p. 95. Wien, 1862. † Ibid., p. 135.

the margin of the cornea and have reached the tissue of the organ, they lose their medulla and the sheath of Schwann. All these nerve-fibres divide repeatedly before they reach their real end. The division differs from other nerve divisions. A number of fine fibres leave the primitive fibres at a right angle, without any loss of volume on the part of the latter. The axis-cylinders which finally proceed from the division become somewhat granular, and hold together without interference with the protoplasma filaments of the corpuscles of the cornea. It is probable that there is no corpuscle which is not connected with nerves directly or indirectly. The nerves are motor; the corpuscles are made to change their form by induction blows. The same occurs on the irritation of the under edge of the cornea. The corpuscles collect around a nucleus.

Ganglion on the Hypoglossal Nerve.—A. Vulpian* has histologically examined, in dogs and cats, the ganglion found by Meyer in 1833 on the hypoglossal nerve in several animals, and exceptionally only in man. The fine radical filaments which this ganglion possesses represents the posterior root of the spinal nerves; it arises from the posterior lateral surface of the medulla oblongata, and supplies sensitive fibres to the mainly motor nerves. The ganglia cells are very probably throughout unipolar, such as, by several investigators, are assumed for all spinal ganglia. The investigations of Luschka on the origin of the sensitive fibres, which the hypoglossal in man also contain, appear to have been unknown to the author.

MUSCULAR SYSTEM.

On the Development of Striped Muscular Fibre.—F. E. Schulze† gives the results of investigations, made in the summer of 1861, on the tadpole, &c. He first considers, "How does the cross-striped substance originate?—After that, in those cells yet thickly occupied with strongly refracting vitelline lamellæ (germ-nuclei) of the middle germ membrane out of which the muscles are to be formed, the vitelline lamellæ are for the most part reabsorbed, a finely granulated substance having taken their place, and, at least in the greater number of the Batrachians, out of the originally single nucleus by division several have arisen, we observe, already in fresh cells, but, better still, in cells which have been hardened one or two days in a one or two per cent. solution of bichromate of potash, for the first time the appearance of the striped substance, in the form of *a single fibril*, always appearing on one (the outer?) side of the cell, which entirely corresponds to that found in the fully developed muscle. I would lay much stress upon the fact that at first there is found a fibril completely and sharply defined as to the rest of the protoplasma, as opposed to the statement of Remak that immediately a 'bright, homogeneous (?) cross-striped' layer of muscle substance, and indeed, as the illustrations show, not quite distinct from the rest of the protoplasma, appears.

"The same condition I have observed later; for instance, in the muscle-cells formed at the extremities; and particularly on that account it appears to me so important, because thus the morphological existence and independence of the fibril, which is so often condemned as an artificial product, is secured. I said above that the first fibril always appeared on the one side of the cell. The question is now, whether it originates within or without the cell? Remak gives the following opinion: 'The cross-striped layer appears to be deposited on the inner surface of the cell-membrane.' He therefore assumes that there is in these young cells already a real cell-membrane. I must confess that I have never been able to perceive on the exterior of the first fibril any parti-

* Medizinische Jahrbücher, p. 94. Wien, 1862.
† Archiv für Anat., Phys. und wissenschaft. Medicin, 1862, p. 385.

cular membrane. Perhaps this is because of its extreme fineness or imperceptible difference from the protoplasma. If even thus early a membrane is in existence (a question certainly of small importance if we look at it from the point of view which is certainly pretty much taken up, and rightly, as to the formation of the membrane in animal embryo cells—namely, that being at first altogether absent, it is only formed by a gradual hardening of the exterior layer of protoplasma), then decidedly the fibril, as Remak states, lies closely at its inner side; if there is yet no membrane existing, then the fibril itself, imbedded on three sides in the protoplasma of the cell, forms a part of the outer part of the cell, but is by no means, as we might easily imagine from some of the representations, a deposit outwardly on the periphery of the cell, just as, perhaps, one may understand the lid membranes, so-called, of certain epithelial cells. That this is not really so we perceive in these particular cells, if they are allowed to roll along over the object-bearer, as also more especially in further developed specimens, in which one can see protoplasma almost regularly around the whole fibril bundle, which would not be possible if the fibrils were deposited without a cell, on its outer side. Besides this first fibril there now immediately arises a second one, likewise in the periphery of the cell, and indeed it lies mostly in its whole length close to the first; only in the young muscles being formed later, in the extremities, for instance, I have sometimes found them lying further apart. To the second after it a third fibril is laid still in the periphery of the cell, and so on, whilst now also, at the same time, there follows a production of fibrils towards within, to the axis of the cylinder. In this manner arise half-channels composed of fibrils, in the lumen of which the finely granulated protoplasma with its nuclei is found; still, however, the definition of the fibrils towards the protoplasma remains perfectly sharp. Now whilst the fibrils multiply until they gradually fill up the whole cylinder, the nuclei are variously divided, and get partly between the fibrils, so as to form here, with the remains of the protoplasma, the so-called muscle-corpuscles; and partly they remain between the sarcolemma and the fibrils formed in the meanwhile, being placed close to the former.

"Does the primitive muscular bundle begin from one cell or not?—If in the muscular system of the body or tail of naked amphibious animals or fishes, whose primitive muscular bundles it is known are exactly bounded at both ends by the septa of connective tissue, we should find muscle-cells whose length would be equal to their vertebral segments determined by the septa, with tendinous origins at both ends, and with only one nucleus, then the question would be decided in favour of the view of Remak and Kölliker. In point of fact, I have succeeded in finding many such cells in the muscular system of the body and tail, not, certainly, in Rana esc. and Bufo cin., but, without a doubt, in Bombinator igneus, and very easily in the Tritons. For that purpose I measured, in larvæ hardened for a day or two in a two per cent. solution of bichromate of potash, first of all the interval of the septa of connective tissue in some accurately marked spot of the body or tail, then cut out this part, and again measured the length of the cells isolated by tearing apart, in order to convince myself that the parts I had been investigating, and which generally at both ends still allowed of the recognition of their tendinous origins, had also actually reached from one septum to the other. Of these I found certainly most of them to have many nuclei; many, however, had only a single nucleus, commonly a very large one, drawn out in length, and furnished with several nucleoli, which evidently had been hindered by some circumstances from passing through the ordinary division and multiplying process. Very well adapted for these observations are the larvæ of Triton tæniatus, in the living animal of which species the muscle-cells furnished with but one long nucleus may not unfrequently be seen.

"Now as these young beginnings of the primitive bundles, furnished with but

one nucleus, therefore also representing only one cell, already reach from one septum of connective tissue to another, and have here their tendinous origins, Margo's statement, that the spindle-shaped sarcoplasts applying themselves like bricks, with their ends to each other, are supposed to grow together, appears to be refuted, inasmuch as both extremities of each separate cell are already attached to the septum of connective tissue. But still it would be possible, that the completed primitive bundle originated not by formation and metamorphosis, cells which have at first but one nucleus, but by an apposition side by side, and growing together of some of them, a mode of origin which was asserted by Leydig and others. Certain peculiarities in the development of the muscles in Tritons seem to me to offer a good opportunity of refuting this view. There, namely, it is developed differently, as in the Batrachian larvæ, in the young muscle-cells usually only a row of nuclei lying between the fibrils, which gradually advance by the deposition of new fibrils into the axis of the cylindrical fibres. If now a primitive muscular bundle should originate in a deposition side by side of several such cylinders, then in sections of young primitive bundles we should often meet with several nuclei close to each other between the fibrils, which, however, in young primitive bundles, sufficiently characterized as such by their membrane, I have never succeeded in finding. Certainly I sometimes found close to the nucleus, lying in the axis, one or more lying between the fibrils and sarcolemma, but never several nuclei side by side between the fibrils.

"According to this, therefore, the only possible process for the formation of the primitive muscular bundle would be a growing out of the above-described cells already fastened at both ends longways, and in thickness with contemporary increase of the nuclei. Whether now this mode of origin, of a muscular primitive bundle, holds good in all situations and in all animals I cannot decide, but the above observations appear to me to prove its manifestations in the muscular system of the trunk of Batrachians and Tritons.

"How is the sarcolemma developed? In this question also there are two opposite opinions. Some recognise in the sarcolemma the membrane of the embryonal muscle cell, whilst others assert that it is formed from the surrounding connective tissue. Inasmuch as the sarcolemma of the fully-developed muscular fibre consists of a thin membrane set with nuclei, it is necessary, in the first place, to determine the origin of these nuclei. Are they nuclei of former cells of connective tissue situated between the muscular parts? or are they descendants of the nuclei of those muscle-cells themselves? An accurate pursuit of the whole process of development has convinced me that the latter is by far the most probable. Of the many nuclei sprung from the division of the first nucleus of the muscle-cell (for different animals very differently formed, but for one and the same all alike), some, as, with regard to the Batrachians and Tritons, I have already remarked, get between the fibrils, and are here pressed into a longish-oval shape; the others remain in the protoplasma surrounding the fibrils; and when this protoplasma has finally altogether disappeared, place themselves, only becoming a little flatter, retain their roundish form, close to the inner side of the crust of the protoplasma, which in the meanwhile has become a membrane by gradual hardening, perhaps growing together with it. We shall never find these nuclei stored up in the membrane, still less upon it from without. Frequently one may see, even in one and the same lengthways, rows in which the nuclei range themselves, some deposited between the fibrils of a longish form, others outside them between the fibrils and the sarcolemma in their original roundish form. The cross sections of young, primitive, muscular bundles, which are easily got from Triton-embryos, also pronounce decisively in favour of this view. Here we always see the exterior thin layer of protoplasma hardening into sarcolemma, or already condensed, passing over the nuclei lying outside the mass of fibrils."

Muscles of the Peritoneal Folds.—H. Luschka* describes the situations of the organic muscles in the folds of the peritoneum; Sue has already seen in the broad ligament of the uterus such fasciculi passing directly outwards, and Madame Boivin in the Douglas folds of women; Luschka saw the latter developing themselves from the neck of the uterus and by the side of the large intestine passing out to the vicinity of the second sacral vertebra; he calls these fibres musc. retractor uteri. At the boundary of the large and small intestines bordering the recessus iliocæcalis, there appears an iliocæcal fold, also containing muscular fibres.

On the Development of Muscular Fibre in Man.—In the 'Quarterly Journal of Microscopical Science'† Lockhart Clarke concludes the observations on the development which he had begun in the preceding number of the same journal, in birds and mammals, and elsewhere, in a less complete form, in the human subject. In man, he says, "from the fourth to the fifth week of utero-gestation is about the earliest period at which this tissue can be distinguished with certainty from some others. In a fœtus of three-fourths of an inch in length it forms a gelatinous mass, consisting, as in the other cases described, of fibres and nuclei imbedded in a semi-fluid, granular blastema. In the formation of these fibres, as in similar cases already described, granular processes of condensed blastema extend from the sides or from around the nuclei; and along the surface of these a new substance forms, until they become partially or completely invested. At first, the investing substance appears only on one side, in the form generally of a plain band or fibre, but subsequently is seen also on the other. Sometimes, however, it is deposited in the shape of distinct, longitudinal fibrillæ, until the surface is completely covered; and sometimes these fibrillæ are at once, or soon after, divided into particles, which, when close together and on the same level, appear as transverse striæ. Seen under a power of four hundred and twenty diameters, these two rows of particles had the appearance of short, transverse lines. On one side of them are the remains of the granular layer of blastema, ready to be converted into another fibrilla or row of particles. But even when the surface of the fibre is perfectly plain, with the exception of the two lateral borders, it may be resolved into fibrillæ by the influence of certain reagents, particularly chromic acid.

"The diameter of the same fibre varies at different parts of its course, and the nuclei it contains are located at variable distances from each other. Sometimes, however, three or four are heaped closely together, one overlapping the other; and sometimes two are in contact at their edges, having just undergone the process of division. The fibres arrange themselves side by side, with the nuclear enlargements of one a little above or below those of another, so that their respective curvatures admit of their lying in close contact. Sometimes they may be seen to increase in diameter or in the number of fibrillæ, by the adhesion of fresh nuclei, from which new granular processes of blastema extend along their edges. Each of their lateral borders constitutes one fibrilla or more; but, except under the influence of chromic acid or some other reagent, it is only occasionally that the fibrillæ are resolved into particles or granules, which are in some cases exceedingly fine.

"The muscular tissue of the heart in the same fœtus differed in some respects from that of the trunk. The free nuclei were more densely crowded together, but the granular blastema was less abundant. All these bodies gave off processes, which, in many instances, were mere fibres, but in others they were broad at their attachment to one side or end of the nucleus, from which they tapered off into fibres, so as to present a funnel-shaped appearance. During the first formation of the muscular fibres the nuclei, with their processes, were

* Medizinische Jahrbücher, p. 99. Wien, 1862. † Jan. 1863, p. 1.

disposed side by side. When formed, they were, in general, more uniformly granular than those of the trunk, more varied in shape and irregular in breadth, and gave off branches by which they were connected in a kind of plexus or anastomosis. In some cases they were joined together by broad expansions of condensed blastema (something like the web in a frog's foot), in which much finer branches might be frequently seen in process of formation. In the bundles which they form they lie in such close apposition that they appear to be almost cemented together. At the sides of such a bundle it was not uncommon to find oval nuclei with processes which divide into branches. Sometimes several nuclei appeared to be joined together by a condensation of the intervening blastema, in which, at the same time, a kind of plexus of fibres, of very small but variable diameter, became developed. In the heart the fibrillæ were much more frequently resolved into particles or sarcous elements, and therefore the appearances of transverse striæ were much more common than in the trunk.

"In fœtuses of one and a half or two inches in length the muscular fibres of the trunk which were first developed, had increased considerably in diameter; but many smaller ones were either formed or in process of formation. Their increase in diameter depends, in some places, partly on a certain increase in the size of the nuclei which they contain, but chiefly on the deposition of new layers of the substance or the fibrillæ by which they are invested, and which, therefore, extend the breadth of the original borders. In the majority of instances these new layers are deposited nearly equally round the axis, but in many others they are added—at least for a variable length—more thickly on one side; so that from this cause, as well as from the size and relative distance from each other of the nuclei, the same fibre may vary in diameter at different parts of its course. It is flatter also in some parts, and gradually assumes a more cylindrical shape and uniform structure throughout its entire thickness. Numerous nuclei lie on its surface, along which granular processes may be frequently seen to extend from one to the other, as the foundation of new fibrillæ. In all the larger fibres, and in most of those of intermediate size, the striæ are beautifully marked, but have often a different aspect in different fibres and in different parts of the same fibre. On each side of the axis there is commonly observed a very remarkable border of transverse striæ, corresponding to the plain lateral borders, and indicating the depth of the fibrillation. When the granular axis has disappeared, and the fibre throughout is composed of fibrillæ, and is therefore of uniform structure, the lateral bands, as bands, of course disappear; while the nuclei, in many instances, reach the surface, in consequence of the unequal deposition of material around them. In other cases, however, the nuclei have seemed to disappear by breaking up into granules; but I am not sure that this is a natural histological change. Up to the time of birth nothing of importance remains to be observed."

CARTILAGINOUS SYSTEM.

On the Ossification of the Hyaline Cartilage.—In a very long paper* on this subject, by N. Lieberkuehn, with numerous illustrations, the following are briefly the results arrived at—

The true bone substance, consisting of a lamellar matrix with radiated cavities, in man and the mammals, does not everywhere originate in the same manner, but begins from hyaline (true), as well as from the membranous or fibrous cartilage, or from the ossifying connective substance of the periosteum.

In the place of the hyaline cartilaginous tissue, no other bone substance

* Archiv. für Anat., Phys. und wissenchaft. Medicin, 1862, p. 702.

is ever placed but that which proceeds from it. The ossifying hyaline cartilage is but a stage of formation of the bone.

The hyaline cartilage may become earthy, without advancing to the formation of radiated bone corpuscles and lamellar systems; it occurs thus in the articular cartilages of mammals and birds, in different parts of the skeleton of cartilaginous fishes. The matrix thereby undergoes remarkable changes.

The radiated bone corpuscles of the bones proceeding from hyaline cartilage arise from thickening layers, which are established among the porous channels that are left, at the earthy coats of the closed cavities of the cartilage; thus, by progressive narrowing of the latter, and resorption of the bone substance advancing further from the extremities of the porous channels.

The remains of cells enclosed within the cavities of the bone, as to the bones originating in hyaline cartilage, are always the remains of the cells of the cartilage themselves.

The formation of true bone may then also proceed within the Haversian canals and medullary spaces, from a substance agreeing with the ossifying periosteal tissue, if the original structure of hyaline cartilage was ossified, as is the case with horns.

The bone substance arising from hyaline cartilage disappears for the most part in hollow bones during their growth, medullary spaces almost always taking its place.

LYMPHATIC SYSTEM.

The Lymphatic Radicles in the Skin.—His* injected the skin through fine superficial punctures with a granular coloured lime mass; only those reticulations were considered to belong to the lymphatic system, which were in connexion with vessels, having valves, which went into the deeper parts. In this manner were examined the external integuments of the scrotum, of the palm of the hand, and of the labia majora of a new-born girl, then the mucous membrane of the trachea, of the larynx, of the urinary bladder and urethra, of the gall bladder, of the vesiculæ seminales, and of the conjunctiva of the eye, then the serous coat of the surface of the lungs of new-born infants, and of embryos, and of the heart. He found that the primary radicles are absolutely devoid of their proper wall, which may be isolated; they are channels lodged in the connective tissue of the cutis, &c.; he does not altogether deny the connexion of the connective tissue corpuscles and the lymphatics, but he maintains that such a connexion is, at any rate, not general. As to the epithelium described by Von Recklingshausen, His does not come to any decision.

GENITO-URINARY SYSTEM.

Anatomical Researches on the Innominate Body.—This structure is thus described by J. A. Giraldès.† "The innominate body is a rudimentary organ remaining to adult age, and placed in the spermatic cord near the head of the epididymis, in front of the bundle of vessels and in the sub-serous cellular tissues. Its shapes and dimensions are very varied," &c.

"To dissect this organ, the part must be macerated in a solution of an acid which will render the epithelium of the little tubes of which it is composed opaque, and at the same time render transparent the tissues in which it is placed. Tartaric and citric acids are those which are best adapted for this purpose.

"In specimens prepared from a new-born child by this method, one perceives, on the rounded part of the cord which is near the head of the epididymis, the existence of little whitish, rounded, granular, irregularly-shaped masses, sometimes assuming a linear direction; at other times they are miliary

* Medizinische Jahrbücher, p. 93.

† Archives Générales de Médecine, 1862, p. 482.

points, to the number of three or four, placed one behind the other, grouped in one place or dispersed in the length of the cord. These masses are generally formed by continuous or separate tubes, which are sometimes many millimetres in length, rolled upon themselves, wound, forming spires or knots, sometimes showing prolongations in their course, a kind of buds. In the midst of these tubes one often meets with little vesicles of very irregular form and very variable dimensions; these sometimes make up of themselves the whole of the innominate body. The tubes generally measure a tenth of a millimetre. By their scrolls, or by the spiral direction which they assume, they show very different appearances. They have not the same calibre in their whole extent; they present numerous contractions and dilatations, and these it is which, separating themselves from the principal mass, give place to the formation of vesicles. These vesicles have dimensions which vary from a third of a millimetre to two centimetres in diameter. These dimensions may be doubled or quadrupled; and then they form true cysts.

"If one studies the tubes and the vesicles with magnifying powers of 200 or 300 diameters, one perceives that they are formed by a sheath of connective-tissue, and that their interior is lined with a layer of epithelial cells; they contain a viscous fluid, holding in suspension oily globules and very brilliant grains."

The innominate body, according to M. Giraldès, is composed of the remains of the Wolfian bodies; representing these, in man, an analogy to the bodies of Rosenmüller. It is in these elements that the encysted hydroceles of the cord seem in the first place to form.

Part II.—Pathological Micrology.

Diphtheritis of the Conjunctiva.—This disease is said by Jacobson* to be characterized by the transformation of the conjunctival tissue into a bloodless yellow grey or grey-white mass, which penetrates to various depths, and so has different appearances. The membranous formation offers nothing characteristic, but varies in individual cases. He describes the anatomy of a case ending in death, after measles, of a child ten months old. "In the microscopical investigation, the extended membrane appeared to be composed of an amorphous granular matrix, swelling up in acetic acid. In this matrix were distributed crowded large and small fat particles, and separate from them there were, moreover, irregular, angular, pale cellular formations without nucleus, some of the size of the pus-corpuscles, and some smaller. These might be considered as shrivelled pus-cells breaking up, and partly as detached fibrinous particles. The epithelium was wanting as far as the pseudo membrane reached; it was partly preserved on the sclerotic conjunctiva, but irregularly disposed, dimmed, and very granular; the uppermost layers seemed to be wanting. The reticulation of connective-tissue corpuscles of the palpebral conjunctiva of the tarsus and of the submuscular connective-tissue was engaged in an extension, increasing in intensity from the deeper parts towards the surface; and, indeed, in the nearest surrounding parts of the smaller arteries and veins there always appeared the largest accumulation of cellular elements. Towards the surface one saw a dimming of the tissue by molecular fat particles, increasing progressively, and with it a decay of the cellular elements was connected. The most superficial layer appeared irregularly indented, formed of degenerating tissues infiltrated with granular matter. The cells of the Meibomian glands were almost wholly free of fat. On the transition fold and the sclerotic part of the conjunctiva the condition was nearly similar, only the degeneration on the surface did not appear to have yet taken

* Medizinische Jahrbücher, p. 74. Wien, 1862.

place here, and therefore the epithelium was partly preserved. The epithelium of the cornea, as far as it was still maintained, showed a very granular appearance, hazy, and somewhat brownish in colour; the layers adjoining them were likewise dimmed with little fat particles, and the corneal corpuscles showed an increase of nuclei. In the ulcerating parts were found detached shreds of sloughing corneal lamellæ; the increase of nuclei and the granular infiltration extended rather deeper."

Passage of the Echinococcus with the Urine.—Two cases are recorded,* one by Quiquerez, and the other by Tomowitz. The microscope showed echinococci and many single hooks in the urine. Both patients passed the echinococcus vesicles after having had violent pains in the region of one or other kidney. In the former case the passage of urine was interrupted by the larger vesicles emitted. In both patients the phenomenon was recurrent—the former was reported as a case of recovery, after the first attack; but after some years the same symptoms appeared, and that always with the same results; the attacks have become more and more frequent. The patient once passed a tape-worm. In the second case, it is related that in the urine there were found, besides the echinococci and their remains, albumen, carbonate of ammonia, pus, blood, triple phosphates, urate of ammonia, pavement epithelium, and mucus.

Amyloïd Degeneration.†—E. Wagner defines the fatty degeneration as a chronic, almost always secondary affection, in which there appears in the tissues a homogeneous, faintly shining, transparent, albuminous substance, showing the characteristic colour with iodine and sulphuric acid, attacking mostly the small arteries and capillaries, causing the tissues to disappear, diminishing or abolishing the functions of the organs, almost always accompanied by marasmus, and incurable. In 1200 sections, 48 were found to be more marked cases, and, indeed, in patients with chronic suppurations (16 times suppurations of bone, 37 suppurations in soft parts, 5 times of both together). The scale of frequency of the disease in individual organs was—spleen, liver, kidneys, lymphatic glands, mucous coat of the intestinal tract, omentum, secondary kidneys, pancreas, mucous coat of the urinary organs, prostate, tongue, pharynx, tonsils, female sexual organs (mucous and serous coat, and the muscular structure), ovaries, peri- and endocardium, the substance of the heart, the vasa vasorum of the aorta, thyroïd glands, the bronchiæ, lungs, in the nerves of the heart, to some uterine and sacral nerves.

A New Fungus of the Hair in Man.‡—Dr. Aloys Martin, of Munich, had under his care, in December, 1860, two infants, both girls, with typhus. The younger, who had only a slight attack, soon recovered, but had diarrhœa. The author goes on to relate: "The mother pointed out to me a spot on the back of the head of this child, in which the hair (become scanty and flax-like since her recovery from the fever) had become golden or yellow red during the last six weeks. The patch was at the limit of the hair behind, irregular in shape, two inches and a half broad, by one and a quarter vertically. The hair looked as if it was smeared with a yellow red pomatum; this substance appeared to cling in little lumps to the hair. In the patch, at one part of it, the size of a sixpence, the hairs were dropped out or broken off, the very short remains of hair that were left looked as if it had been singed, provided with black, brown, or dirty yellow red ends, in the bald place, and remnants of hair, similarly coloured, were lying round it like powder. In the patch, at other parts of it,

* Medizinische Jahrbücher, Wien, Heft i. 1862. † Ibid.
‡ Zeitschrift für rationelle Medicin, Band xiv. p. 357.

the hair was thin, and broke off very easily at a touch close to the roots. The colour of the patch was shaded off." He supposed it was a fungus formation, progressing from a centre, and took specimens to Dr. Buhl. The following are the results of the examination.

The single hairs, closely observed, were seen to be towards the root first yellow, yellow red, then blood red, brown red, and finally brown or even black, inasmuch as the hair increased in thickness. Even with the naked eye, it seemed that the change of colour did not belong to the hair itself, but to some foreign substance. So the microscope proved it to be. Magnified ninety diameters, the hair shaft appeared to be varicose, with swellings thickened from distance to distance through a mass round it, transparent and coloured by it yellowish or reddish. In certain spots one saw further how this had its real seat under the upper cuticle of the hair, undermined it and lifted it off. Over the thicker spots the epidermis was of course quite loose after having been rent. In order to learn the real nature of the mass, the ordinary magnifying powers of 300—400 dimensions were not by any means sufficient. It appeared only punctate, or as if intermingled with molecular grains. By the immersion system of Hartnak, the investigator could alone study the condition accurately. The mass consisted of a structureless, jelly-like substance, in which cells were imbedded. The smallness of the cells is best shown by saying that, in spite of the high power used, the nuclei only consisted of a dark point. But that they were cells is clear from their analogy with the cells of the yeast plant and other similar formations.

Of its place in the vegetable kingdom the Professor said the smallness of the cells proved it to have been a fungus. Because of its mentioned peculiarities, perhaps also because of its distinction from every other known epiphyte, in its special seat, the colour and minuteness of the cells, and the substance connecting them, he said it deserved to be made a species. He proposed the name *Zoogloea capillorum*.

It is mentioned, in conclusion, that germination by its transference to potatoes, apples, &c., could not be effected.

The treatment by simply washing with soap and water, after four weeks, had not destroyed or arrested the growth. The author purposely avoided corrosive sublimate or arsenic. After some months the soap-and-water treatment only had cured it. The new grown hair was even closer than before. No trace of the fungus could be discovered. The child, when ill, had been wrapped up by the mother in woollen cloths dipped in the water of a well, and the author thinks the fungus may have been so brought to her.

HALF-YEARLY REPORT ON TOXICOLOGY, FORENSIC MEDICINE, AND HYGIENE.

By Benjamin W. Richardson, M.A., M.D.
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I. Toxicology.

Poisoning by Phosphorus.—In the Clinical Report of the Hospital of Hamburg for 1861, by Dr. C. Tüngee, there is a history of nineteen cases of phosphorus poisoning. In all these cases the poison was taken intentionally, for the purpose of suicide, by persons who were suffering from mental distress.

Amongst the symptoms observed in these cases, the Reporter remarks that there were presented few of those usually ascribed to the effects of phosphorus. The appearances of gastro-interitis which are commonly assumed to follow large doses were not offered, nor was there shown any indication of those signs

of nervous excitement which are assumed to follow upon the administration of small doses of the poison. The first symptoms occurred a few hours after the administration, and were usually excited by the absorption of foods taken into the stomach, especially fluid foods, such as milk. The first symptoms were vomiting, pain in the stomach, and burning, but the indications of the irritation of the mucous membrane of the stomach were rarely intense, and there was seldom any action of the bowels, but more frequently constipation. In several cases, during slow recovery, jaundice was presented, which in a few days also passed away. Together with the external sign of the jaundice, there were indications of fulness in the stomach, deficient appetite, faintness, and vomiting of bile, and in severe cases præcordial pain, giddiness, noises in the ears, throbbings in the head, sleeplessness, black vomit, and evacuations from the bowels, containing blood. The pulse and the animal temperature showed very little deviation. The voice, in nearly every case, was low, but this sign the writer properly considers was rather attributable to the mental condition of the sufferer than to the physical. In some instances, the patients gave evidence of delirium and coma; in others, where the cases ended fatally, there was consciousness up to the period of death. In the latter examples, the præcordial pain was most marked, and there were signs of cerebral anæmia. The action of the kidneys was irregular and difficult, the urine was acid, and rarely albuminous.

It was impossible to determine the quantity of phosphorus taken in every case, but one man took from two to three grains in an electuary, and another half a scruple in honey. The active effects of the poison seem to have been greatly increased when it was swallowed in fluids, especially in warm water and milk.

Of the nineteen cases of poisoning fourteen recovered; in the five that died, the following were the leading morbid presentations. The general fact was that the morbid signs were those of jaundice in an intense form; the liver was increased in size, free from blood, and indicated marked fatty change. The kidneys were degenerated, and their epithelial structure was destroyed; ecchymoses were observed, and the blood was fluid, as in icterus and in yellow fever; there was also molecular destruction of the muscular fibres of the heart.

In regard to treatment, emetics were found to be the most useful antidotes; and the fear of exciting gastro-enteritis, either by the use of emetics or purgatives, proved groundless. After free emesis, a purgative was valuable, but castor oil, and all oils had to be avoided, owing to the solubility of the phosphorus in them. Dr. Tüngel believes from his observations, that phosphorus does not readily oxidize in the stomach, and in none of his cases was there any indication of recent inflammation of the lining membrane. In the first stages of poisoning, calcined magnesia was useful. The paper noticed is most valuable. Its teachings extend beyond the simple question of poisoning by felonious or suicidal intent, into various questions connected with general pathology and natural disease.

Poisoning by Laburnum Seeds.—Dr. John Popham, Physician to the Cork North Infirmary, records that on the evening of August 11th, 1862, a number of children—about ten altogether—were brought to the infirmary suffering in various degrees from the effects of eating some leguminous seeds, which were described by them as growing in pods on trees, and of an exceedingly bitter taste. It was conjectured at the time, and verified afterwards, that the seeds were those of the cytisus laburnum, or common laburnum, whose legumes the children mistook for those of the vetch. Most of the children fortunately had partaken of them in but small quantities, being deterred by their nauseous taste, and thus escaped with transient symptoms of gastric irritation; but one little fellow, about six years old, had swallowed the seeds greedily, and was

soon afterwards attacked with marked signs of acro-narcotic poisoning. He first complained of giddiness and pain in the head, and a sensation of dryness, heat, and constriction in the throat; these symptoms were speedily followed by an excruciating sensation in the stomach, from which he sought to get relief by rolling on the ground with his hands pressed to the epigastrium, screaming and kicking violently. After a time, nausea and vomiting came on, and he threw up a quantity of dark brown grumous matter, very bitter. When taken to the hospital, the pains of the stomach still continued, the surface of the body was cold, the face pallid and anxious, his movements were agitated, the pulse rapid and fluttering, the breathing laboured; he had also a convulsive twitching of the muscles of the face, and the pupils were widely dilated and less sensible to light. Upon his admission, heat was applied to his stomach and extremities, and an emetic was administered, followed by draughts of warm water. The emetic produced free vomiting, and as the abdomen was painful and tympanitic, a turpentine enema was used, which had an excellent effect. Sinapisms were also applied to the epigastric and cardiac regions, and to the spine; and the aromatic spirit of ammonia was given. But it was found very difficult to get him to take anything, from the forcible struggles which he made, and also from some difficulty of swallowing; however, he drank some strong coffee, which roused him. After the pain had abated, which was about two hours from admission, narcotic symptoms came on, the breathing becoming slow and stertorous, so that it was necessary to shake him up roughly. When thus roused he was testy and impatient, answering snappishly and irrelevantly, and almost instantly relapsing into stupor. By unremitting attention in resisting these lapses into insensibility, and the steady administration of stimulants, external and internal, he began at length to show more consciousness, the animal heat rose, the pulse became firmer, and he sunk into a quiet though heavy sleep, unbroken till a late hour of the morning, when he appeared quite recovered, except being weak and pale.

Dr. Popham remarks that he finds but little notice of poisoning by laburnum seeds in works on toxicology. In Dr. Christison's 'Treatise,' a brief account is given of their deleterious properties, less from his own observation than that of others, and leading him to class the laburnum seeds with the narcotico-acrids. He (Dr. Christison) is inclined, however, to regard the narcotic as the preponderating quality. In two cases communicated to him by Dr. Traill, the effects seem to have been almost purely narcotic. Dr. Popham thinks that the above case, while it justifies the opinion about the double action of the poison, places the symptoms of acridity in strong relief. There seems, he says, little reason to doubt that these seeds are violent local irritants, capable of causing death by gastric inflammation; were it not that the stupifying effects upon the brain and nervous system, both from the poison itself and the shock from overwhelming pain, tend to produce more speedy dissolution.

Poisoning by Laburnum.—Henry Ussher, of Canterbury, reports a case of poisoning by laburnum. Two young gentlemen, aged about twelve and eleven respectively, were in full enjoyment of health on the day of September 3rd, and returned home late in the evening from an excursion. One of them was taken seriously ill about ten P.M. When seen by Mr. Ussher, he was vomiting, and had been constantly purged; his pulse was alarmingly weak and frequent, and his skin covered with a clammy perspiration, and every now and then severe rigors shook his frame; muscular twitchings were observable about the face and neck, and great epigastric pain was well marked; the pupils were dilated, but no headache was present. It appeared that the second youth was the cause of the mishap, having made a small cake and seasoned it with laburnum seeds; and as he was only sick to a slight degree, his share of the repast must have been moderate. The time between the use of the cake and the superven-

tion of the symptoms was between thirty and forty-five minutes. A good many seeds were vomited. The sufferer was remarkably sleepy and very cold. He was well covered up with blankets, and had a little weak brandy-and-water when the stomach was quiet, and a sinapism at the seat of pain. He slept well, and the next morning was convalescent.—*Medical Times and Gazette*, Sept. 13th, 1862.

Antidotes for Strychnia.—Professor Ranieri Bellini, after conducting a long series of experiments on poisoning by strychnia and its salts, arrives at the opinion, that the best antidotes are tannic acid and tannin, chlorine, and the tinctures of iodine and bromine. Chlorine, he maintains, attacks the strychnia even when it is diffused through the system, for he found that in rabbits poisoned with the sulphate of the alkaloïd, on being made to inhale chlorine gas in quantity, such as was not sufficient in itself to kill, the convulsions were retarded, and were milder when they occurred; death also was less rapid. The author further observed, that when strychnia was exhibited with pyrogallic acid, the convulsion was retarded for the space of half an hour, by comparison with other experiments in which the alkaloïd was given by itself. Professor Bellini believes that this arrest in symptoms is not dependent on the acid acting chemically on the strychnia, but only through the astringent effects produced by the acid on the mucous membrane of the stomach, whereby the absorption of the poison is rendered difficult. The same author, dwelling on the frog-test for strychnia, asserts that this test is not to be trusted, inasmuch as other poisons produce the tetanic symptoms, although in a lesser degree. He adds, in speaking of the effects of the antidotes to which reference has been made, that he trusts his results will have a bearing not only on the treatment of strychnine tetanus, but on traumatic and idiopathic tetanic disease.—*Annali di Chimica*, No. 2, Feb. 1863; and *Sperimentale*, Oct. 1862.

Case of Poisoning from the Pollen of the Common Yellow Tiger Lily.—Dr. Jeffries Wyman read before the Boston Society for Medical Improvement (Oct. 27th) the following report of a case by Dr. R. T. Warren, of Waltham, Massachusetts—

"Mrs. B—— was making a call at a neighbour's, having with her a little daughter four years old. The child was 'perfectly well,' the mother said, and had been so. It played with another little girl, and did not go out of the room during the call. The little girl came to Mrs. B——, requesting her to go and see Fanny, the name of the child. Mrs. B—— went, and found Fanny rubbing her nose very violently. Soon there was a profuse discharge of mucus from the nose, coloured yellow. The mother questioned the child, and ascertained that she had reached her hand out of the window, taken an anther from a tiger lily, and passed it into the right nostril. The child pointed out the lily, and the mother found just one anther missing. Mrs. B—— was particular in her inquiries, and the child was positive in stating what she had done. Vomiting soon followed the discharge of the mucus from the nose. This consisted at first of chyme, having no appearance of undigested food, and was followed by vomiting of mucus, coloured yellow, the same as the discharge from the nose. The child then wanted to go to sleep. The mother took her home, and then sent for me. I saw her at six P.M., on Wednesday, Aug. 13th, about an hour after the anther was passed into the nose. The child appeared sleepy, but was easily roused, and was intelligent. Vomiting of mucus, tinged yellow, occurred while I was present. The yellowness did not seem to be caused by bile. The symptoms did not seem at all alarming. Not aware that the tiger lily possessed any poisonous properties, I felt no anxiety, and went away after prescribing remedies, requesting to be called if anything new occurred. I was sent for about ten P.M., four hours afterwards. Evacuations of the bowels had

occurred; at first, of natural appearance, then followed discharges coloured yellow, the same as the vomiting and the discharge from the nose, and at last bloody discharges. The vomiting had occurred occasionally, and this at last became bloody. The child was dull, sleepy, and languid. I prescribed astringents, opiates in the form of paregoric, and brandy-and-water if the langour should increase. I saw her on Thursday morning. A dejection, quite bloody, occurred between one and two o'clock, A.M., and after that the dejections were checked. She was relieved of the vomiting. The child seemed languid, and rather sleepy; there was no wandering. The eyes had a dull, reddish injection. At four P.M., the same day, the appearance of the child was much the same as in the morning. The right nostril was nearly closed; the membrane of both nostrils very pale. There was some discharge of clear, thin mucus. On Friday morning the child looked brighter. There was the same reddish injection of the eyes. No urine had been passed during the last twenty-four hours. Slight feverish symptoms. No delirium. At seven P.M., on the same day, no urine had been passed. Several dejections, dark coloured and very offensive, had come away. There was some fever during the day, with slight delirium and startings, and also nausea. I was called to her about one o'clock on Saturday morning. Shortly before she had a large, dark-coloured, very offensive discharge, and immediately began to sink. She died a little before four o'clock, about fifty-nine hours after passing the anther into the nostril." —*Boston Med. and Surg. Journ.*, Nov. 6th, 1862.

Toxicological Experiments with Turpentine.—A series of experiments have been conducted by Dr. L. W. Liersch, to determine the effects of turpentine on animals. Rectified turpentine was placed in a wooden chamber, and after the vapour was freely diffused through the chamber, the animals were placed in it, so much air being admitted that a light placed in the chamber would burn quietly and strongly. The following are the conclusions drawn by the experimentalist:—Air, when charged strongly with turpentine vapour, was injurious to all the animals subjected to it. The symptoms excited were uneasiness, dimness, tottering, reeling, want of power in the extremities, especially the hinder ones; convulsions, partial or general; difficult respiration, and great rapidity in the action of the heart. Death was produced not merely by asphyxia, but by paralysis of the nervous system. In two animals, a cat and a rabbit, death followed in the course of half an hour; while other animals, exposed to the same vapour in the chamber, recovered on being brought into the air. At the post-mortem, conducted within an hour after death of the two animals, the bodies were rigid, the vessels of the brain were found full of dark fluid blood. In the cat, the pupils were enormously dilated; in the rabbit, shortly before death, they were much contracted. The lungs were of a deep red colour, with ecchymosed spots; the right side of the heart was relaxed, and filled with fluid blood, which in the rabbit was dark; the left breast was contracted and empty. The kidneys, liver, and spleen were full of blood; the bladder was distended, but no violet smell was perceptible in the urine. The author infers from these experiments that turpentine vapour is not so dangerous to inhale as has generally been supposed, and that it is not necessary, as a matter of police, to exclude turpentine varnish from the arts.—*Clarus in Schmidt's Jahrbücher*, Band cxvii. No 1, 1863; and *Vjhrschr. f. Ger. Med.*, xxii., Oct. 1862.

[The experiments made by Dr. Liersch confirm an observation made by a correspondent to the *Lancet*, two years ago, to the effect that turpentine administered rapidly and freely by the lungs produces results almost identical with the vapour of chloroform. Some researches of our own confirm this view. We must, nevertheless, be cautious in accepting the statement that the inhalation for many hours daily of the vapour arising from turpentine varnish is

not ultimately injurious to health. We have direct evidence that so inhaled it produces giddiness, deficient appetite, and extreme anæmia, and that the system never bears it with tolerance.—B. W. R.]

Poisoning by Veratrum Viride.—Dr. Edwards, Assistant-Physician to St. Bartholomew's Hospital, records that on Thursday evening, December 18th, he was summoned to see a gentleman, a scientific chemist, who had taken experimentally one drachm of tincture of green hellebore (equal to about twelve grains of the powder). On his arrival, Dr. Edwards found him sitting in the water-closet, vomiting into the pan. His features were sunken; skin cold, and covered with a profuse, clammy sweat; his pulse quite imperceptible. He complained of intense pain about the epigastrium. The vomited matter appeared to consist at first of the food and contents of the stomach, afterwards of a glairy mucus. An ounce and a half of pure brandy was immediately administered, which at once checked the vomiting. At this time Dr. Edwards was joined by the patient's usual medical attendant (Mr. Buxton Shillitoe). The patient having slightly rallied, was moved into a room a few yards from the water-closet, and laid on a couch in front of the fire. The surface of the body was still very cold, especially the extremities. The clammy sweat continued, but the pulse could be felt indistinctly, beating very feebly and irregularly, forty-four in the minute. A dose, containing sp. æther. sulph. co. ʒss., and sp. ammon. arom. ʒj., was given, but immediately rejected by the stomach; but some brandy, given directly afterwards, was retained. A large mustard poultice was applied to the epigastrium, and a hot-water bottle to the feet. Two or three efforts at retching afterwards took place; and he once or twice vomited food, mucus, and a small quantity of blood. Warmth gradually returned to the surface, and the pulse became somewhat better in volume and power. Brandy was given at short intervals, and after about an hour a second dose of æther and ammonia, which was retained. The patient then fell asleep, slept for about a quarter of an hour, and awoke with the expression, "I am all right now," and appeared comparatively well. There was no diarrhœa throughout. He had two or three times a slight return of the symptoms; did not sleep during the night, but was quite easy, and the next morning only felt the discomfort arising from the mustard poultice, and the soreness of the muscles caused by the retching. He then gave the following account of his feelings during the attacks:—"Before taking the dose of the tincture I had consulted Pereira, and, finding Dr. Mead's dose of the tinct. helleb. ing. to be two teaspoonfuls twice a day, and knowing the green hellebore to be of the same tribe, I considered, in taking one teaspoonful, I was rather under than overdoing it. The drachm of the tincture was taken about half-past four or a quarter to five o'clock, P.M.; and my stomach soon afterwards whispered that I had admitted a troublesome guest. I went upstairs and sat down, thinking that a cup of tea would set all right; but the uneasy constriction of the stomach continuing, with a tendency to sickness, made me retire to the water-closet. The sickness once commencing, soon became alarmingly violent, with the most excruciating pain in the lower part of the stomach, the pain extending to about the size of my hand; the feeling at the seat of the pain was, that all the warm tea, water, &c., that I took to promote the vomiting, went under the pain, making the constriction more and more violent. Finding the case getting desperate, I sent off for medical aid; the pain continued to increase, and the ejection from the stomach was now glairy mucus with blood, with running from the nose and eyes. The most painful and profuse cold sweating now came on, and the difficulty of breathing became more and more laboured. I could not help wondering at the presence of anything like heat or constriction of the throat; my mind was perfectly calm, and although I thought it more than probable that I should die, I did not feel alarmed.

Hearing and recognising the voice of one of my medical friends is all I recollected for some time afterwards. Immense circles of green colour appeared round the candle, which, as vertigo came on, and I closed my eyes, turned to red. The pain continued excruciatingly at the pit of the stomach, and a slight tendency to cramp existed when my legs were touched. It was some hour or more afterwards when I awoke, and found myself comparatively well. The sting of the mustard I can well recollect, and the horror of being forced to swallow brandy is even now with me. My bowels were not at all acted on. The next morning I took a dose of citrate of magnesia, and in the evening a blue pill, with colocynth, which relieved my bowels this morning." Dr. Edwards remarks that veratrum viride does not appear to have been much used in this country; but in America, a pamphlet has been published on its employment, by Dr. Ephraim Cutter, of Woburn, Massachusetts; and several articles have appeared in the medical journals respecting it. It is also described in the last edition of Pereira's 'Materia Medica,' where the symptoms from an overdose are stated to be precisely those observed in the foregoing case. No authenticated case of poisoning by it has been recorded. The full dose of the tincture is eight minims.—*Medical Times and Gazette*, January 3, 1863.

Test for Veratria.—Professor X. Landerer gives the following test for the alkaloïd veratria. When veratria is dissolved in hydrochloric acid, a clear solution is obtained, which, heated to boiling, changes its colour into a red violet similar to that produced by dissolving in water permanganate of potassa. This colour is permanent, and is retained for many days. If to the solution tannin or tannic acid be added, a precipitate of tannate of veratria is formed. Moreover, if to the solution there be added a watery solution of iodine, there is formed a brown precipitate, which is an ioduret of veratria.—*Annali di Chimea*, No. 2., February, 1863.

Use of Nicotia in Tetanus and in Poisoning by Strychnia.—Professor J. Haughton laid before the Royal Irish Academy, in 1856, some experiments made by him on the physiological action of nicotia and strychnia on frogs, which appear to show that the action of these two alkaloïds are antagonistic to each other, at least in frogs. After reading a case related by Dr. O'Reilly, in which an infusion of tobacco leaves had been successfully administered in a case of poisoning by strychnia, it occurred to Mr. Haughton that nicotia might be usefully employed in tetanus as well as in strychnia poisoning. Through the kindness of the physicians of several of the Dublin Hospitals, Mr. Haughton has had the opportunity of testing the correctness of his views, and in a communication made to the College of Physicians in Ireland (March 19, 1862), he relates several cases in which the nicotia was used with advantage.

The first case was one of tetanus following an extensive and severe burn, in which the nicotia relieved the agonizing pain, and relaxed the spasms, but the patient died from the abundant surgical double pneumonia.

The second case was one of idiopathic subacute tetanus from exposure to cold, in which, during eleven days, 26·4 grains of nicotia was given. The patient recovered. The alkaloid in this case produced:

1. Immediate relaxation of the muscles of the abdomen, back, and diaphragm.
2. It caused cessation of delirium.
3. There was a slight tendency to cause increased circulation, to the extent of ten beats per minute.
4. It caused profuse sweating, which exhaled an intolerable odour of snuff, not of tobacco.
5. It had a tendency to produce deep sleep.
6. It failed to control quickly the adductor muscles supplied by the obturator

nerve; and even when the hamstring muscles gave way, the adductors refused.

The third case was an attempted suicide with strychnia, in which an infusion of tobacco was given, which produced vomiting when all other means had failed, and further counteracted the action of the strychnia already absorbed. Mr. Haughton also gives a brief notice of a case of traumatic tetanus, under the care of Mr. Tufnell, at Baggot Street Hospital, successfully treated by nicotia.

The nicotia was given in doses of ½, 1, 2, and 2½ drops, each drop containing six-tenths of a grain of nicotia.—*Dublin Quart. Journ. Med. Science*, 1862.

The Snakes of New South Wales. By Dr. G. BENNETT.—*Family Viperidæ.*—The death-adder (*Acanthopi antartica*). This is a common snake in New South Wales, and is highly venomous; indeed, of those at present known, full four-fifths of the Australian snakes are poisonous, and many very virulent. The death-adder is more frequently found in dry, sandy situations, and on roads and pathways, where, when coiled up, it is so torpid in disposition as not readily to move away. It is named "Tammin" by the aborigines of Yass. Its body is peculiarly coloured; the head is broad, with a malignant eye, of a vivid yellow colour and longitudinal pupil, imparting to the reptile a physiognomy so hideous as only to be surpassed by the puff-adder of the Cape, to which it seems to bear a great resemblance. The death-adder is thick in proportion to its length. The colour of the body is composed of shades of grey, variegated with narrow black lines; the belly is salmon-coloured, with a reddish tinge. It measures in length from two to three feet, and about five inches in circumference. Several of these snakes, dissected by Dr. Bennett, had frogs and small birds in their stomachs. He had also seen a full-grown dog bitten by one of these reptiles, which became strongly convulsed in a few minutes afterwards, and died in less than an hour.

Family Elapsidæ.—This family includes a large portion of Australian snakes, all highly venomous. The black snake (*Pseudechys perphyriacus*) is a very handsome snake, and is found very numerous in marshy places, feeding on frogs, lizards, and small birds. It is of a beautiful glossy black over the back, and blood-red over the abdomen. It is usually from five to eight feet in length. The poison-fangs are small; and many instances have occurred where persons bitten by this reptile have, after much drowsiness, recovered without any treatment. The usual effect of a bite from one of these reptiles is great drowsiness, the patient expressing a strong desire to sleep, as if poisoned by opium; indeed, the symptoms suggest a very similar treatment to that adopted for poisoning by that drug. The treatment adopted by the blacks, in cases of snake bites, is, after sucking the wound, to keep the patient running about, as they say, to prevent him from sleeping, and to obviate the effects of the poison; and we administer ammonia and stimulants on the same principle of treatment.—*Medical Record of Australia*, Sept. 1st, 1862; from the *Sydney Morning Herald.*

Poisoning by Belladonna successfully treated with Opium.—The following case occurred in the Meath Hospital, and was under the care of R. Macnamara, Esq. A boy, aged two years and two months, was admitted on Oct. 31st, 1862, labouring under the effects of poisoning by belladonna. The child's mother stated that about half-past nine in the morning the child got into a room, in which there was a small pot containing extract of belladonna, of which the child must have taken some, as she found his face and clothes smeared over with it. Some time after she saw the child fall, and then remarked that he had a wild look about the eyes, upon which she took him to the hospital at half-past three o'clock, P.M. The resident pupil in the hospital examined the child, and found the pulse strong, the pupils greatly dilated.

The child picked and pulled at his clothes, and was delirious. The mother having brought the pot which was found with the child, the contents were at once recognised to be extract of belladonna. The patient was placed in bed, and an emetic, consisting of sulph. zinc. gr. x., and pulv. ipecac. gr. vj., was administered. Vomiting was induced, but the matter vomited had no trace of belladonna. Mr. Macnamara having been sent for, ordered an enema of turpentine and castor-oil to be given, which came away without any signs of belladonna being present in it. A short time after, five drops of tincture of opium were given; one hour later, three drops; and two drops every subsequent hour, till the patient fell asleep, which was at a quarter to one o'clock, A.M., up to which time there was no apparent contraction of the pupils. He slept quietly until ten minutes before two o'clock, when he started up and began crying. It was then observed for the first time that the pupils had contracted a little; he fell asleep again in about five minutes, and slept quietly until half-past six o'clock, A.M., when all the delirium had passed away, and the pupils were a little more contracted. He was well enough to run about the wards all day. The next day, at twelve o'clock, two drops more of the tincture of opium were given, and the patient seemed to be going on remarkably well. There was decided contraction of the pupils. The patient slept soundly during the night, and next day he left the hospital cured.—*Dublin Quarterly Journal of Medical Sciences*, February, 1863.

Poisoning by Sulphuric Acid.—Dr. Edmund Heginbotham, of Bruton, Somerset, reports that on Wednesday, Nov. 19th, at 5.30 P.M., he was called to attend an itinerant draper or packman, lodging within fifty yards of Dr. Heginbotham's own house, who was said to have taken vitriol for the purpose of committing suicide. A druggist present recognised the man as having bought three ounces of spirit of vitriol at half-past three o'clock that afternoon.

The patient was dressed, with the exception of his coat and boots, was lying on his right side, with the knees drawn up and the body bent forward, breathing slowly and moaning as from pain; there was a dark-brown froth issuing from the nostrils, and a discharge of stringy, copper-coloured mucus, and froth was issuing from the dependent corner of the mouth, and there were patches of the same about the bed-clothes; the mucous membrane of the mouth was white and ragged, and the tongue presented a dead white appearance; there were no stains of acid on the face, lips, or body clothes; there was neither vomiting nor purging. Tested with litmus, the discharge from the mouth proved intensely acid, that from the nose almost neutral.

The surface of the body was cold and clammy; the pulse small and quick; he was roused with difficulty, and when roused, resisted fiercely, saying, in a hoarse, muffled voice, "Let me alone; let me die."

Owing to his violence it was extremely difficult to gag him, but this having been done, and by holding his nose and using a funnel, he was drenched with a fair quantity of magnesia and water; he was then put to bed, covered with blankets, and heat was applied to the extremities; but reaction never took place; he had just two or three rigors, and died collapsed at half-past six, just two hours and a half after taking the dose.

Post-mortem examination fourteen hours after death.—Rigor mortis present; the body that of a well-developed, exceedingly muscular man, of about fifty; cadaveric lividity of the dependent parts of the body. On opening the abdomen, the stomach was visible, of a bluish-black colour, distended with gas, and the vessels on the surface black and prominent. No stains on any of the adjoining viscera; and no fluid in the peritoneal cavity. The tongue, larynx, œsophagus, stomach, and duodenum were removed entire, and presented the following appearance:—The apex of the tongue had almost escaped injury, but the sides

and body were white and leathery; papillæ prominent; fauces white; mucous membrane easily detached; epiglottis swollen. Œsophagus: mucous membrane brown, thrown into folds, and having a tessellated or worm-eaten appearance; no breach of surface or perforation. The stomach contained about a pint of thick, black, tenacious, acid fluid, and was lined throughout with a firmly-adherent, black, gelatinous coat, which could be scraped off with the finger-nail, but was not detached by washing or rubbing. This was darkest at the cardiac extremity, and gradually shaded off towards the pylorus, where it became brownish-black, and continued getting lighter through the duodenum and commencement of the jejunum, where it terminated in apparently healthy intestine.

The action of the acid was most perceptible at the cardiac end, where the coats were extremely thin, but there was no perforation. The glands at the pyloric extremity shone through the adventitious coat, and had the appearance and feel of small tubercle; there was no perceptible contraction of the pylorus. The lungs, heart, liver, and kidneys were healthy. The brain was not examined.

The quantity of acid taken in this case was six drachms, of a specific gravity 1·848, diluted with eighteen drachms of water, and there was positive proof that it was taken at four o'clock, or a few minutes after.

Dr. Heginbotham attributes the unusually rapid termination of the case to the two following causes:—1. The acid being taken on an empty stomach. 2. The deceased having been constantly drunk for the last week or more, the system was in a depressed condition, and not able to rally from the shock necessarily caused by such extensive injuries as the post-mortem revealed.—*Medical Times and Gazette*, Feb. 21st, 1863.

II. Hygiene.

Food for the Working Classes.—One of the most important advancements of sanitary science in England during the past six months is the completion of the organization in Glasgow of a measure introduced by Mr. Corbett for supplying the poorer classes with good, wholesome, and nutritious food, at depôts where all the articles are sold at a fixed and moderate price.

The plan has worked so admirably in Glasgow, that its author wishes to see it extended to all the towns of the kingdom. For the guidance of persons willing to undertake the movement in London, Mr. Corbett considers it essential to keep in view the following principles:—

"1. Every establishment or branch must be commodious, well-lighted, heated, and ventilated, so as to be a successful competitor with the gin-palaces or beer-shops of the metropolis, avoiding premises where the apartments are numerous and small; the most suitable place being a large hall, which can be fitted up in the simplest manner.

"2. It would be well to have such premises or hall ornamented in a cheap but attractive manner, with some interesting engravings, mirrors, &c., which would have the effect of elevating the working man's feelings, while his bodily wants were supplied. And it will be at once apparent that this trifling initiatory expense would not even in the slightest degree affect the remunerative character of the undertaking.

"3. The articles of food provided must be few and simple, so as to avoid all waste which would arise from variety, and besides interfere with the simplicity of the arrangements, which is an essential element of success.

"4. It must be laid down as a fixed principle that every article purchased shall be of the best quality, and it is pleasant to know that this has been found, by Mr. Corbett's experience, to be true economy, verifying the proverb, 'that the dearest article is cheapest in the long run.'

"5. One of the great leading features of the movement ought to be to show working men how much comfort they can enjoy without intoxicating drinks of any kind, and it should therefore be made a distinctive principle of the movement that all such establishments be conducted on strictly temperance principles, which will be a guarantee to every one frequenting them of a propriety of conduct which could not be otherwise secured.

"6. As it is evident that no such institutions can either be permanent or successful, or even truly useful, without the vital principle of being thoroughly self-supporting, it ought to be made a rule to decline presents or gifts of any kind."

Poisonous Mushrooms rendered Edible.—M. Girard asserts that by repeated experiments on poisons, he has ascertained the means by which mushrooms of the most poisonous description can be rendered wholesome. He had gathered the agarics without choice, and without bestowing a thought on any other points but their sufficient firmness and size.

In the course of a month he gathered upwards of one hundred and fifty pounds of poisonous mushrooms, such as *Agaricus muscarius, A. emeticus* and *sanguineus, boletus luridus, B. aurantiacus*, and for a week resolutely ate twice a-day more than half a pound of these boiled fungi. As he experienced no evil effects from their consumption, he suspected that his personal susceptibility to vegetable poisons might possibly have been blunted by frequent experiments, he therefore caused all the members of his family, twelve in number, to join him in his researches. No ill effects followed; the test was clearly decisive; and satisfied that he had perfectly succeeded, he endeavoured to discover the precise amount of time and of liquid necessary to convert the most poisonous mushrooms into innocuous nutriment; he came to the following conclusions—viz., that every pound of mushrooms, cut into moderately small pieces, requires two pints of water, acidulated with an ounce or an ounce and a half of vinegar, and containing two tablespoonfuls of bay salt. The mushrooms should be macerated for full two hours in this fluid, be well washed, and subsequently boiled in water for twenty minutes or half an hour; they should then be taken from the fire, again repeatedly washed, dried, and served either alone or as a condiment.—*Journal of Practical Medicine and Surgery*, October, 1863.

Diseased Animals used as Food.—The question of the sale and consumption of diseased animals has recently formed a prominent subject of debate. The facts are thus ably summed up by Professor Gamgee:—

"Before 1842, the mortality amongst farm stock in this country was slight, and did not exceed one per cent. When the importation of foreign stock was sanctioned by Parliament, cattle plagues were prevailing on the Continent, and one contagious malady—the foot and mouth disease—was first introduced. It was carried to the British Isles by breeding stock as early as 1840. The lung disease reached us in 1842, and the losses led to general alarm and the institution of insurance offices. These offices have been established in large numbers as mutual and as proprietary companies; but notwithstanding that every attention was paid in preparing proper tables of premium, in starting with a very large capital, and notwithstanding the encouragement given them, they have all failed. Insurance statistics prove that the general loss over the country amongst cattle amounts sometimes to seventy per cent., and at least fifty per cent. of this loss depends on imported diseases. The money loss per annum in the United Kingdom varies from seven to eight millions sterling, and by pleuro-pneumonia alone stock to the value of between three and four millions is annually carried off.

"The dairy cows kept in all large towns in the United Kingdom die off at a rate varying from fifty to seventy-five per cent. per annum. In the city of

Edinburgh, in one year, 1075 diseased animals were slaughtered out of 1800 head of cattle; of these, 971 were slaughtered as human food and 284 sold as pigs'-meat. In London alone, the money loss by disease amongst dairy stock amounts to considerably above 80,000*l.* per annum. The loss amongst eighty-eight dairymen in Edinburgh amounted to no less than 12,000*l.* in one year. The importation of foreign stock into this country has been the sole cause of the losses by the lung plague, the foot and mouth disease, and the sheep pox; and the trade in diseased animals is disseminating these plagues and perpetuating them on British soil.

"The produce of diseased animals is sold all over the United Kingdom. It is only in exceptional instances that dying or dead cattle are buried. Good evidence is supplied to show that this produce is inducing a large amount of disease in man; but as no one buys diseased meat or milk from choice, and is always defrauded when such material is supplied, it is evident that a check should be put on the practices of dishonest tradesmen.

"The contagious maladies might readily be prevented by stopping the admixture of diseased foreign with British stock, and by prohibiting the exposure of diseased animals in our public markets.

"Government should have a Veterinary Department in connexion with the Privy Council Office, through which all information as to diseases amongst stock at home, or in the countries with which we trade, should be made available.

"All slaughter-houses should have a professional inspector to facilitate this system; no private slaughtering-places should be allowed; and all town dairies should be under a rigid system of professional inspection."—*Social Science Review*, March 7th, 1863.

Absinthe and its Effects.—A work bearing this title has been published by J. H. Moreau, in which the author maintains that absinthe is a means of introducing alcohol and nothing more. Commencing with an account of its medicinal properties, in which he describes it as a stimulant and tonic, M. Moreau points to the fact of its having been employed in visceral congestion, and in dropsies following intermittent fevers. Although endowed with powerful qualities, it cannot, he thinks, be regarded as a narcotico-acid poison. In a general way, M. Moreau believes that absinthe is a mere name for alcohol, and that all the effects produced by it are mainly alcoholic.

III. Summary.

The following is a summary of important works and papers, which, from want of space, we cannot analyse:—

On the Presence of Arsenic in Various Products. By M. A. Chevalier.—*Annales d'Hygiène Publique*, Jan. 1863.

Researches on the Organic Alkalies in Cases of Poisoning. By M. H. Gaultier de Chaubry.—*Ibid.*, Oct. 1862.

Case of Poisoning by Chloride of Zinc. By John Ward Cousins, M.D.—In this case nearly two fluid ounces of Burnet's Disinfecting Fluid were swallowed by an invalid lady, on the 22nd of August, 1862. She lived seven hours and died comatose.—*Medical Times and Gazette*, Oct. 18th, 1862.

Case of Poisoning by the Root of the Arum Caladium. By E. Chairon, M.D.—*L'Union Médicale*, Dec. 18th, 1862.

Second Report relative to the Grievances complained of by the Journeymen

Bakers. Addressed to the Principal Secretary of State for the Home Department. By Hugh Seymour Tremenheere.—The sum of this Report is to recommend that youths under eighteen shall not be allowed to work in bakehouses later than nine, P.M., nor earlier than five, P.M. That bakehouses shall undergo inspection by proper officers.

On Improvement in Cells. By De Pietra Santa, M.D.—*L'Union Médicale*, Oct. 16th, 1862.

On Goître in Domestic Animals. By M. Baillarger.—*Ibid.*, October 18th, 1862.

The Etiology and Prevention of Tuberculosis. By P. Garnier, M.D.—*Ibid.*, October 23rd, 1862.

Studies, Psychological and Medico-Legal. By E. Lisle.—A serial communication, containing many useful thoughts and suggestions.—*Ibid.*, October 25th, 1862.

On the Diseases prevailing in the Hospitals of Paris in the Month of December, 1862. By M. Laillier.—*Ibid.*, February 7th, 1863.

On the Innocuousness of Marshy Countries, under the Influence of Nocturnal Radiation towards the Planetary Spaces. By Dr. Jourdanet.—*Ibid.*, November 1st, 1862.

On the Dangers presented by Lime Kilns. By M. A. Chevalier.—*Annales d'Hygiène Publique*, October, 1862.

Preliminary Report on the Mortality and Sickness of the Volunteer Forces of the United States Government during the present War. By E. B. Elliott.—*American Medical Monthly*, October, 1862.

On the Epidemic Influenzas of Iceland, especially the last one of 1862. By John Hjaltelin, M.D.—*Edinburgh Medical Journal*, February, 1863.

On Disease engendered from Sulphuret of Carbon inhaled in Caoutchouc Manufactories. By M. A. Delpechs.—*Annales d'Hygiène Publique*, January, 1863.

Can Conception follow when Violence is used? By E. F. Arnold, M.D.—The author answers this question with a negative; and asserts "that it is as impossible for a woman to conceive while under the influence of tremor, shock, and nervous exhaustion, as it would be for a man to perform the act of intercourse while prostrated by similar agencies."—*American Medical Times*, November 29th, 1862.

Case of Rape during Sleep.—Edinburgh Medical Journal, December, 1862.

Studies of Abortion. By H. R. Storer, M.D.—An excellent paper, the first of a series, and having reference particularly to the frequency of abortion in cases not criminal.—*Boston Medical and Surgical Journal*, February 5th, 1863.

Studies of Infanticide and Concealed or Simulated Pregnancy. By E. Toulmouche, M.D.—*Annales d'Hygiène Publique*, October, 1862.

Influence of Slow Mercurial Poisoning upon the Product of Conception. By M. Lizé.—*Ibid.*, and *Journ. de Chem. Méd.*, August, 1862.

On Cooling of the Body after Death. By Benjamin W. Richardson, M.A., M.D.—*Medical Critic and Psychological Journal*, January, 1863.

Report of the Trial of Thomas Donelly, Acquitted on the ground of Insanity. By Hugh Cowan.—*Edinburgh Medical Journal*, Feb., 1863.

On Marriages of Consanguinity, and the Dangers consequent on them. By F. Devay, M.D.—*Gazette Médicale de Lyons*, Oct. 16, 1862, and Nov. 1, 1862.

Moral Insanity in Relation to Criminal Acts. By J. Parigot, M.D.—*American Medical Monthly*, Sept. and Nov., 1862.

On Spiritualism as a Cause of Mental Alienation. By M. Philibert Burlet.—*Gazette Médicale de Lyon*, Dec. 16, 1862, and Jan. 1, 1863.

Death by Inhalation of Fumes of Nitric Acid.—Mr. Stewart, a master, and one of the janitors of the Edinburgh Institution, have died in the present month (March) from the inhalation of the fumes of nitric acid. On Tuesday, March 10th, Mr. Stewart was in the laboratory of the school preparing for some chemical experiments, and while carrying a jar of nitric acid across the room, it fell on the floor and was broken. He called the janitor to his assistance to wipe the floor, and to endeavour to save a portion of the fluid. In this effort both unwittingly inhaled the fumes. Mr. Stewart went home to dinner unconscious of the injury he had received. After an hour or two he began to experience difficulty of breathing, and sent for medical advice, but he very rapidly became worse, and expired at two o'clock on Wednesday morning, about ten hours after the accident. The janitor was also taken ill, and though he rallied for a time on Wednesday, he afterwards sank, and expired at five o'clock on Thursday morning.

QUARTERLY REPORT ON SURGERY.

By T. Holmes, M.A., F.R.C.S., Assistant-Surgeon to St. George's Hospital.

I. *On the Importance of Tapping the Joints and Bursæ Mucosæ.* By Prof. Inzani, of Parma. (Omodei's Annali, Nov. 1862, p. 300.)

The author begins by asserting the perfect harmlessness of puncturing a distended joint, even during the progress of acute inflammation. The fear of bad consequences following from the wound of the tendinous structures is a mere imagination of the ancients; nor does the air ever appear to make its entrance. The puncture may be made with a trocar or a lancet; the latter is preferable for superficial joints. The author has operated very frequently on the knee, several times on the elbow, occasionally on the carpus and ankle, and once only on the hip; no bad consequences ever followed. Pressure by means of a starched bandage should be made, and when the synovial sac refills it should be again punctured before the distension has advanced too far. In this way a radical cure may be obtained. Examples are given in which large joints, principally the knee, were opened for effusions of blood, of serum in acute inflammation, of serum in chronic inflammation, and of pus—usually with a successful result. But paracentesis should be avoided where the skin is much thinned and ulceration seems impending.

In the synovial bursæ, paracentesis has given equally good results. The examples which are given are those of effusion in the sheaths of tendons after accident (as the peronæi in sprains of the foot, the extensors of the thumb in falls on the hand), in which a puncture will give exit to synovial fluid mixed with blood, with much relief to the pain and abbreviation of the course of the disease.

The author believes that by these punctures chronic synovitis may often be arrested in cases which, treated by ordinary methods, would end in "white swelling," and that in dropsy of the joint the treatment by repeated puncture and pressure is as effectual and more safe than by injections.

II. *Naso-pharyngeal Polypus.* By M. Dolbeau. (L'Union Médicale, Feb. 7, 1863, p. 266.)

A case related to the Société de Chirurgie, at Paris, Nov. 12, 1862, is worth recording on account of the interesting observations which the surgeon makes

on the diagnosis of these affections. The patient was a man, aged forty-one, whose nasal fossæ and pharynx were filled by a considerable mass of polypus, which had existed for about two years. The eyes were very prominent, especially on the left side, but vision was perfect. He was quite deaf, and on two occasions had been found insensible. The nose was much expanded, and both nostrils were filled with the growth. The mouth was kept constantly open for respiration. No tumour was perceptible in the orbit; the antrum was natural; the arch of the hard palate was high and narrow; the soft palate was pressed forward and to the left side by a mass as large as an egg, of a fibrous consistence. Pressure on this mass caused projection of the growth which filled the nose. The finger easily passed behind it, but on being carried towards the posterior nares the tumour was found filling all this part; its precise attachment, however, could not be discovered. It was diagnosed to be a fibrous naso-pharyngeal polypus attached to the base of the skull, and an operation was undertaken for its removal by cutting through the lip and the hard palate, and depressing the latter, leaving it, however, attached to the velum. The operation is not intelligibly recorded, but is said to be the proceeding recommended by M. Desanneaux. The operator, however, does not seem to have found it satisfactory, as he says that it gave little space, and he should have found great difficulty in removing the tumour if it had been really attached to the base of the skull. This was not the case, however; the tumour was attached merely to the nasal mucous membrane, and might have been removed in the ordinary way. The patient died five days after the operation, apparently of the consequences of hæmorrhage. It appears that all the polypi had been removed on the left side, but that some had been left on the right; and it seems from the remarks of the operator that the section of the palate was entirely superfluous. This gentleman, M. Dolbeau, frankly confesses the error of diagnosis into which he was betrayed, and points out the circumstances which occurred to him on reflection, and which would have enabled him to avoid it. He says that, in the first place, the age of the patient ought to have precluded the idea of fibrous tumour of the base of the skull, for that is an affection of youth, the oldest patient on record being only thirty-six, and having had the disease for many years, while this patient was forty-one, and had had the disease only two years. Again, the exophthalmia, unaccompanied by a tumour in the orbit, is no sign of affection of the skull, but has been noticed in many naso-pharyngeal polypi which were attached only in the nose. The deafness might be produced by obstruction of the mouths of the Eustachian tubes. Headache, somnolence, and even loss of consciousness, have been observed in nasal polypi, probably as a consequence of the obstruction to circulation and breathing which they cause. Finally, in pharyngeal tumours which invade the nasal cavities it is rare, if not unknown, for both nostrils to be blocked up. For all these reasons the diagnosis ought to have been different.

In the discussion which ensued, M. Huguier claimed the invention of "osteoplasty" for the removal of tumours situated behind the upper jaw. This operation (which is generally ascribed to Langenbeck) consists in liberating the upper jaw, or a great part of it, from its connexions sufficiently to allow of its being displaced, so that the operator may penetrate to the parts behind it, but leaving it connected with the skin and soft parts, and with the neighbouring bones and periosteum in some part. After the removal of the tumour, the bone is pushed back into its position, so that it may unite there, and the patient recover without deformity. M. Huguier says that he practised operations of this sort five or six years since.

M. Demarquay has recorded two cases of naso-pharyngeal polypus, in each of which he practised an osteoplastic operation, and believed that the bone which he removed was regenerated. The polypus in both instances was of moderate

size, confined to one side, and not involving the orbit or zygomatic fossa. He turned back a triangular flap from the cheek with great care, to raise the periosteum along with the soft parts, then divided the ascending process of the superior maxilla, and removed it, with the front wall of the antrum, so as to obtain a large opening into the nostril of that side. The polypus was then easily extracted. In both cases, M. Demarquay believed from the sensation of the parts that new bone had been regenerated. This sensation was perceived in one case, as it seems, only with the finger. In the other, he introduced a pin, and felt resistance from so hard a body that he concluded that it must be bone.—*L'Union Méd.*, Jan. 8, 1863, p. 61.

III. *On Gonorrhœa.* By Mr. M. H. Collis. (Dublin Quarterly Journ., Feb. 1st, 1863, p. 1.)

Mr. M. H. Collis insists on the efficacy of treatment by weak injections only, frequently repeated, in this disease. He never gives copaiba or cubebs, but in severe cases gives a saline purge, administers minute doses of tartar emetic, and directs the patient to pour over the penis a small jug of cold water, and immediately inject a syringeful of solution of alum of the strength of half a grain to the ounce. This injection is to be repeated every half hour for the first day, and as often at night as the intervals of sleep will allow. In all probability before twenty-four hours have elapsed, the secretion will be lessened in quantity, and somewhat thinner; the other symptoms also diminished. The injection may then be increased to a grain to the ounce, and used every hour. In all probability, after the lapse of forty-eight hours more the discharge will have ceased entirely; the injections, however, must be continued for another week or two, but at the strength of half a drachm to eight ounces, three times a day.

In gonorrhœal ophthalmia also, Mr. Collis proclaims the efficacy of very frequent injections. A careful student is to be put by the patient's bedside, with directions to inject the eye, underneath the upper lid, from the external canthus across the eyeball, with a solution of a quarter of a grain of nitrate of silver to the ounce of distilled water, every ten minutes for the first hour. After that, a half-grain solution should be injected every half hour. If this is carefully carried out for the first twenty-four hours, Mr. Collis says the patient's eye will be quite safe. He also says that he has followed this plan of treatment generally for at least nine years, and has never lost an eye in which it was carried out.

IV. *Dislocation of the Crystalline Lens.* By Herr Geissler. (Schmidt's Jahrbücher, 1863, vol. cxvii. p. 72.)

In the current number of Schmidt's Jahrbücher will be found an interesting collection of cases of this injury, with remarks, by Geissler. In the first place, extracted from the 'Archives Générales,' Jan. 1861, is a collection of 12 cases (which, as Herr Geissler observes, might be greatly multiplied by more extended research), of what is called "spontaneous" dislocation—i.e., dislocation occurring without any direct injury known to have been inflicted on the eye, though in many of the cases the lesion followed an accident. The accident, however, in all these cases has been so trivial that the displacement must be supposed to have been occasioned by a previous morbid condition of the eye, producing either destruction or elongation of the ligamentous apparatus of the lens, or synchysis of the vitreous body, or possibly all these changes. It is impossible, from the description of the cases, to form an exact judgment as to

the pathological anatomy of the accident. Possibly examination with the ophthalmoscope in future cases may clear up this point. The same may be said as to the condition of the capsule of the lens; but the probability is, that in most cases of dislocation in the living body it remains entire; though in the dead subject it is always torn in rupturing the connexions of the lens. The length of time during which a dislocated lens will retain its transparency, appears to prove the integrity of the capsule.

If the lens is only partly loosened, and still remains in the posterior chamber, a surgical operation is not desirable (iriddesis has lately been recommended, but Geissler gives no opinion on that subject). If the lens is situated in the anterior chamber, replacement may be attempted, by dilatation of the pupil with atropine in the supine position; but it has never been successfully accomplished, and probably no one could be kept quiet on his back long enough to allow of the necessary adhesions forming. The attempt to prevent a new dislocation by displacement of the pupil forwards, has not yet been made. Thus, there remain only two operations—extraction and reclination. Both are dangerous, in consequence of the probable state of the vitreous body; and as vision, in any case, will not be completely recovered, it seems better (at any rate in private practice) to leave the lens in the anterior chamber as long as it remains transparent. If it becomes cataractous, or sets up inflammation, extraction is indicated.

Two cases are added, of a similar nature, reported by Dr. Clemens in the 'Med. Centr. Ztg.' xxxi., 43, 1862, in both of which the ophthalmoscope was used, but without clearing up the questions in pathological anatomy suggested above: opacity of the vitreous body existed in both of them.

Traumatic dislocation of the lens, under the sclerotic, is illustrated by two cases,* in both of which vision was preserved after the extraction of the lens.

V. *Fracture of the Base of the Skull.* By M. Parmentier. (L'Union Médicale, No. 42, 1862; quoted in Schmidt's Jahrbücher, 1863, vol. cxvii. p. 68.)

Parmentier has put on record three cases in which injury to the skull, with probable fracture of the base, has been followed by a peculiar condition of the pharyngeal mucous membrane. In one of the cases the patient died, and the dissection showed an ecchymosed condition of the mucous surface, as well as submucous ecchymosis, in connexion with an extensive fracture of the base, running across the attachment of the pharynx. In the other cases the patients survived, but in one at least of them no doubt was entertained that the base of the skull was fractured. Pain in swallowing was experienced in both cases, and on examination, considerable ecchymosis could be seen on the back of the pharynx. This is a symptom which would be more frequently noticed in such fractures, but for the thickness and slight vascularity of the mucous membrane near the base of the skull, as well as the inconvenient situation of the extreme upper part of the pharynx for examination. The difficulty or pain in swallowing comes on about the third day.

VI. *Fractures.* By M. Chassaignac. (Journal de Méd. de Bruxelles, Sept., 1862, p. 267; from La Médecine Contemporaine, No. 14.)

M. Chassaignac remarks upon the difficulty of keeping up constant extension of sufficient force to be effectual, without producing sloughing. This he attri-

* Causit: Gaz. des Hôp., No. 101, 1862: and Cornish: British Medical Journal, Sept. 6th, 1862.

butes to the machine by which the extension is produced, however well it may be padded, always ending by producing pressure on a limited space. This inconvenience may, he says, be avoided by previously encircling the part of the limb on which the pressure is to act in a starched mould or cuirass. In this way he says that three times the force which, if applied on padded splints, would produce sloughing, may be borne without damage. He adduces as an example, fracture of the clavicle.

According to M. Chassaignac, fractures of the clavicle and luxations of its sternal extremity ought to be treated on the same principle,—i.e., by forced elevation of the point of the shoulder.* This he used to effect by a band passing under the elbow, which could hardly be borne on account of pressure on the olecranon. He now puts the starched mould under the whole fore-arm and ulnar border of the hand, and thus treats fractured clavicle with such success, that, as he affirms, he finds no case which cannot be cured without deformity, if the treatment be commenced immediately after the accident. M. Chassaignac also explains how to apply similar apparatus in fractures of the femur.

VII. *Amputation in Military Surgery.* (Boston Medical and Surgical Journal, December 25th, 1862, p. 428.)

The following account is given of the amputations after the battle of Corinth. "Orders were given to amputate no thigh above the middle, without a full council, and then only in desperate emergency. This order was given in consequence of the horrible mortality of high amputations. The result was strikingly, but perhaps fallaciously brilliant. Of all thighs amputated below or at the middle, four-fifths were alive and doing finely on the 10th day, when last heard from. This was among the Union troops. Among the wounded Secesh who fell into our hands, the same rule was adopted, but the result was exactly reversed. Four-fifths of similar cases among them died before the tenth day. This difference in the two classes is due, I believe, to two causes. 1st. The Confederate troops were nearly in a state of starvation, many of them having only roasted green corn in their havresacks. 2nd. It is probable that many of the most favourable cases for operation contrived to crawl away and get carried off on their retreat. There may also be a natural difference in their power of endurance, for it is noticeable through this whole region that the inhabitants have a thin, sallow appearance, which contrasts strongly with the ruddy robustness of our soldiers. In most parts of this region, a ruddy native is a wonder, and a fat one could not be found at all."

VIII. *Account of an Epidemic of Croup, which prevailed in* 1859 *at the Hôpital des Enfants Malades.* By Dr. BRICHETEAU, at that time House-Surgeon to the Hospital. (Gaz. Méd. de Paris, Feb. 7, 1863.)

The number of cases of croup was 208, of diphtheritic affections not attacking the respiratory tract, 23. Of these 231 cases, 160 died; 71 recovered. Most of the patients were in easy circumstances. The reality of contagion was admitted by all the physicians of the hospital. The cases are divided into (1), diphtheritic angina (larynx unaffected); (2), croupal diphtheria limited to the larynx; (3), diphtheritic or complicated croup. The first is the least formidable disease. Of 21 patients, 5 died in consequence of complication due to the malignity of the accompanying fever. The treatment was by emetics, followed by the administration of chlorate of potash, with liberal diet. Caustics were

* A plan of treating fractures of the clavicle, somewhat similar in principle, is given by Dr. Bourgeois, Bull. de Thér., Jan. 1862, tom. lxii. p. 59.

little employed, and were considered almost useless. The second form (true croup) is the one in which tracheotomy has had most success. The attack has fallen at once on the larynx, and symptoms of asphyxia have come on very speedily. Twenty-four cases occurred. Tracheotomy practised at once on the occurrence of symptoms of suffocation, is said to have "almost always succeeded," but the precise figures are not given. The third form was much the most common, embracing 184 of the cases. It almost always began with diphtheritic angina, accompanied by fever, general distress, and swelling of the submaxillary glands, the symptoms of croup following some days afterwards. The causes of death were various. Tracheotomy was not very useful. Still, two patients, on whom it was performed in the last extremity, recovered. But it should not be forgotten that the sequelæ of the operation itself may be fatal. The effects of various drugs are treated of. The treatment which seemed most successful was a stimulating emetic, followed by good diet, the internal administration of chlorate of potash and polygala. Mercury, depletions, caustics, blisters, and tartar-emetic, seemed hurtful.

[On the treatment of diphtheria, see also the same journal, March 7th, 1863, p. 159.]

IX. *General Review of the Progress of Surgery during the Years* 1860 *and* 1861.

The last number of Langenbeck's 'Archiv' (vol. iii., part iii.) contains a voluminous and careful report of the progress of surgery during the years 1860 and 1861, from the pen of Dr. Gurlt. This elaborate performance occupies 575 pages, and contains reviews of the principal surgical works which have appeared during those two years, as well as references to all the fugitive publications and detached cases which appeared worth quoting. We would refer our readers to this publication as being (as far as our examination enables us to judge) far more full and trustworthy than any other similar production in our own language.

X. *Summary.*

We must refer only shortly to the following papers, by reason of our want of space:—

Abscess.—In "abscess from congestion" depending on carious bone, and in fistula the result of chronic abscess, Dr. Notta prescribes the employment of a remedy borrowed from veterinary practice, and called the "Liqueur de Villate." It is composed of—

Liquid subacetate of lead, 30 parts.
Crystallized sulphate of zinc,
Crystallized sulphate of copper, each 15 parts.
White vinegar, 200 parts.

Dissolve the salts in the vinegar, add the subacetate gradually: shake the liquid before using it. This liquid injected daily, sets up active inflammation, and soon produces the exfoliation of the bone and the closing of the fistula. (L'Union Méd., March 3, 5, 1863.)

Amputation.—Another Case of Amputation at the Hip-Joint, in which Hæmorrhage was successfully restrained by Lister's Tourniquet, the Patient being a thin Girl, fifteen years of age, is reported in the Edinburgh Medical Journal, January, 1863, p. 585.—A Case of Amputation near the Trochanters, in which the same Instrument was successfully used. (Ibid., p. 668.)

Anæsthetics.—In the Boston Medical and Surgical Journal, January 29, 1863, is a short article on the dangers of chloroform, with a reference to two or three recent fatal cases of its administration. The author also refers to an article

in the Gazette Médicale de Lyon, which we have not been able to find. The object of both these articles is to keep alive the attention of the profession to this important subject, and to urge the superior safety of sulphuric ether as an anæsthetic.

Aneurysm.—A Case of Traumatic Aneurysm of the Vertebral Artery, owing to a wound between the transverse processes of the second and third cervical vertebræ, in which the disease was mistaken for aneurysm of the carotid, or one of its branches, and the common carotid artery tied, with fatal result. (L'Union Méd., Jan. 20, 1863, p. 143. From a Portuguese medical journal.) —Spontaneous Cure of Aneurysms of the Abdominal Aorta, with Calcification of the Clot. (Edin. Med. Journ., Jan. 1863, p. 669.)

Arteries.—Cases of Wounds of Arteries, to show the advantage of tying both ends of the wounded vessel, even when the wound is in a state of inflammation, in opposition to the advice of Dupuytren for the treatment of such cases. (Jarjavay: L'Union Méd., Jan. 17, 1863, p. 115.)

Breast.—On the Treatment of Adenocele and Irritable Tumours of the Mamma by Compression. M. Paul Broca. (Gaz. Méd. de Paris, January 10, 1863, p. 33.)

Croup.—Observations on Twenty-seven Cases of Croup, and Seventeen of Tracheotomy. Dr. Burow, Jun. (Deutsche Klinik, Feb. 7, 1863.)

Écraseur.—Use of the Écraseur in the Removal of a Tumour of the Tonsil and Soft Palate, after the internal carotid artery, jugular vein, &c., had been dissected away from the tumour. M. Demarquay. (L'Union Médicale, Dec. 27, 1862, p. 605.)

Fracture.—Ununited Fracture of both Bones of the Fore-arm, with great Displacement of the ends of the Radius. Sub-periosteal resection of the fractured ends of the radius was attempted, but found impracticable. Firm union of the fracture of both bones, with perfect use of the limb, was obtained after ordinary resection of the fractured ends of the radius only. (Berend. Allg. Med. Cent. Zeitung, xxxi. 21, 1862; and Schmidt's Jahrbücher, 1863, vol. cxvii. p. 195.)—On the Inequality of Length in the Limbs which is natural to certain Professions, and the importance of taking this into consideration in the diagnosis of fracture. Dr. Duparque. (Gazette Hebd. de Méd. et de Chir., Jan. 23, 1863, p. 55.)—A Case of Comminuted Depressed Fracture of the Sternum, and Abscess in the Anterior Mediastinum, terminating favourably after an attack of Pyæmia. (Edinb. Med. Journal, January, 1863, p. 618.)—Case of Two Brothers, each of whom had Fractured both Patellæ, together with the description and drawing of an apparatus for this fracture. (L'Union Méd., Jan. 15, 1863, p. 109.)

Hand.—An Affection of the Fingers and of the Hands, not hitherto described, but probably of rheumatic origin. MM. Mirault and Verneuil. (Gaz. Hebd., Feb. 20, 27, 1863.)

Iliac Fossa, Tumours of.—A Case of Extra-Uterine Fœtation, in which the patient suffered the pains of labour at the full period, which disappeared, leaving a tumour on the right side. After this, she was restored to health, and had two children. Seven years after the original pregnancy, she discharged the fœtal bones by the anus, and recovered perfectly. Guarini. (Observations on Tumours in the Iliac Fossa, Omodei's Annali, November, 1862, p. 255.)

Iridectomy.—A Successful Case in Acute Glaucoma, in which the Pupil was Enlarged at its Upper Part. (Boston Med. and Surg. Journ., Jan. 1, 1863, p. 429.)

Jaws.—On the Treatment of Closure of the Mouth by a Cicatrix passing between the Jaws. (M. Guérin, in Gaz. Méd. de Paris, March 7, 1863, p. 151;

M. Verneuil, in Gaz. Hebd. de Méd. et de Chir., Feb. 13, 1863, p. 97. Ibid., March 6, 1863, p. 152.)

Laryngoscope.—On the Use of the Laryngoscope, and the Application of Medicinal Substances to the Larynx. Dr. E. Fournié. (L'Union Méd., Jan. 31; Feb. 3, 5, 1863.)

Lip, Cancer of.—An Essay on the Geographical Distribution of Epithelial Cancer of the Lip, with observations on other points connected with the disease. By Dr. W. Stricker. Founded on a Dissertation by M. L. Lortet, of Lyons. (Virchow's Archiv, 1862, vol. xxv. p. 600.)

Lip, Congenital Malformation of.—M. Debout publishes a paper in the Bulletin Gén. de Thérapeutique Méd. et Chir., tom. lxiii. pp. 15, 66, on a rare variety of congenital malformation, consisting in a horizontal fissure of the cheek, by which the size of the mouth is extended so as to produce great deformity and an inability to retain the food. One of the two cases quoted, and of which a drawing is given, was under the care of Mr. Rynd, and is extracted from the Dublin Quarterly Journal, April, 1861; the other under that of M. Colson (Bull. de la Soc. de Chir., 2^{me} sér., tom. i. p. 463). The treatment consisted in paring the edges of the cleft, after freeing the flap from adhesion to the jaws, and uniting the edges by the hare-lip suture. It was successful in both cases.

Lithotomy and Lithotrity.—Results of M. Civiale's Practice during the Year 1862 in 69 Cases of Stone. (L'Union Méd., Jan. 25th, 1862, p. 172.)

Lithotrity.—Prof. Santopadre in Omodei's Annali, Jan., 1863, p. 30.

Muscles.—On Progressive Disturbance of the Locomotive Functions ("Ataxie Locomotrice Progressive," or "Maladie de Duchenne"). By M. Ch. Isnard. (L'Union Médicale, Nov. 6th, 13th, 15th, 20th, 1862.)

Ovariotomy.—Experience of this Operation at Strasbourg. (Gaz. Méd. de Paris, Jan. 31st, 1863, p. 73; and Feb. 28th, p. 147.)

Penis, Amputation of.—Prof. Buisson, in Gaz. de Par., 43, 44, 47, 48, 50, 51, 1860; quoted in Schmidt's Jahrb., 1863, vol. cxvii. p. 198; with some additions by Martini.

Periosteum.—Experiments on the Transplantation of Periosteum in the Lower Animals, so as to form New Bone. By Dr. Reinhold Buchholz. (Virchow's Archiv, 1862, vol. xxvi. p. 78.)

Rectum.—Cases in which the Rectum was Wounded by a Clyster-pipe. Dr. Passavant. (Deutsche Klinik, Dec. 20th, 1862; and Jan. 3rd, 1863.)

Rhinoplasty.—Description of a successful Case Five Years and a Half after Operation. M. Sédillot. (L'Union Médicale, Jan. 17th, 1863, p. 127.)

Skull, Fracture of.—A Large Tumour, containing Fluid (probably Subarachnoïdean), in connexion with an old Fracture of the Vault of the Skull. M. Marjolin. (Gaz. Hebd., Jan. 2nd, 1863, p. 13.)

Spine.—On the Curability of the Symptoms of Paralysis in Psoas Abscess. Dr. Leudet. (Gaz. Méd. de Paris, Jan. 17th, 24th, 1863.)

Stricture.—On the Treatment of Stricture by the "Immediate Plan." By Mr. P. C. Smyly. (Dublin Quart. Journ., Feb., 1863, p. 80.)

Syphilis.—A Case in which Secondary Syphilitic Sore-Throat was supposed to be Communicated without Primary Infection. M. Rénard. (L'Union Médicale, Dec. 25th, 1862, p. 578.)—Chronic Affections of the Brain in Constitutional Syphilis. (Klinische Mittheilungen v. d. Med. Abt. des Allg. Krankenhauses in Hamburg, 1863, p. 87.)

Syphilitic Affections of the Nervous System.—By Drs. Quaglino and Scarenzio—viz., Cases of Syphilitic Exudation on the Retina, Syphilitic Retino-Choroiditis, and two Cases of Syphilitic Deposit in the Brain. (Omodei's Annali, June, 1863, p. 58.)

Tongue.—Case of Cold Abscess and of Fistula of the Tongue. By Dr. Fano. (L'Union Médicale, Nov. 20th, 1862, p. 347.)

Tracheotomy.—A case is quoted in the Bull. de Thér., Aug., 1862, in which tracheotomy, performed successfully in a case of croup, was followed by renewed symptoms of asphyxia about a month after the operation. The trachea was again opened at the same part, and two warty growths projecting from the cicatrix of the wound into the interior of the trachea were recognised as the cause of the mischief. These were excised, and their base cauterized. The patient recovered. (Univ. Méd., May, 1862.)—Extraction of a Tracheotomy Tube which had become corroded and slipped into the Left Bronchus. From the Edinburgh Medical Journal. (Boston Medical and Surgical Journal, Dec. 18th, 1862, p. 407.)

Vagina (Malformation).—A Case in which a Cul-de-Sac existed between the Vagina and Rectum, opening externally in the Perinæum near the Vulva, and internally into the Rectum. Partial Cure by Operation. (L'Union Méd., Jan. 6th, 1863, p. 37.)

Veins.—Experiments on the Entrance of Air into the Veins. M. Oré. Jan. 16th, 1863. (Gaz. Heb. de Méd. et de Chir.)

QUARTERLY REPORT ON MIDWIFERY.

By Robert Barnes, M.D., F.R.C.P.

Lecturer on Midwifery at St. Thomas's Hospital, Physician to the Royal Maternity Charity, &c.

I. Diseases of the Unimpregnated State.

1. *Congenital Absence of Uterus.* By Dr. Lissner. (Vierteljahrsschr. f. Gerichtl. und Offentl. Med., Band xxii.; and Mon. f. Geburtsk., December, 1862.)
2. *Uterus Bicornis et Bilocularis: Peritonitis.* By Dr. Beronius. (Preuss. Medicinal-Zeitung, 1862; and Mon. f. Geburtsk., December, 1862.)
3. *The Operative Elongation of Fibrous Uterine Polypi. A Method of Extirpating very Voluminous Polypi.* By Professor Simon, of Rostock. (Mon. f. Geb., December, 1862.)
4. *A Case of Healing of Uterine and Vaginal Cancer.* By Dr. Habit. (Allgem. Wien med. Zeit., 1862; and Mon. f. Geb., December, 1862.)
5. *Fatal Case of Obstruction of the Rectum by an Enlarged Ovary.* By Dr. Parker, of Nova Scotia. (Edinb. Med. Journ., February, 1863.)

1. Dr. Lissner relates a case of a woman, aged thirty-five, who had been married thirteen years, and had never menstruated. She suffered every three weeks from pains. The vagina was a cul-de-sac; no os uteri could be detected; a catheter passed into bladder was easily felt by a finger in the rectum, there being no solid substance intervening.

2. Dr. Beronius relates a remarkable and instructive case of retained blood in an abnormal uterus. A young woman, aged twenty-one, had menstruated from the age of eighteen, at times interruptedly and with pain. When admitted to hospital, she said she had suffered for three weeks from severe pressure and pain in the pelvis, as if something wanted to be forced out. Above

and to the right, through entire length of the vagina, was felt a resisting, nearly cylindrical body, not painful to touch. The os uteri was felt far behind and to left. At the vulva the vaginal wall appeared thinned, and fluctuation was perceptible. A puncture was made; and the finger was passed into a cavity having solid walls, lined with a rough villous membrane. This cavity contained a quantity of blood, partly coagulated, partly dissolved. When emptied, the patient was free from pain. On the fifth day after operation, the patient felt something like a rending in the belly; acute peritonitis set in, and ended fatally in thirty-six hours. Dissection exhibited a two-horned and two-celled uterus. The left uterine cavity had its regularly-formed but short vaginal portion, opening by a normal os in the vagina. The right cavity had also a vaginal portion, but this was so distended by the accumulation of blood, that the cavity of the uterus formed one nearly uniform sac with the vagina; its outer opening was the artificial puncture.

3. Professor Simon suggests a method of overcoming the difficulty of extirpating very large fibrous uterine polypi when fixed in the pelvis, so that neither by finger nor instrument it is possible to reach the pedicle. The necessary condition, he says, of the excision of such tumours, is the diminution of their circumference, for it is only thus room can be gained to reach the stalk. His method consists in making a transverse incision of the body of the polypus, especially of the unyielding part of the capsule, until the tumour, by means of traction exerted on its apex or point, is drawn out longitudinally, and so thinned that it becomes easy by finger and instruments to reach the stalk. This lengthening of a polypus is effected at the expense of its thickness, and is brought about through that property of the fibres of fibrous polypi by which they are enabled to separate from each other in large bundles as soon as the unyielding investment (the hypertrophied mucous membrane, especially the hypertrophied sub-mucous cellular tissue of the uterus) is divided to a considerable extent.

In performing the operation, the point of the polypus is seized by the vulsellum, drawn down, and then free and deep transverse cuts are made in the body of the tumour by a pair of long and sharp-pointed Cooper's scissors. By these incisions the capsule and the subjacent adherent fibrous layers are divided. Generally upon this, the body of the polypus may be easily drawn out and thinned. The Professor relates three cases in which he has resorted to this proceeding with advantage.

4. Dr. Habit relates a case of cure of uterine and vaginal cancer. The patient, aged fifty-three, had suffered from menorrhagia some time; pains and emaciation; and was confined to her bed. The vagina was filled with large granulations and fungous growths; the vaginal portion was fissured, the cervix funnel-shaped, ulcerated; the uterus itself was fixed. A thin, very foul-smelling discharge, with discoloured ichor, escaped copiously. The diagnosis was: ulcerating medullary carcinoma of the uterus and vagina. As radical cure was not looked for, the treatment was simply symptomatic. But gradually the pains and the bleedings ceased. Seven weeks after admission to hospital, examination of the vagina revealed a thick cicatricial mass filling and closing the canal. This mass consisted of easily-bleeding, healthy-looking granulations. No opening could be detected either with finger or sound. The uterus could not be felt either through the rectum or abdominal walls. A catheter passed into the bladder could be plainly felt by a finger in the rectum. The author thinks this is to be added to the rare cases of healing of cancer related by Rokitansky, Kiwisch, Scanzoni, Virchow, Schuh, Aran, and others.

5. Dr. Parker's patient suffered periods of constipation prolonged to several

weeks. The abdomen became tympanitic and painful. Vaginal and rectal exploration demonstrated the existence of a dense tumour occupying the space between these two passages, and almost completely filling the superior two-thirds of the pelvis. It was so firmly impacted or adherent to the surrounding parts, that all efforts made through vagina and rectum to dislodge it failed. There was no disease of the uterus. Neither the gum-elastic catheter, or even the smallest quantity of fluid, could be passed beyond the mass to the promontory of the sacrum. Fluctuation was detected in the mass. The projecting cysts were tapped by a trocar through the vagina. A few ounces of fluid escaped. The bowel was then emptied by injections of soap-suds with ox-gall. The patient was relieved for the time. The cysts were again punctured, and injected with iodine. She ultimately died from the effects of the disease.

II. Labour.

1. *Cæsarian Section with Dilatable Osteomalacic Pelvis.* By Professor Breslau. (Mon. f. Geburtsk., Nov. 1862.)
2. *Remarks on the Preceding Case (of Osteomalacia).* By Professor H. Frey. (Mon. f. Geburtsk., Nov. 1862.)
3. *On Congenital Rickets (Cæsarian Section).* By Professor Hecker. (Mon. f. Geburtsk., Dec. 1862.)

1. Professor Breslau's case of Cæsarian section relates to a woman brought to the Zurich Lying-in Hospital, in January, 1862. She had lived in great poverty, exposed to deep snow in winter, and wet in summer. She had lived on milk, potatoes, and turnips. She had borne four children easily. Ill-health, attended by pains in the back, thighs, and knees, and difficult breathing, dated from the last labour. Gradually great deformity set in. Pseudo-ankylosis of both hip-joints and knee-joints took place. In this state she became pregnant. There was extreme pelvic deformity, resulting in the characteristic key-hole shape of the osteomalacic brim. By means of the fingers it was possible to separate considerably the tubera ischii; but it was not found possible to open the brim sufficiently to extricate the child. Gastrotomy was therefore resolved upon. The child, a small one, but near maturity, was taken out alive; the placenta followed almost immediately. The mother died on the tenth day, after vomiting and other symptoms of collapse. The cause of death was sub-acute peritonitis, caused apparently by the incarceration of a fold of intestine in the uterine wound. A minute anatomical description of the body is given.

2. Professor H. Frey gives a careful anatomical, chemical, and microscopical account of the bones of Professor Breslau's case of osteomalacia. Anatomically the head of the femur exhibited no marked deviation from the normal structure. The chemical constitution also was ordinary; 100 parts, after treatment with distilled water, alcohol, and ether, gave a proportion of 58 of ash. Examining the medullary structures and the Haversian canals, he found that the osseous canals were reduced to thin trabeculæ, and were broken through in consequence of their softening from loss of calcareous constituents; the reticulated layer had been quite loosened, and was found in the medulla. The loosened structure, however, was preserved. The question, what acid had effected this solution of the bone, is doubtful. Frey could not detect any trace of lactic acid. He could find no evidence of this softening process in a piece of the right parietal bone. The body of the penultimate lumbar vertebra, on the other hand, appeared so soft that it was easily cut in thin slices with a sharp knife. The cellular spaces and the medullary cells were much enlarged, and filled with a red or yellow-brown mass. This consisted of small granular

medullary cells, and was coloured, so far as could be recognised after long maceration in alcohol, with diffused blood-colouring matter. The borders of the medullary cavity showed broad tracts of decalcified bone-tissue. The Haversian layers were commonly separated from each other, so that on the edges of the section the trabeculæ of the osteo-genetic membrane came out in their flexible and soft condition, yielding to every pressure of the stage-glass. What was especially instructive were certain localities where, in the centre of ordinary calcareous bone, the structure was decalcified, the soft osteo-genetic membrane coming into prominence.

The pubic bone and the ischium were easily cut through by the knife, here and there harder spots appearing. There was a marked thickening of the periosteum, which could be removed in layers. The outer layers were ordinary periosteal tissue; the deeper ones showed a trabecular, less developed, cellular tissue, with long cellular corpuscles, and only here and there a fine elastic fibre. Cutting more deeply beneath the periosteum, the microscope revealed only a completely decalcified tissue in distinct lamellæ. No calcareous canals could be seen. The small granular medullary cells had almost disappeared; and in their place were long round spindle-shaped cells, which must be considered cellular-tissue corpuscles.

3. Prof. Hecker describes a case in which the Cæsarian section was resorted to on account of contraction of the pelvic brim from rickets. Twins were extracted living; the mother died in twenty-four hours. The pelvis examined after death gave a conjugate diameter of two inches three-quarters. The history of the patient seemed to prove that the disease was of congenital origin. Her parents said she was born with very short arms; only learned to walk after eighteen months. Hecker says he possesses a skeleton of an infant only ten days old in which the arms are very short. A similar condition has been described by Vrolik as "Osteogenesis imperfecta;" the lower extremities are so bent as to form nearly a circle.

III. The Puerperal State.

1. *Studies on the Temperature during Labour and the Puerperal State.* By Dr. F. Winckel. (Mon. f. Geburtsk., Dec. 1863.)
2. *On the Statistics of Puerperal Diseases in the Vienna Lying-in Hospital.* By Prof. Braun. (Mon. f. Geburtsk., Dec. 1862.)

1. Dr. F. Winckel has availed himself of the opportunities at his command in the Royal University Lying-in Hospital of Berlin to make observations on the temperature of women during labour and the puerperal state. When we reflect, he suggests, that, according to Hecker's opinion, the intensity and succession of the pains have an important influence upon the raising of the temperature soon after labour, the thought will occur, may not the pains themselves be measured by the thermometer? may we not expect to find certain differences between normal and abnormal pains, since the researches of Helmholtz show that the temperature of a muscle affected by tetanus is perceptibly raised?

In 100 observations of pregnant women he found the temperature of the vagina to rise slightly in the evening. The morning mean was 38°·15 Cent., the evening mean 38°·22. This temperature was always the same, and lasted even to a few hours before labour. The expectation, therefore, of being able to prognosticate the advent of pains by the thermometer was not realized.

The mercury always rose much more rapidly during the pains than during the intervals of the pains. The temperature attained its acme at the acme of

the pain, and then quickly sank. He finds that in every natural labour the temperature of the body is somewhat raised, but this rise is very slight.

The temperature during labour still follows the law of increase with the advance of day.

The temperature immediately after labour gave, on an average of 50 cases, 38°·362 C. In comparison with the temperature of the second stage of labour, the temperature was slightly raised when the labour took place in the morning, and slightly lowered as compared with an evening labour.

After every normal labour the temperature rises hourly half a degree Centigrade during the first twelve hours, and then falls during the ensuing twelve hours.

In a case of abnormal or tetanic uterine contraction, caused by ergot during the first stage, the temperature rose from 38°·79 to 39°·15. Immediately after labour it was 39°·5; five hours later it had fallen to 38°·65, and next day to 37°·6.

In another case of difficult labour from stricture of the cervix uteri, a temperature was observed of 39°·75 C.

Many observations follow upon the temperature in various morbid puerperal conditions.

Dr. Winckel concludes that pelvimetry and tocothermometry have undoubtedly a far larger future in store.

2. At a recent meeting of German naturalists and physicians at Karlsbad, Professor Braun gave a summary account of the experience of the Vienna Lying-in Hospital during the eleven years 1850–60. As a contrast to the obstetric practice of this country, and as illustrative of the causes of puerperal fever, this account is interesting. The hospital consists of two chief departments: a school, and a private division. In the latter division, the number of deliveries does not exceed from 300 to 400 yearly, whilst in the school-division they range from 7000 to 8000. The school is subdivided into a department for medical men, and one for midwives; they are distinct, but both are in the general hospital. The first lying-in clinique contains eighteen wards, high, spacious, and not crowded. The rooms for sick puerperal and pregnant women are somewhat defective. There are 479 beds for sick puerperal women, and in every ward an average of twenty-six beds. The instruction goes on the whole year. In the first clinique, from 250 to 300 students were annually received. For each week a fixed number (generally twelve) of practising students were appointed. Amongst these there are no surgeons. A third are foreigners. In the second clinique there were admitted on an average 200 midwives. During the years 1850–1855, with all precautions and use of chlorine-washings, there were the following results:

	No. of Births.	Deaths.	Per cent.
1850	7204	122	1·7
1851	7614	201	2·6
1852	8006	376	4·6
1853	7765	160	2·
1854	7968	614	8·5
1855	6823	370	5·3

From 1849–1853, Professor Braun was assistant, and during this time, with most diligent chlorine-washings (for chloride of lime in ordinary water is of no effect), the mortality in 1852 reached 4·6 per cent. In 1854 and 1855, when Braun was not in Vienna, the same precaution was used, and the proportion of deaths reached to more than eight and five per cent. Here it must be observed that the lower figures only are to be considered right, and that the higher figures must be raised, because during these two years women falling

sick after labour were transferred to the (general) hospital; the lying-in schools having accommodation for the sound only, not for the sick.

The succeeding years show:

	Births.	Deaths.	Per cent.
1856	7446	289	3·
1857	8524	205	2·4
1858	8925	147	1·6
1859	8879	128	1·5
1860	8058	164	2·

In 1856, when Professor Braun, Junior, had charge of the first clinique, and Professor Bartsch of the second clinique, simple washings with soap were used, and the mortality remained low—at least as favourable as in the earlier best years. From 1857–1860, the highest mortality was 2·4 per cent., the lowest 1·5. During this time, about 200 students received instruction, who had acquired skill in operating on the dead body, for such men only are admitted to operate in the clinique. For cleansing the hands, washing with soap and nail-brushes only was resorted to, and no chlorine. Braun considers soap preferable to chloride of lime, which only conceals the smell for a time. The sick patients were not subjected to vaginal examination; the sick were not suffered to die amongst the healthy, but were removed to separate rooms.

The differences between the two cliniques often varied from 1850–1853; the years 1854 and 1855 were ominous for both; the years 1857–1860 showed slight differences, being favourable for both. After ten days the healthy puerperal women are sent to the Foundling, and the sick to the hospital, *except when they present features of interest for instruction.*

The removals to hospital from the two schools are as follows:

	From first or students' clinique.	From second, or midwives' clinique.
1857	3 per cent.	2 per cent.
1858	4 „	2 „
1859	5 „	3 „
1860	5 „	2 „

Thus at least two per cent. more are transferred from the first clinique.

Great pains are taken to disinfect the wards by chlorine and nitrous acid fumes, by periodically excluding patients, during which times thorough aëration and cleansing are practised.

[In spite of all these precautions, it seems impossible to keep puerperal fever absent for any length of time from the hospital. The pernicious influence of hospital-air is strikingly manifested by the fact that here as in other German hospitals there is distinctly recognised a *fever of gravid women*—that is, pregnant women take the hospital-fever, as it may justly be called, before they are delivered.—Reporter.]

IV. Summary.

The following papers are deserving of reference, but are not now analysed for want of space:—

1. Remarks on a Case of Deformity of the Os Coccygis complicating Labour, and Causing Recto-Vaginal Fistula. By John Blair. (Australian Med. Journ., Oct. 1862.)

2. On the Measurement of the Fœtal Head. By Dr. W. M. Turnbull, M.D.

(Australian Med. Journ., Oct. 1862.) Dr. Turnbull gives the measurements of twenty-eight heads of children born in Australia. The results do not differ materially from home averages, and the observations are too few to justify statistical conclusions.

3. The Removal of a Living Child from a Dead Mother. By W. M. Turnbull, M.D. (Australian Med. Journ., Oct. 1862.) In this case, the mother, between six and seven months gone, died suddenly in a fit in the Melbourne Lying-in Hospital. An incision was made through the abdominal parietes, and a female child was extracted. The cord pulsated; the child breathed, and cried freely, and survived four hours.

4. The Origin of the Obliquely Distorted Pelvis, through Disease and Anchylosis of the Sacro-Iliac Synchondrosis, Defended against the "Remarks" of Dr. Olshausen. By Professor Simon Thomas. (Monatsschr. f. Geburtsk., Nov. 1862.) The admirable work of Professor Thomas, of Leyden, on the obliquely-distorted pelvis, has been critically analysed in this Journal. His observation that this distortion might be caused by disease ending in anchylosis of the sacro-iliac synchondrosis, has been denied by Dr. Olshausen. The Leyden Professor devotes a memoir to illustrate and defend his views which merits careful attention.

5. Statistical Report of 1000 Midwifery Cases. By Dr. Lawrence. (Edin. Med. Journ., Feb. 1863.)

6. On some Results of Imperfect Deliverance in Abortions or Labour, especially Fetid Uterine Discharges. By J. Matthews Duncan, M.D. (Edin. Med. Journ., Jan. 1863.)

7. On the Pathology of the so-called Retro-Uterine Hæmatocele. By Dr. Ferber. (Arch. der Heilkunde, 1862.) Dr. Ferber, basing his views upon microscopic investigations, maintains that the so-called retro-uterine hæmatocele is in truth not a simple effusion of blood, but in the first place peritonitis; in fact, a pelvi-peritonitis hæmorrhagica.

8. On Inducing Premature Labour with Caoutchouc Bags. By Dr. Keiller. (Edin. Med. Journ., March, 1863.) Dr. Keiller's object in this paper is to vindicate for himself the priority in the application of the caoutchouc bag as an obstetric instrument. Dr. Keiller also questions the propriety of conducting the operation for the induction of premature labour on the principles recommended and practised by Dr. Barnes—namely, of completing an induced labour at a single sitting, or at a predetermined hour. Concerning the question of priority, the Reporter refers to his original paper in the 'Obstetrical Transactions,' vol. iii., for a full history of the successive applications of the caoutchouc bag to obstetric practice. The chief merit in this respect seems to belong to Professor Braun, who, in 1851, introduced the caoutchouc bag under the name of the colpeurynter, since which time it has been much used abroad to accelerate labour, and to induce labour. The Reporter, however, believes that the form of instrument devised by him for the dilatation of the cervix uteri is the most effective hitherto used. With regard to the second question, that of completing the induction of labour at a predetermined hour, by a combination of proceedings, Dr. Keiller, disputing the soundness of the principle and practice adopted by Dr. Barnes, does not dispute his title to priority here.—[Reporter.]

9. On Intra-Uterine Fœtal Hæmorrhage, accompanied by Diseased Placenta. By Dr. Parker, Nova Scotia. (Edin. Med. Journ., March, 1863.)

10. On Effusions of Blood in the Neighbourhood of the Uterus, or the so-called Peri-uterine Hæmatocele. A thesis for the M.D. degree. By Henry M. Tuckwell, M.A., M.B. Oxon. Oxford, 1863.

MEDICAL INTELLIGENCE.

Registration of Births and Deaths in Ireland.

Sir Robert Peel's Bill has now passed the House of Commons, and will probably soon become law. Its general features are the same as those of the English Act, and, like that, it is based upon the poor-law machinery. The registration of marriages is not included. Parents or others must give notice of births, so that the registration of births will be in some measure compulsory. Certificates of the "cause" of death must also be given by the medical attendants of those who die. This is not left, as in England, to the good will and public spirit of the medical profession, but is to be enforced by the Act. True, no penalty for disobedience is mentioned, but a refusal to "fill up and return" the certificate will be a misdemeanour, and as such punishable by law. Knowing this, the Chief Secretary must laugh in his sleeve when he graciously accepts the thanks of the Irish doctors for kindly omitting the forty shillings penalty inflicted upon their Scottish brethren for non-certification. Of course, there is to be no payment for the certificate. The notion of remunerating medical men for important services rendered to the public is far too Quixotic for our matter-of-fact legislators. "When gentlemen are so anxious to work for nothing, why pay them?"

In October last we reported the resolutions of the British Medical Association, with a short account of previous proceedings in the Social Science Association. The subject has since been vigorously pursued by the latter body, as appears from the following extracts from its "Minutes of Council," &c.: —

Nov. 20th, 1862.—"In pursuance of notice, Mr. Hastings called attention to the following resolutions of Council, passed on the 7th of December, 1861:— 'That a deputation be appointed to confer with the Irish Government, in promotion of an Act for the Registration of Births and Deaths in Ireland; and especially to press upon the Irish Government the expediency of proceeding in this matter on the principles adopted by the Council in their resolution of June 7th, 1860. That the deputation also confer on the same subject with other members of the legislature.'

"Mr. Hastings read communications received from the President of the Royal College of Surgeons in Ireland, and the Secretary of the British Medical Association, offering the co-operation of those bodies in the matter; and it was resolved—

"That the deputation be requested to act forthwith on the subject, to add to their number such members of the Association as may enable them to communicate directly with the Irish Government in Dublin, and to accept the offer of co-operation from the British Medical Association.

"That in the event of the Irish Government declining to accede to the representations of the deputation, the Executive Committee be authorized to prepare a Bill embodying the principles approved by the Association, with a view to its introduction into Parliament."

The deputation met in London on Nov. 29th, 1862, and resolved—

"That the following instructions be sent to the Irish members of the deputation—

"That the Irish members of the deputation be requested to place themselves in communication with the Irish Government for the purpose of ascertaining whether it is proposed to introduce a Bill for the Registration of Births and Deaths in Ireland during the next Session of Parliament, and to urge upon the Government the great importance of framing a Bill upon

the scheme suggested by this Association, and comprised in the following heads—

"1. That there should be local scientific supervision of the registration of births and deaths.

"2. That the office of superintendent registrar of births and deaths be held by persons well acquainted with the physical and biological sciences, versed in sanitary and vital statistics, and qualified to make medico-legal investigations.

"3. That all sickness attended in public institutions, or at the public expense, should be reported to, and registered by, the superintendent registrar.

"4. That the cause or manner of death be in every instance authenticated by a certificate from a duly qualified medical practitioner; and that when such certificate is not delivered to the sub-registrar at the time of registering the death, he shall report the circumstances to the superintendent registrar, who shall forthwith make inquiry into the case.

"5. That the registration of births be compulsory, and that still-births after the six month of pregnancy, when not certified by a legally qualified medical practitioner, should be subject to the regulation stated in the last clause.

"6. That the superintendent registrar should be paid by stipend out of funds provided by Parliament, and be debarred from private medical practice."

The Dublin committee of this deputation—consisting of Lord Talbot de Malahide; Right Hon. Joseph Napier; Neilson Handcock, LL.D.; Dr. Mackesy; Dr. Macdonnell; Dr. Lyons; and Dr. Harkin—had an interview on the 15th of January last with the Chief Secretary, "who heard their representations with great courtesy, and promised to pay them every attention. Sir Robert Peel has since introduced a Bill on the subject, which to some extent carries out the views urged on him by the Deputation. In other respects the measure falls short of what is desired, especially in employing the clerks of Unions as superintendent registrars, instead of the scientific superintendents recommended by the deputation. The deputation, however, consider that their functions, unless further instructions be given by the Council, are now at an end; and that it must rest with that body to decide whether it is expedient to support the measure, or oppose it, or to take no further action on the subject."

The Report, from which the above is a quotation, was presented to the Council on February 19th; and it being considered unadvisable to move further in the matter at present, the Council merely resolved:—"That the Report now read be received and entered on the minutes."

Although the Chief Secretary's measure is an improvement upon his Bill of last year, it manifestly ignores the "instructions" sent by the English portion of the deputation to their Irish colleagues. Not one of the heads of the scheme drawn up in London has been adopted by Government. There is to be no "local scientific supervision" of the returns of births and deaths. The superintendent registrars are not to be men of science, competent to revise the medical certificates, to inquire into doubtful cases, and to promote a correct nomenclature of diseases. No provision is made for the certificated registration of still-births. Certain important duties of a medico-legal nature, which might have been committed to skilled superintendents, in suspicious and non-certified cases, are to be left unperformed. The publication in each district of correct tables of its sickness and mortality, with their causes, has been negatived.

Yet the omission of marriage-registration afforded an excellent opportunity for adopting a really scientific system. There were no established arrangements, as in England, to obstruct a reform, no lawyers to compensate for loss of business. Why, then, was not a creditable measure introduced?

We observe that the following resolution was passed by the Irish Medical

Association in December last:—"That this meeting gives its full concurrence to the principles embodied in the resolutions adopted by the Council of the National Association for the Promotion of Social Science, respecting the registration of births, deaths, and sickness in Ireland." It is nevertheless highly probable that the physicians and surgeons of Ireland did not generally and cordially support those "principles," if they did not formally oppose them. The fact is, that the poor-law medical officers (dispensary and workhouse surgeons) wanted to secure the registrarships under the Bill; and the poor-law Union clerks coveted the superintendent registrarships; and the resolute pressure of these two official bodies, acting in one direction, was too strong to be resisted by a weak Government. A job seems to be inevitable in any legislation for Ireland. The registration of vital statistics will now form a department of the poor-law in all but its central office. Let us hope that the poor-law guardians will not make the acquisition of the registrarships a plea for keeping down the salaries of their hard-worked and badly-paid medical officers.

A provision for the payment of a small fee for every medical certificate, properly filled-up, of the proximate cause or manner of death—adding, if possible, the causes or antecedents of the fatal illness—would have been a greater boon to the whole profession than the registration-shillings to be appropriated by the dispensary-surgeons only; and, what is of greater moment, it would have immensely increased the scientific value of the mortuary returns. The local boards might then have been left at liberty to appoint a humbler class of persons, like the majority of English registrars—e.g., schoolmasters or good scriveners; and the measure would have been perfected by a scientific machinery for local supervision.

The Report of the Social Science Deputation does not tell us what were the precise propositions actually submitted to Sir Robert Peel, and how they were supported by the Dublin Committee. We are quite sure that Dr. Mackesy, the worthy President of the College of Surgeons, and Dr. Harkin, of Belfast, adhered firmly to the principles which they have so ably and consistently defended. But it is rumoured that other members of the deputation threw overboard the proposed registration of sickness and the medico-legal functions of the superintendent-registrar. The official reasons for omitting "sickness" are said to have been, that the returns of the dispensary and workhouse surgeons are collected, tabulated, and arranged by the central office; and that statistics of disease are included in the decennial census! A continuous, regular, and systematic *local* investigation into the circumstances and causes of sickness and mortality, by independent scientific officers, with prompt utilization of the leading facts in every district, for the public safety and in aid of sanitary improvements, seems to have been too grand a scheme for official comprehension. We, in England, know by experience the great difficulty of *localizing* statistical inquiry and sanitary information. In Ireland they appear determined only to *centralize* it.

The opposition of the clerks of unions to the plan of the association is quite intelligible. An able and temperate statement of their case has been published by two of their body; but it does not touch the main points at issue. No one doubts that they are quite as competent as scientific persons to perform all the duties of a so-called superintendent registrar, as defined by Sir R. Peel's Bill, in conformity with the English system; and they modestly disclaim all intention to "superintend" the doctors, professing to be mere collectors and index-makers of the register-books. But their admitted clerkly ability in no way affects the proposal of the reformers—that an entirely new character should be given to the office, and that functions of a supervisory, preventive, and medico-legal character should be connected with it. The argument of the clerks in behalf of an extensive field of observation in vital statistics by no means weakens the force of the scientific claim for local revision of the materials from which con-

clusions are to be drawn, and for the right use of facts on the spot where they happen. The eminent statisticians who have urged the want of some skilled agency to ensure accuracy and completeness in the record of facts and medical statements—without which all generalizations of the kind must be utter fallacies—are quite as fully aware as the attorneys of Cork and Waterford can be of the importance of "a large and wide induction" of particulars, with uniformity in their classification. To assert that all necessary corrections of the district returns can be effected in a metropolitan office is simply absurd. It reminds us of the late Sir James Graham's suggestion, that the duties of a bishop might be performed well enough through the post-office. The case needs no further arguing. When a conclusion is foregone, it is useless to reason. For the present, red tape is triumphant. If the public-health movement now commencing in Ireland should spread as it has done here, the defects of the registration machinery will become as apparent there as they have long been to us. It now only remains for the scientific bodies—if they are in earnest—to seek to introduce gradually into the English system those reforms which have been for three years proposed by the Social Science Association, and sanctioned by the most competent judges.

Proposed Alteration as to the Time of commencing the Winter Session in the London Medical Schools.—The Dissecting System of our London Schools.

We understand that the authorities of the various London medical schools have been invited (in a document issuing from the medical officers and lecturers of the Middlesex Hospital) to consider the advisability of proposing to the medical examining boards that the winter session should commence in the middle instead of at the beginning of the month of October, and continue until the middle of April. For this change the following reasons are assigned:

1. That the vacations of the various medical officers are (under the existing arrangement) limited to the months of August and September.

2. That the month of October is, of the whole year, the finest season for the annual holiday.

3. That owing to the general salubrity of the month of October, the schools at present experience a difficulty in obtaining subjects for dissection at the beginning of the session; whereas if the commencement of the session were postponed, the students would be more likely to be accommodated with subjects early, and commence the session with dissection.

The objection that Easter would frequently fall inconveniently for this arrangement—i.e., about the last week or fortnight of the session—is met by the recommendation that only Good Friday and the following day be given up as a recess. This proposal may undoubtedly be considered to receive much additional weight from the fact that Mr. Charles Hawkins, the Inspector of Anatomy, saw fit, in the early part of 1860, to make a somewhat similar suggestion to the President of the General Council of Medical Education. He then stated that there was, and for some time had existed, a much greater difficulty in supplying the London medical schools with subjects at the beginning of the winter session than towards its close, inasmuch as deaths in the workhouses at the latter period were so much more numerous than at the former,* and that when the time came that he had it in his power to supply them more abundantly, the schools frequently refused to have them because the students had then ceased to dissect, and were preparing for their examination. To this recommendation of the Inspector of

* The subjects for dissection in London are mainly derived from the workhouses, and in the year 1860, Mr. Hawkins stated, on the authority of the Registrar-General, that in the month of March of that year 200 more persons died in the London workhouses than in the month of October of the preceding year.

Anatomy the Medical Council returned answer that the subject did not lie within their province.

The question raised in this recommendation is surely one of no slight importance; and we cannot but think that altogether apart from, and entirely regardless of any consideration of the personal convenience of lecturers, &c., it would be a most wise measure, one acceptable to lecturers and beneficial to the students, to make the London medical session as strictly as possible co-extensive with the period at which the dissecting-rooms can most readily be provided with subjects for dissection. It would be well, as it appears to us, to postpone the commencement of the session, not indeed to the middle of October, but to the beginning of the month of November, thus assimilating the London schools to the Scotch and Irish schools of medicine. Whether it would be desirable that the session, so commencing, should continue until the end of April, or that it should close at the end of March, and thus be only five months in length, is a question which might well receive attention. Possibly some may think that five months devoted to "lecturing" will afford as much material as can be duly digested by our medical classes. However that may be, it appears obvious that the five months so adjusted, in harmony with the opportunities which the Anatomy Inspector has of distributing subjects for dissection, would permit even of more dissection than is required, *provided also* that the arrangements and rules at the various schools *compelled* the students to take advantage of the "dissecting" placed at their disposal. We say this, inasmuch as there can be little doubt, from the complaints which we have heard made by lecturers and demonstrators of anatomy, that the medical students, for some cause or another, do not dissect so closely and perseveringly as they ought to do. We are indeed informed by the Inspector of Anatomy that when he was appointed to his office he made inquiries as to what amount of dissection the teachers would wish each pupil to have, and that the unanimous reply was that each pupil ought to dissect half a subject each winter session; whereas in the middle of December last, when the schools were declining to receive any bodies for dissection until after the Christmas vacation, the supply which had been called for had barely been sufficient to give each pupil *one-eighth* part of a subject. For whereas there were about 1050 medical pupils in London at that time, requiring, according to the opinion of their teachers, 250 bodies for dissection for the first half of the session, the schools *would not receive* much more than *half that number*.

From facts such as this it is manifest that our medical students in London do not dissect as they might and ought to do. How this comes to pass is a question—a *dignus vindice nodus*—which would occupy the consideration of any conclave of lecturers and teachers from the various seats of instruction. It has been remarked that the mass of students would prove more affected towards dissecting, provided that the payment for the "subjects" used was required at the beginning of the session,—at the time, that is, when tickets for the various lectures are taken and paid for by them; and this statement as explained to us would certainly appear, in part at least, to be correct.

Scholarships in Natural Science at Sidney Sussex College, Cambridge.

This college has just issued a notice that two scholarships, of the value of 40*l.* per annum each, will be given this year for Natural Science, the examination to commence October 13, the subjects being electricity, chemistry, geology, and anatomy (human osteology and general anatomy). These scholarships are perfectly open. The successful candidates will be required to enter at the college. Further information may be obtained by application to the Rev.

J. C. W. Ellis, tutor of the college. Other scholarships (ranging in value from 32*l.* to 80*l.* per annum) for classics and mathematics are to be competed for at the same time.

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NOTICE TO READERS.

THE Editor is particularly desirous of having all Reports of Hospitals, Asylums, Sanitary Boards, Scientific Societies, &c., forwarded to him; as also Inaugural Lectures, Dissertations for Theses, Medical and Scientific Addresses, &c.

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